THE HISTORY, AIMS AND METHODS
OF THE
ASSOCIATION OF COLLEGIATE ALUMNAE.

BY MARION TALBOT.

There is nothing to be seen in this world like the beauty of the creation on the enchanted shore of Lake Michigan. This new power, which Americans have developed to express the ideal and spiritual side of man, fills one with awe and wonder, mingled with thanksgiving that such forms of beauty and grace can be conceived and perfected in this new world.

Rapid and wonderful as the development of the artistic sense in this country has been, its forerunner has been the general education of the people,—that education which is neither artistic nor technical, but which is the foundation upon which the solidity and permanence of our greatest works, both of art and of utility, must rest. The progress of education has been the most marked and the most rapid, happily where it was the most needed, among the girls and women of the country.

It seems but a span since the World's Exposition was held in Philadelphia. Even then, in one of the principal cities of this country—and what was true of that city was doubtless true of many—so low was the standard of education that no girl was taught in any public school any of the elements of the higher learning save a little Latin. No steps had been taken in 1876—none, in fact, had been suggested—to prepare girls, as they may be prepared to-day, to pass the tests of the higher scholarship. Neither were they fitted, except in a most superficial way, to help forward the wonderful scientific and industrial development of the period. Fortunately, this defect in the training of girls was not universal in this country. After arduous effort, a few women had fitted themselves to take the courses of study at Michigan University, Cornell University, Wisconsin University, Vassar College, and a little later at Boston University, Wellesley College and Smith College. Still, the number of these women was very small. They had in most cases taken their degrees in order to qualify themselves better as professional teachers. But time developed a new class of college women,—women with more or less of competence and of leisure, who, having been trained while in college in definite aims and in habits of constant and persevering industry, found themselves on graduation cut off by this training from the power to live on easy terms with women less systematically educated. The opportunity for acquaintance and coöperation with
graduates from other colleges was necessarily limited. To an active and conscientious woman these questions soon became pressing—what special value had a college training been to her individually, and how could she best help to forward the aims and ambitions of other students, as well as to bear that part in the life of her own community which was her evident obligation?

It seemed as if it should be the vocation of the college-bred woman of the latter part of the nineteenth century, not only to secure for herself the highest intellectual training, but to make such use of that training as would commend itself to her own conscience, and would satisfy the claim of a higher civilization that she should have a share in uplifting the human race.

It was in the mind of Mrs. Emily Talbot, of Boston, that this ideal was first evolved into a definite working plan, under circumstances which should be narrated and become a part of the history of the Association.

As the mother of two college-bred girls she had often pondered upon these conditions and difficulties opening before women. One day a young woman was announced who apologized for presenting herself without introduction, but, having heard of Mrs. Talbot's interest in college girls, she had ventured to call to see if she could get suggestions how to obtain a position to tutor a few hours weekly. Her family were unwilling she should teach in a school; in fact, were she strong enough, there was no absolute necessity to do so, but to obtain a small independent income was her desire, and within her power, if she could be put on the right path. The situation was carefully examined by question and answer, and thus was laid open a definite case of the attainments and ambitions of the modern type of womanhood, hedged in by the old traditions and prejudices. In that moment, as by an inspiration, the vision dawled of constantly increasing numbers of young women, with similar training and congenial tastes, who by organization and cooperation might advance educational methods, encourage girls in more definite aims, support the struggling student, formulate plans for original investigation, as well as learn to work together in a common interest, with method and harmony and a spirit of self-sacrifice.

The vision soon became a spoken thought. Rapidly the idea was passed on from one to another of the few college women in Boston, and on November 8, 1881, a little company gathered in the hospitable halls of the Massachusetts Institute of Technology for the purpose of considering the advisability of forming an association. There were present seventeen women, representing eight different colleges. It may be well to mention their names, especially since the early interest shown by many of them has grown with time and proved the source of much of the influence and power which the Association now exercises.

There came from

Oberlin College—Anna E. F. Morgan, '66; Ellen A. Hayes, '78; Margaret E. Stratton, '78.

Vassar College—Ellen H. Richards, '70; Florence M. Cushing, '74; Alice Hayes, '81.

University of Michigan—Lucy C. Andrews, '76; Alice E. Freeman, '76; Mary O. Marston, '77.
Cornell University—Mary H. Ladd, '75.
University of Wisconsin—Maria M. Dean, '80; Alma J. Frisby, '78.
Boston University—Sarah L. Miner, '77; Marion Talbot, '80.
Smith College—S. Alice Brown, '81.
Wellesley College—Harriet C. Blake, '80; Edith E. Metcalf, '80.

In accordance with a notice sent to all alumnae of the eight colleges thus associated, residing in New England and New York City, sixty-six women met a Chauncy Hall School, in Boston, on January 14, 1882, and adopted a constitution and elected officers.

At the meeting of the Association held on March 11, 1882, the first after its organization, the President, Mrs. Jennie Field Bashford, addressed the Association and outlined its work. The records contain the following abstract of her address: "She said the members have organized in order better to utilize their privileges in personal education and to perform their duty in respect to popular education. The immediate objects of the meeting may properly be the discussion of topics of common interest, especially those relating to educational matters, and methods of comparative education. It was suggested that a bureau of supply be established, through which members wishing employment and those seeking educated women to fill responsible positions might be brought together. Departments may be formed, devoted to the study of subjects which are frequently neglected in the ordinary college curriculum, such as sanitary science and political economy. The interchange of thought and friendly relations between graduates of different colleges will be most beneficial and helpful."

During the first two years the number of associated institutions was increased by the addition of the Massachusetts Institute of Technology, and of Wesleyan, Kansas, Syracuse and Northwestern Universities. The University of California was admitted in March, 1886, and Bryn Mawr College in October, 1890, making the total number up to the present time fifteen only. The membership has increased to 1,590. It is well to record these facts, for the statement has gone abroad that the Association of Collegiate Alumnae is made up of all graduates from the colleges and universities of the United States which are open to women. Many institutions besides those united in this Association are doing honorable service in behalf of the education of women, and it would be as presumptuous for the Association to attempt to represent all the collegiate work of women as to maintain that its membership list typifies exceptional intellect or attainment. We know only too well that many of the women in our colleges have had but small share in the broadest culture and widest social privileges of to-day. But the intellectual training which they have enjoyed gives them an appreciative interest in all the work of the world, and has placed upon them an added obligation to use their powers in the faithful fulfilment of the every-day duties of life, even if they cannot aspire to the few places in the roll of honor set aside for genius.

The element of variety which is a peculiar characteristic in the membership of this Association of graduates is the source of much enjoyment and satisfaction. The spirit of loyalty to one's Alma Mater is not lessened by contact with rep-
resentatives from other institutions, but is supplemented by a broad interest in collegiate work, and a generous appreciation of efforts made by other colleges.

Members who have had an occasional opportunity to attend the meetings of the Association, and to take some part in its work, were so impressed with the stimulus coming from organized action that they took measures toward the formation of local branch associations. The first organization of this kind was the Washington Branch, which was formally recognized on October 25, 1884. Since that time the number has rapidly increased, and sixteen Branches are now carrying on effective work.

The delightful relations which exist between these Branches and the parent Association, and the spirit of good will which they show toward each other and the common cause make them a strong factor in the influence of the Association. The only law which limits their freedom is that which makes the requirements for regular membership alike for all. In other respects they are free to decide for themselves upon lines of work and methods of administration. Under their auspices a large number of clubs for graduate study have been formed, dealing with such subjects as Sanitary Science, Domestic Economy, Political Science, Pedagogies, Social Science, Latin, German, Greek, Classics, English Literature, English, Modern Poetry, Fiction, General, Local, and American History. In some of these clubs the quality of the work done has been so high as to receive recognition and be accepted as regular graduate work by some of our leading universities.

The encouragement of graduate study has not been limited to the Branches. The Association itself has from the outset given special attention to the subject, and many papers have been read and circulars issued describing in detail opportunities for advanced study in this country and abroad. A particularly important result of activities in this line has been the establishment of fellowships. No work more far-reaching in its influence can be undertaken than the maintenance of fellowships. Members must all feel great pride and pleasure in the fact that they are annually giving to two women opportunities for advanced study and research which but a few years ago the wildest fancy could not have imagined. (In 1886, the Western Association of Collegiate Alumnae, which had been organized in Chicago a few years before, was merged into the Association of Collegiate Alumnae.) It brought with it the noble record of having sustained two fellowships in the University of Michigan, which had been held respectively by Miss Ida M. Street and Miss Arisle M. Young. The following year a European fellowship of five hundred dollars was maintained and awarded to Miss Louisa H. Richardson. So important did the work seem that the Association then decided to support still another fellowship of the value of three hundred and fifty dollars for study in an American university. The holders of the European fellowships since Miss Richardson have been Miss Ruth Gentry and Miss Alice Walton, and of the American fellowship Miss Alice Carter and Miss Susan B. Franklin. A partial fellowship has also been awarded to Miss Julia W. Snow. The record seems small. Its importance, not to the women only who directly share its privileges, but to womankind everywhere, is unbounded. It is impossible to make too strong an appeal to every member to see that the work is royally sustained and enlarged during the years that are to come.

It is significant, that, from the outset, the Association has laid special stress on the necessity of a sound physical basis for mental growth. The first paper presented before it was on "Physical Education," and its first work was the publication of a circular tabulating the work done in physical education by the nine institutions then represented in the Association. It pointed out deficiencies in their systems, and made suggestions, first, to parents; second, to governing bodies which grant degrees to women; and, third, to women studying in those institutions. It is gratifying to notice that some of the defects existing at that time have since been remedied, as may be seen from the tables prepared for the exhibit of the Association in the Department of Liberal Arts of the World's Fair. The most important work, however, in this direction has been the investigation of the effect of college training on the health of women. The method employed was to send circulars to the women graduates of the colleges and universities belonging to the Association. These circulars demanded specific answers to a long list of questions with regard to the health of each graduate before, during, and after college life. The questions were prepared with great care and were heartily endorsed by physicians and other experts. Thirteen hundred and fifty circulars were distributed and over seven hundred were returned,—a large proportion, according to the testimony of statisticians. The information thus obtained with care was tabulated by the Massachusetts Bureau of Statistics of Labor, and strict impartiality in the conclusions drawn was in this way secured. The untiring zeal of the committee, under the able direction of the chairman, Miss Annie G. Howes, was equalled by a valuable and difficult piece of work was accomplished, whose interest and significance seem to increase as time passes. All friends of the better education of women rejoice that the tendency of the testimony was that systematic mental training helps, not hinders, bodily health.

The statistics showed that the conditions of life, during childhood and the year just preceding college life, have an important influence. The Association has therefore devoted considerable time to the consideration of the general subject of health. Various aspects have been discussed in papers on "Physical Training in Preparatory Schools, with Special Reference to Habits of Sleep and the Relation of Diet to School Life," "Physical Training as a Factor in Liberal Education," "The Effect of the Amusements and Occupations of Girls on their School Life," "The Study of New Methods of Physical Education at Wellesley College," "The Development of Children."

Following close upon the investigation of the health of women college graduates, came the publication and distribution of a leaflet calling the attention of parents, guardians, and teachers to some of the chief hindrances to the development of healthy bodies in school-girls, and suggesting remedies. In connection with this an effort was made to obtain in a statistical form some definite information in regard to the life of school-girls before entering college. Although planned with great care, this effort was not fully carried out. The same may be said of a proposed investigation into the causes which lead girls to abandon the college course before its completion, with the special purpose of ascertaining the effects of varying physical conditions on the mental life, and of seeking to point
out those factors which tend to lessen the benefits of thorough intellectual training. Many of the preliminary steps have been taken by the committee in charge of the work, but it is obvious that a great deal of labor is involved and much time must elapse before any definite results of the inquiry can be made known.

These discussions and investigations made the fact clear that hard in hand with the study of school-life should go a similar study of infancy and childhood. Accordingly, in the fall of 1890, steps were taken providing for the presentation of a plan by which those members who were interested could unite in a systematic study of the development of children, with special reference to securing the best basis for their later intellectual life. The special committee has the problem with diligence and care and has had the active cooperation of eminent specialists. The schedules for observations on child-life, which have been prepared, are now ready for use, and it is extremely desirable that as large a number of careful and intelligent observers as possible should join in the study.

In January, 1883, a communication was received from the Massachusetts Society for the University Education of Women, asking the Association to establish a teachers' registry for college-bred women. After careful deliberation, it was decided to impracticable to carry out the plan at that time. The members of the Association, however, did not lose sight of the suggestion. The idea, as developed, has been somewhat modified, as the result of experience, observation and discussion. Papers on “Industrial Education,” “Occupations and Professions for College-bred Women,” “Work for Women in Local History,” “Librarianship as a Profession for College-bred Women,” “Occupations of Women College Graduates,” “Sanitary Work for Women,” “Women in Philanthropic Work,” “The Relation of College Women to Progress in Domestic Science,” “Educated Women as Factors in Industrial Competition,” “The Relation of College Women to Social Need,” have shown that many and varied opportunities for useful employment are open to women. As recently as the time when the suggestion to establish a teachers' registry was made, teaching seemed the one occupation open to all women graduates, regardless of their fitness or ability. The changed condition of affairs has made it essential that the Association should join in the endeavor to elevate the profession of teaching by making known other occupations to women who feel themselves unqualified for teaching, but look upon it as their inevitable vocation.

In 1890, the plan of conducting a Bureau of Occupations was adopted, and, under the able management of Miss Eva M. Tappan, much good work has been done, which may be still further extended in the near future, if the members should do all in their power to increase its efficiency and make known its aims.

Papers on “Women's Gifts to Educational Institutions,” “Endowments and Needs of Women’s Colleges,” “Work of Alumni for their Colleges,” “The Idea of the College,” and “Educational Progress in America,” have corroborated the observation and experience of nearly every member of the Association, and have shown the importance of endeavoring to attract public attention to the financial needs of American colleges and universities. A glance at the list of institutions legally termed colleges, which is given in the report of the Bureau of Education, is a sufficient proof that better colleges, not more colleges are demanded. The Committee on Endowment of Colleges has the difficult but important task of representing the Association in its desire to strengthen already existing institutions for women, and to discourage the establishment of institutions with inadequate endowments. Their work is one which can and should be sustained by each and every alumna.

A Bureau of Collegiate Information has been established, under the direction of Mrs. Kate Morris Cone, of Hartford, Vt. Its aim is to gather information on the various topics related to the higher education of women, for the use of persons making investigations into the different phases of the subject. There is a great demand for articles which treat this subject from the point of view of fact rather than of theory. The cooperation of the members is needed in supplying the Bureau with information of a definite character, in order that its usefulness to inquiring correspondents may be constantly increased. Closely allied with this work is an attempt to make a complete bibliography of the literature pertaining to the higher education of women. This project of work is nearly complete, largely owing to the unceasing labor of Miss E. P. Huntington, and it is very desirable that its early publication should be secured.

It is interesting to note a movement which, though not strictly one of the forms of activity carried on by the Association, is a direct outgrowth of the spirit and purpose which has been fostered by the organization of collegiate women. At one of the meetings held in Washington, a paper was read by Miss Anna W. Foster, on “The Relation of Women to the Governing Boards and Faculties of Colleges.” No definite action on the subject was taken, but since that time several positions of trust, both on governing boards and faculties, have been opened to women. Realizing the seriousness of the responsibilities which have been entrusted to them, the members of this Association, living in and near Boston, who are serving as college trustees, have held several conferences. Five women, representing the governing boards of four different colleges, have joined in the discussion of such subjects as the organization of boards of trustees, methods of financial administration, the selection and appointment of teachers, the relation of alumni trustees to alumni associations, and the status of special students. So much benefit has been derived from the frank and full discussion of these subjects, that this group of women has been asked to serve as a Committee on Collegiate Administration, for the purpose of making still more effective the influence which this Association is striving to wield in behalf of progress in collegiate education for women.

It must be evident that the aim of the Association, viz., to unite alumnae of different institutions for practical educational work, has been attained by simple and direct methods. Its influence has been quiet but constantly growing. Among the many convincing proofs that the existence of the Association is justified, are the facts that its members are exempt from certain examinations at Oxford University, England; that an appeal has come from a high official of the government in India to place the resources of the Association at his service in an attempt to reform their educational system; and that the data and informa-
tion we have collected and can command are constantly sought by educational experts.

In seeking for the factor which has accomplished this result, we find it has been a strict adherence to the fundamental principle of the Association. The members of the Association, while working as individuals in other organizations for many and varied objects, are here bound by one tie; and great as are the temptations to divert the strength of this Association from its legitimate field, the members have refrained from doing so, and by a concentration of effort, which otherwise might easily be squandered, have won respect and confidence, which should be jealously guarded and steadily increased by the faithful loyalty and personal interest of every woman within its ranks. It is, of course, impossible to record the many friendly ties which have been formed, or the helpfulness of the social relations between members, but all these circumstances, no less than more definite intellectual activities, prove the value and importance of the Association.

Henry Drummond has said, "The kingdom of God is a society of the best men working for the best end, with the best methods," and he pleads for its realization in the daily activities of mankind. It is not too much to say that the aim, the method, and the spirit of the Association of Collegiate Alumnae should be in harmony with this thought.

University of Chicago.
May 19, 1893.

APPENDIX I.

CONSTITUTION.

ARTICLE I. This organization shall be known as the Association of Collegiate Alumnae.

ARTICLE II. The object of this Association shall be to unite alumnae of different institutions for practical educational work.

ARTICLE III. Any woman who has received a degree in arts, philosophy, science, or literature from any college, university, or scientific school admitted to the Association is entitled to membership. New institutions shall be admitted on a three-fourths vote of the Executive Committee, confirmed by vote of three-fourths of the members of the Association present at any regular meeting. Notice of such proposed action by the Association shall be given with the call for the meeting.

ARTICLE IV. The officers of the Association shall be a President, six Vice-Presidents, Secretary, Treasurer, and one Director from each State whose resident members number twenty or more, who together shall constitute an Executive Committee, with power to transact the business of the Association in the interim of its meetings. The officers shall be chosen by ballot at the annual meeting of the Association, and shall hold their offices for two years, or until others be chosen in their place, and they shall have power to fill any vacancy that may occur in their number. Seven members of the Executive Committee shall constitute a quorum.

ARTICLE V. The annual meeting of the Association shall be held in October, or at such time as may be appointed by the Association at its preceding meeting. Special meetings may be called by the Secretary at the request of the President, or of three Directors.

ARTICLE VI. No State shall have more than one Director, and, so far as is possible, all the different institutions in the Association shall be represented on the Board of Directors. Each Director shall call at least one meeting annually of the members of the Association resident in the State represented by her, and may call other meetings of the alumnae resident in her State when she deems it advisable. The Directors of neighboring States may, with the consent of the President, call a joint meeting of the alumnae resident in their States. Each Director shall make an annual report to the Association of Collegiate Alumnae.

ARTICLE VII. Branch associations may be formed in accordance with the following provisions:

...
1. They shall cooperate with the Association of Collegiate Alumnae in its general work, while carrying on independent local work.

2. Regular membership shall be limited to graduates eligible to membership in the Association of Collegiate Alumnae, and residing within such distance as may permit their attendance at the meetings. Graduates who have become regular members of a Branch shall thereafter be considered regular members of the Association of Collegiate Alumnae.

3. Each Recording Secretary of a Branch shall make an annual report to the Association of Collegiate Alumnae.

4. Regular members of duly organized Branches shall pay to the General Association, through the Treasurer of their Branch, an annual fee of fifty cents.

5. Branch associations shall make their own by-laws governing all points except those hereby specified.

ARTICLE VIII. An annual assessment of one dollar shall be due from each member at the annual meeting, except in the case of members of duly organized Branches. The names of members shall be stricken from the membership list when three successive annual dues remain unpaid. The President and Treasurer may remit sub silentio any fees when they deem it advisable.

ARTICLE IX. This Constitution may be altered or amended by a vote of three-fourths of the members present at any regular meeting, notice having been given in writing at a previous meeting.

APPENDIX II.

OFFICERS FOR 1892–93.

President. Mrs. ANNIE HOWES BARUS, Vassar College, 1409 30th St., Washington, D.C.

Vice-Presidents.

Mrs. MARTHA FOOTE CROW, Syracuse University,

Mrs. JULIA LATIMER MUNGER, Boston University,

Mrs. HELEN HISCOCK BACKUS, Vassar College,

Miss ANNA R. HAIRE, Smith College,

Mrs. JOSEPHINE SARLES SIMPSON, Wisconsin University,

Miss CLARA BREWSTER POTWIN, Wellesley College, Garden City, L. I.

Secretary.

Miss MARION TALBOT, University of Chicago, Chicago, Ill.

Treasurer.

Mrs. MARY ROBERTS SMITH, Cornell University, Leland Stanford, Jr., University, Palo Alto, Cal.

State Director.

Miss FLORENCE FRAG, California University, 918 Van Ness Ave., San Francisco, Cal.

Miss ADAH J. TODD, Smith College, Boston University, Bridgeport, Conn.

Miss AGNES M. LATHIE, Smith College, 26 Cedar St., Worcester, Mass.

Mrs. MARY WHITNEY CHAPIN, Vassar College, Lake Forest, Ill.

Mrs. MAY WRIGHT SEWALL, Northwestern University, Indianapolis, Ind.

Miss ALLA W. FOSTER, Vassar College, Hotel Elliot, Roxbury, Mass.

Mrs. FRONA M. BROOKS, Smith College, 309 Holly Ave., St. Paul, Minn.

Mrs. ALICE CHIPMAN DEWEY, Michigan University, Ann Arbor, Mich.

Miss EVA M. TAPPA, Vassar College, Hotel Plunkett, Philadelphia Pa.

Miss ALICE WILLIAMS, Michigan University, 106 E. 38th St., New York.

Miss SARAH O. PECK, Vassar College, 1450 St. Clair St., Cleveland, O.


Mrs. LOUISE PROSSER BATES, Boston University, 37 Parade St., Providence, R. I.

Miss MARY L. NELSON, Wisconsin University, Sheboygan, Wis.
APPENDIX III.

CHRONOLOGICAL LIST OF PAPERS AND ADDRESSES GIVEN BEFORE THE ASSOCIATION.

Physical Education of Women—Dr. Adeline S. Whitney.
Opportunities for Post-Graduate Studies—Helen Magill.
New Methods in Physical Education to Wellesley College—Alice E. Freeman.
Industrial Education for Women—Mrs. Evelyn W. Ordway.
Plans for Post-Graduate Study—Mrs. E. H. Richards.
The Idea of the College—Alice E. Freeman.
The Condition of American Colleges for Women—Helen Magill.
Occupations and Professions for College-Bred Women — Jane M. Bancroft.
The Relation between the Home and the College — Emma S. Atkinson.
Duty of College Graduates to Preparatory Schools — Elizabeth B. Root, Mary
H. Ladd, Lepha N. Clarke.
Women's Gifts to Educational Institutions — Mrs. Kate Morris Cone.
Work for Women in Local History — Katherine Conant.
Life in New England a Generation Ago — Mrs. Mary B. Claffin.
Health Statistics of Women College Graduates — Annie G. Howe.
Opportunities for Study at Yale College — Florence M. Cushing.
What Has the Higher Education Yet to Do? — Hildreth E. Hersey.
Opportunities for Study Abroad — Gabrielle D. Clements, Edith E. Metcalf, S.
Alice Brown.
Libraries as an Educational Factor — Melvil Dewey.
Opportunities for Women at Oxford University — Vida D. Scudder.
Librarianship as a Profession for College-Bred Women — Melvil Dewey.
Physical Training in Preparatory Schools — Alice E. Freeman, Alla W. Foster,
Dr. Emma Culbertson, Mrs. Edith Talbot Jackson, Alice H. Luce, Mrs. Alice Pelou-
bet Norton, Mrs. Ellen H. Richards.
Physical Habits and Their Relation to Student Life —
  a Habits of Sleep — Ida Wood.
  b The Relation of Diet to School Life — Lydia M. Dane.
  c Physical Training as a Factor in Liberal Education — Dr. Mary T. Bissell.
The Needs and Endowments of Women's Colleges — Frances M. Abbott.
The Endowment of Colleges — Marion Talbot.
The Opportunities for College-Trained Women in Philanthropic Work — Mrs.
Helen Hiscock Backus, Mrs. Florence Kelly Wisniewskty.
The Effect of the Amusements and Occupations of Girls on Their School Life —
Alice H. Luce, Alice Goddard, Mary M. Deveny, Laura J. Wylie.
The Relation of Women to the Governing Boards and Faculties of Colleges —
Alla W. Foster.
The Occupations of Women College Graduates — Grace W. Soper.
The Practical Value of a Sanitary Science Club — Annie E. Allen.
The Duty of the College Graduate to the English Language — Mary L. Avery.
Clara Hiscock, Elizabeth M. Howe, Clara French, Katherine Lee Bates.
Unity of Standard in College Entrance Examinations — Lucy M. Salmon.
Advantages and Disadvantages of the Certificate System — Mrs. Alice Freeman
Palmer.
The Value of Pedagogics to the College Graduate — Frances W. Lewis.
The Attitude of American Colleges toward Pedagogics — Carla Wunnebach.
Patriotism as an Aim of Collegiate Training —
  a Need of Preparation for Citizenship — Alice Stone Blackwell.
  b The Place of American History and Institutions in the Colleges of the
   Association — Florence M. Cushing.
  c Opportunities for Women in Fostering the American Idea —
    1. As Mothers, Mrs. Mary P. Woodworth;
    2. As Citizens, Marion Talbot.

Work of Alumnae for Their Colleges — Marion Talbot.
An Investigation into the Conditions of Domestic Service — Lucy M. Salmon.
A Basis for Membership in the Association — Marion Talbot.
Causes of Withdrawal from College — Mary S. Case.
The Endowment of Colleges — Alla W. Foster.
George Eliot as a Representative of her Times — Ida M. Street.
The Local Work of the Association — Mrs. Verna Sheldon Hicks.
The Usefulness of Fellowships — Mrs. Christine Ladd Franklin.
The American Fellowship — Anna R. Hair.
The Relation of College Women to Progress in Domestic Science — Mrs.
Ellen H. Richards.
The Relation of College Women to Social Need — Vida D. Scudder.
The Bureau of Collegiate Information — Mrs. Kate Morris Cone.
The Present Status of Collegiate Education for Women — Mrs. Martha Foote
Crow.
The Fellowships of the Association — Mrs. Alice Freeman Palmer.
The Admission of Colleges — Florence M. Cushing.
The Financial Condition and Needs of the Colleges and Universities of Califor-
nia — Millie W. Shinna, Charlotte A. Whitney.
Local Work of Alumnae — Mary E. Duguid.
Educated Women as Factors in Industrial Competition — Eleanor L. Lord.
Educational Progress in America — Mary Osborn Hoyt.
Educational Progress Abroad — Mrs. Martha Foote Crow.
The Administration of Collegiate Beneficiary Funds and Scholarships — Eliza-
beth Deering Hanscom.
Local Work of Alumnae — Elizaebeth Raeburn Hoy.
Recent Educational Progress for Women in Europe and the United States — Ida
Wood, Elizabeth D. Hanscom, Marion Talbot, Mrs. Martha F. Crow.
The Study of the Wages Question — Eleanor L. Lord.

APPENDIX IV.

PLACES OF MEETING.
Chauncy Hall School, Boston. (5)
Massachusetts Institute of Technology, Boston. (4)
Hotel Vendome, Boston. (5)
Boston University, Boston. (6)
Wellesley College, Wellesley, Mass. (4)
The Wellesley School, Philadelphia. (1)
Packer Institute, Brooklyn, New York. (2)
Bryn Mawr College, Bryn Mawr, Pa. (1)
Columbia College, New York. (1)
National Museum, Washington, D. C. (2)
Vassar College, Poughkeepsie, N. Y. (1)
Smith College, Northampton, Mass. (1)
Hotel Brunswick, Boston. (1)
Hotel Brunswick, New York. (1)
Cornell University, Ithaca, New York. (1)
The Stratford, Philadelphia. (1)
Women's Educational and Industrial Union, Buffalo, N. Y. (1)
Woman's Club Rooms, Chicago. (1)
Northwestern University, Evanston, Ill. (1)
The Arno, Washington, D. C. (1)
Columbia University, Washington, D. C. (1)
THE CHALLENGE OF A RETROSPECT

MARION TALBOT

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On September 19, 1892, Alice Freeman Palmer, William Gardner Hale, and I left Boston for Chicago. As we boarded the train at the South Station a friend of mine pressed into my hand a little box. "It holds," she said, "a fragment of Plymouth Rock." This was symbolic of the attitude of our Boston friends toward the new educational venture in Chicago. It was something built on the sands. The academic system with which Boston was familiar was founded upon a rock. Training for the so-called learned professions, primarily the ministry and only very lately the law, medicine, and teaching, was its goal. The traditions which had grown up were almost sacrosanct. It is true that President Eliot's bomb, the elective system, had created some disturbance and aroused consternation for fear that this precious heirloom from the past, the college, should be ruined. And Johns Hopkins University with its new program of graduate work had excited interest, as something novel but not very pertinent to the situation in hand. Wellesley College and Smith College had seen no other way to open educational opportunities to women than by the path which had been laid out by men. Boston University had opened its doors not very long before to both sexes on equal terms. In fact, this was done in the face of the declaration by a distinguished Boston physician that "identical education of the two sexes is a crime before God and humanity that physiology protests against and that experience weeps over. It defies the Roman maxim which physiology has fully justified, 'mens sana in corpore sano.'"
In spite of this step of admitting women, which was considered very radical in the East, even Boston University did not dare venture far from the well-worn road. The New England colleges had the same list of subjects for admission, practically the same entrance examinations, with very slight variations the same curriculum, and closed their halls for three months in the year. No far-reaching changes in the system had taken place in years.

It is not strange that the stories of the new venture in the West stirred interest and provoked criticism which ran even into ridicule.

Among the articles of incorporation of the new University of Chicago was the following: "To provide, impart, and furnish opportunities for all departments of higher education to persons of both sexes on equal terms."

The Faculty, on unprecedentedly large salaries, had been summoned not only from all sections of the United States, Maine to California, but from Canada, Germany, Scotland, and England. They came from Harvard, Cornell, Wisconsin, Princeton, Minneapolis, Columbia, from most of the leading colleges in fact, while nine left the presidencies of colleges or universities to join the new Faculty. Of these persons twenty-five are still in service.

The esteem in which an appointment to the new Faculty was held may be shown in part, certainly, in an amusing way by the academic record of one member of the Faculty, a young Scotman:

A.M., pass degree, 1889, A.M., Honors of the First Class, 1889, University of Edinburgh; first place on the Honors List, with Bruce of Grangehill Fellowship; 1890; Student at Jena, Paris, Cambridge, Berlin, Freiburg; Ferguson Scholarship (open to honoraries of all Scottish Universities), 1889; Assistant Professor of Logic, Edinburgh University, 1888-90; Locumtenens Professor of the Moral Sciences, Cardiff, for Winter term of 1888; Sir William Hamilton Fellow, Edinburgh, 1888, for three years; Shaw Fellow, 1890, for five years; Lecturer of University Association for Education of Women, Edinburgh, 1889, Government Examiner for Degrees in the Moral Sciences, St. Andrews University, 1890, for three years; Lecturer on Logic and Methodology, Sage School of Philosophy, Cornell University, 1891-2.

The crowning academic glory of his career was that he then became Tutor in Political Economy, the University of Chicago.

Forty-three fellows were appointed for the first year, of whom six were women.

There were, moreover, other new features which struck the attention of the educational world:

1. The University was to be in continuous session throughout the year with graduation quarterly. The new President admitted that such a plan would destroy entirely the class spirit, but he also affirmed that there was a certain kind of class spirit which ought to be destroyed.
sire to establish an institution which should not be a rival with the many colleges already in existence, but an institution which should help those colleges....

It is only the man who has made investigation who may teach others to investigate. .... In other words, it is proposed in this institution to make the work of investigation primary, the work of giving instruction secondary.

7. Lecturers and teachers were to be classified as follows: (1) the head professor, (2) the professor, (3) the professor, non-resident, (4) the associate professor, (5) the assistant professor, (6) the instructor, (7) the tutor, (8) the docent, (9) the reader, (10) the lecturer, (11) the fellow, (12) the scholar.

8. Professors were not required to give more than eight or ten hours a week to classroom work, thus making it possible for them to carry on investigation all the time.

9. When the number of students necessitated it, courses were to be duplicated, one section being open to students of grades A, B, and C, and the other to students of grades D and E.

10. To promote more advanced study and individual research, and to bring together instructors and students, seminars were to be organized in various departments of the Colleges. Academic College and University College seminars were to be distinct in the same department.

11. Students were to be examined as to their physical condition on entering and at intervals during their course, and were required to take four half-hours a week of class work in physical culture throughout their course.

12. It was evidently anticipated that certain time-hallowed customs of eastern colleges would prevail in the new institution, judging from the fact that a bond of $200 was required of each student guaranteeing payment of bills and "such sums as may be charged for damage to University property caused by the student's act or neglect."

13. In general, an assistant dean was to be appointed for every one hundred students in a division.

Brief and incomplete as this sketch is, it seems clear why those Boston friends of the academic adventurers were fearful and why a bit of the rock on which New England was founded was given as a talisman. It looked almost as if the whole rock might be needed.

What has happened to these plans in the years that have passed? I shall be brief.

The quarter system has not only remained in force, but has been widely copied.

University Extension Lecture study was abandoned for various causes in 1911, but correspondence study has gained steadily in scope and enrollment.

The University Press has become an increasingly useful and influential division of the University.

The University Affiliations have become less and less formal and mechanical in character, while in general effectiveness they have gained.

The last major of the original type disappeared after the announcement for 1897-98, but the principle of intensive studying of a few subjects has not only been continued, but has been developed.

Entrance examinations were maintained for several years, the number of subjects being increased and conditions amounting to three of the fifteen units being allowed. In the announcement for 1898-99 there appeared for the first time the statement that subject certificates from affiliated and co-operating schools would be accepted. The University had found itself unable single-handed to maintain the entrance examinations. The announcement for 1915-16 indicated another fundamental change. The high schools had been growing more and more discontented with the dominance assumed by the colleges and the policies dictated by them in regard to high-school curricula. At this juncture the University of Chicago decided to receive from approved schools any student graduating with an average grade higher than the passing mark of the school, provided the student offered three units of English and two subjects which had been studied intensively. Otherwise, within rather wide but specified limits, the student might offer any courses accepted by the school for graduation.

After many modifications in the courses of study required for the degree, the principle of continuation and distribution groups of subjects in the Junior Colleges and of intensive work in two fields, i.e., principal and secondary sequences, in the Senior Colleges was adopted in 1912. An interesting principle was adopted at the same time when it was decided to allow students entering with credit for half their college work already done to be excused from all specific requirements provided they presented an acceptable and rational scheme of courses to be followed up to graduation.

The classification of the teaching staff has been reduced from twelve grades to eight. The unhappy head professor was among those to disappear.

Sectioning students by ability has not been effectively put into operation. Its uses as a subject for faculty discussion and controversy are not yet exhausted.

The undergraduate seminars never took form except on paper.
The requirements in physical-culture training have been reduced by one-half, while on the other hand there is more medical supervision and advice.

The two-hundred-dollar bond disappeared in 1896. By that time it had been made perfectly clear that certain types of so-called "college spirit" manifesting itself in destruction of property would be no part of the life at the University of Chicago.

The ratio of one dean to each hundred students was not long maintained. It soon became one to two hundred and remained at that point until the great influx of students after the Great War, when it became about one to three hundred, and now fortunately is reduced so that each dean has about two hundred and fifty students.

In 1892-93 the total number of students was 744, of whom 306, or over 40 per cent, were college graduates. In 1923-24 the total number of students was 13,357, of whom about 35 per cent were college graduates. Students were enrolled the first year from thirty-three states and twelve foreign countries. Last year they came from forty-eight states, the District of Columbia, and thirty-four foreign countries.

It may seem to some that the point of view of the Dean of Women and of one whose academic duties have dealt with the peculiar interests of women is not one from which the various activities of the University can be adequately viewed. I have, however, always looked on my duties as an integral, not an isolated, part of the University administration; but there are a few things which I may say about women especially, since they have a definite bearing on the way in which the University is to determine its policies.

It is obvious that very great changes have taken place in their position. Some of these changes manifest themselves in outward and visible signs easily made the subject of ridicule but less easily understood in their full significance.

If any of you can recall the dress of the woman college student of the nineties and will compare it with that of today, you will admit that the present generation shows much better sense and perhaps as keen an appreciation of the principles of aesthetics. I have already referred to the doubt of women's physical ability to stand the strain of the college course. Some of our chivalrous Faculty once questioned the desirability of requiring our women students to walk so far as Mandel Hall for chapel exercises because of the physical fatigue involved. Today the agility, grace, freedom, and beauty of the daily performances in Ida Noyes gymnasium and swimming-pool fill the eye of the observer with delight, and promise definite gains for the future life of the community.

In opportunities for graduate study by women, while the University stood well-nigh alone in 1892, there are now in many institutions fellowships and assistantships available, and the new Guggenheim Foundation offers its generous opportunities, as our University offered its, on equal terms to men and women. The use to which these opportunities may be put is now the problem which faces women as a practical issue.

Many question today the manners and morals of the young. They always have and probably always will. Some twenty years ago one of the heads of houses, writing of some departure from earlier standards of chaperonage, said, "I don't pretend to understand the social basis of these young people. There seems to be little idea of good form." In recent years young girls have been the victims of a most confusing change in attitude on the part of their elders toward the desired reservations of the later adolescent period; but in the face of the great breakdown of the old safeguards, a breakdown for which the older generation was largely responsible, the young women have come through on the whole with noble testimony to their essential moral dignity and courage.

There has been a marked change in the attitude toward self-support and economic independence. Professor Veblen himself would, I believe, acknowledge that the ideal of conspicuous leisure is far less dominant than when he wrote his brilliant diatribe; not only the daughters and fathers, but the mothers have emerged in large numbers from its restrictive and baneful influence. Practically every woman now is frank to admit that she wishes to train herself for self-support.

The attitude toward marriage, toward motherhood, toward preparation for those fundamental relationships—in earlier times the subject of so dangerous a taboo—has greatly changed. Although in connection with this change there are in some places difficulties and apparent vulgurities, we, at the University, have been comparatively free from these symptoms. Occasional frivolities on the part of some students or their seeming failure to appreciate how greatly the world into which women students come now has altered as compared with that into which those of the nineties came, do indeed disturb us of the Faculty and even provoke our resentment. Occasionally, moreover, we lose our sense of proportion and forget that the general body of our students is serious minded, hard working, and determined to make the most of the chances the University offers. We have indeed good reason, if we are fair minded, to believe that the world will be at least as safe in the hands of those to whom we shall leave it as it has been in our hands.

Brief reference should be made to the new civic responsibilities of women and the preparation of our students for those duties. They are
approaching these duties by what I think is a sound and normal method, namely, that of carrying on efficiently their group activities, in which co-operation and a social spirit are developed.

What now has the University accomplished? I shall not attempt even to sketch its achievements in the different fields of research, from the investigating of far-flung worlds through the evidences of the unfolding of human powers on this little earth to the discovering of healing forces for suffering body and an unhappy world. I shall limit myself to a few of those which are less widely known but are in some respects equally important. I shall begin with one which may seem trivial but whose implications are important. The University has succeeded in keeping the term “coed” out of even its popular speech, and “girls” has given place to “women.” This means a measure of respect for the women which in large degree results through a greater sense of responsibility on their part.

For a similar reason I shall mention the fact that the organized social activities of the students have been maintained on the whole with reasonable standards of expense of money and of time, so moderate, in fact, as to put this phase of University life out of the running, as it were, with many other institutions.

The University was greatly favored in the earliest years in having the interest of Ellen H. Richards, of the faculty of the Massachusetts Institute of Technology. From her came the suggestion of a central kitchen for the women’s halls. She gave generously of her time and thought in working out the plan. The results in efficiency and economy were so striking that it was not difficult to take the later steps leading to the establishment of the University Commons, which is widely known as a very successful method of administering a difficult problem.

Relationships of co-operation between the University and various civic and professional groups, both local and national, have been fostered to a notable degree. It is necessary to name only from those earliest years Mrs. Palmer, Mrs. Young, Dr. Harper, Mr. Laughlin, Mr. Small, Dr. Henderson, Mr. Bemis, Mr. Zeulin, to give a picture of the way in which, down through the years, the University has contributed to the welfare of the community.

Considering the wide diversity of interests and the rapid rate at which the University community has grown, an astonishing amount of friendliness has prevailed. Co-operation between students and Faculty, both personal and official, has been cordial and effective. The recent addition of student members to the Faculty Board of Student Organizations was the realization of a plan which had been urged for more than two decades and from which valuable results are anticipated.

A real contribution to the improvement of educational and administrative policies has been made through the organization and conduct of the women’s houses, which were based on principles of unity, liberty, and equality. The keynote to this was sounded by Alice Freeman Palmer, whom we hold in grateful and affectionate memory for her many services. I remember well how, when I told her of my doubt whether I had had sufficient experience in the personal and official supervision of young women to justify my assuming the duties of the office to which I had been summoned, she said, “All that you need to remember is that you will be an older student among younger students, and an older woman with more experience among younger ones eager to learn.” That the removal of the petty restrictions as to conduct which have been common in colleges admitting women and the encouragement given to the students’ sense of responsibility were followed by satisfactory results was attested by President Harper when he said, “A restraining influence that was good was exerted on the undergraduates by the Houses, especially the Women’s Houses, in which graduate and undergraduate women lived together”; and a little later, “The time will come when every student will be a member of a University House. The development of the University life is largely dependent on the growth of the University Houses.” In 1910, too, Professor Vincent wrote, “The House Organization is notably successful in the case of the Women’s Halls.” In fact, the attempt to contribute to intellectual freedom and independence by providing safe but free domestic and social conditions was so successful that it was accepted as a model in laying the plans for later expansion. President Burton will recall the fact that at one time plans were drawn to provide residence halls for all who needed that form of care and organization and to adopt as nearly as possible the same form of organization for the non-resident students. The experience here has served, without question, as an impetus to other institutions to modify their methods.

I wish to bear testimony especially to the staunch loyalty to high standards of conduct, of scholarship, and of true liberty, social, domestic, and academic, of the women, from those early months when Myra Reynolds, Mabel Banta Beeson, and Elizabeth Wallace were fellows, and Edith Foster Flint, Cora Gettys, Stella Robertson Stagg, Agnes Cook Gale, Leila Fish Mallory, and Cora Roche Howland were young students, all through the years which have seen about eight thousand women go through the University and receive its degrees and tens of thousands of others have been within its gates.

When the United States entered the war, the attitude of the women of the University was that their duty was not only to do each her part as
an individual, but to do all possible as a group so as to make it easier for the men to do those things peculiarly theirs in that great crisis. So in time of peace, the women have been proud to know that it was for them to contribute to high achievements in scholarship and to maintain fine standards in manners, and noble ideals of character.

It is impossible to overestimate the value to education of the Summer Quarter. A study of the records would show how the spirit of the University has aroused the intellectual ambition of many a student who perhaps came first in a perfunctory manner and was then impelled to go on. Then there is the woman who succeeded after eight years of summer work in securing her degree and has been in the succeeding years one of the most valuable members of the University staff. Or, again, the woman who, widowed and thrown on her own resources to care for herself and her two children, used her vacations and graduated with Phi Beta Kappa rank to go back to a higher-grade position in her school, is another case where the individual results would justify in large measure the maintenance of this feature of the University. But, beyond this, we all know that its influence on general standards of education and on the encouragement of advanced scholarship has been inestimable.

Education has been formally recognized as a continuing process through life. From the nursery school through elementary and secondary schools on through college, graduate, and professional schools, all are learning under the direction of the University—teachers and taught. I have said, "under the direction of the University." This is, however, only partly true, since there is no organization effectively giving that direction. However, persons representing all grades of maturity and advancement meet in the halls, classrooms, libraries, laboratories, dramatic and athletic exhibitions, playgrounds, and social gatherings, and the essential unity of the educational process finds recognition in the structure, though that structure is as yet not well articulated.

We have convinced ourselves that the ability to go on with advanced education depends not so much on what a student has learned as on the way he has learned, or, in other words, on his mental habits, the development of his intellectual power.

The methods adopted for the admission of selected graduates from high schools who have conformed to certain principles in their selection of studies has given the colleges an entering body of students free from "conditions" and ready to go on, without this handicap, with the two studies already begun in high schools, and begin new studies of college grade. The gain in continuity, as well as in freedom from vexatious re-

requirements which kept the students' attention on subjects of high-school grade, far more than atones, in my opinion, for the absence of certain topics in his preparatory training, especially since the experience of the University has shown great lack of agreement among the members of the Faculty as to what these required subjects should be.

The value of inquiry or research as an educational factor has been recognized even more fully than was anticipated at first. This spirit is inborn. From infancy on, all through those early weeks and months and years the child is experimenting, exploring, and investigating, and incidentally acquiring discipline and skill. This principle is recognized and made use of in the elementary school and the high school of the University. If under the compelling influence of an older educational method we unfortunately abandon this principle to a considerable extent in the colleges, we return to it again in the graduate and professional schools.

It is not, however, true, nor would it be possible, that at times compromises with the ways of the past have not seemed necessary, nor that there have been no difficulties to be met. In the matter of social relationships, such a compromise was the basis of the recognition of the secret societies, the national fraternities among the men, the secret clubs among the women students. The influence of these organizations on the social life of the institution is one confusing to young students and contrary to principles of democratic association. What we desire is that the choices made by those whose capacity for loyalty is great, whose experience is slight, should be quite simple, and that problems of increasing complexity and difficulty be presented to them as their academic life progresses. As it is, probably few more difficult and no more complicated situations are presented than those faced by the incoming Freshmen who are in the group from whom selections for these secret organizations are made.

Reference has been made to the terms of the charter giving equal rights to men and women. This is not to say that prejudice is wholly lacking. The members of our group, men and women alike, represent the limitations as well as the capacities of the communities and institutions from which they come. In the case of the University, as in the case of all institutions, the war brought confusion. The peace brought as disturbing a problem in the increase in the number of students. Great masses of young people had had revealed to them the value of education, and while the number of educated men and women cannot be too great for the community's need, the rate of increase in the number of students may be so rapid that their adequate care and treatment seems for the time impossible. If we are disturbed, however, by the numbers of young persons go-
ing to college, we should rejoice that it is educational institutions that are
thus called on to enlarge their facilities, and not the penitentiary system,
as was the case after the Civil War.

It is clear that, in my judgment, while the University has made no-
fetish of any educational theory because it was old nor been afraid of any
because it was new, it has not been on the whole so startlingly revolution-
ary as my Boston friends anticipated. It has perhaps been seeking that
nutritive value that has been described as the “narrow of tradition”
while looking toward the new day without fear.

But with the limitations which all acknowledge, the record of the
years from 1892 to 1925 is a great one. It presents a challenge—how shall
it be met?

The University of Chicago, if true to the ideals on which it was estab-
lished, will do much in the future toward raising the status of women stu-
dents and produce even more women graduates of distinction whose influ-
ence on young people through the school and the home will bring to the
enrichment of the University and later of the community a stream of
strong and able youth. It should make a great contribution through the
encouragement it gives its women members toward the development of
those resources of the world which are in the keeping of women and which
they are called upon more and more to contribute to the progress of civil-
zation. It should answer in no uncertain terms the question as to whether
women are to be given reasonable freedom and equality and opportunities
for the use of their powers in the field of advanced scholarship. I would
paraphrase the dictum of a distinguished scholar that “no civilization can
remain the highest if another civilization adds to the intelligence of its
men the intelligence of its women” by saying that no university can re-
main the highest if another university adds to the intelligence of its men
the intelligence of its women.

In the years that have lapsed, the different fields of human knowledge
have expanded greatly, and there are many indications that the attempt
to maintain our different departments on absolutely distinct lines results
in serious overlapping, with its resulting waste of resources. An intensive
study of the workings of the old departmental system with a view to more
effective co-ordination is called for in the near future and may conceivably
lead to a complete reorganization. The pigeonholing of knowledge must
be abandoned and its essential unity recognized by devices not now in use.

The arrangement of the American college which is heard from every
side includes many charges. Prominent among these is the lack of seri-
ousness coupled with lack of social response which prevails among college
students. I believe that the condition seems more serious than it really is
because of the conspicuousness of those who are responsible for it.

There never was a time when more young people were thinking seri-
ously on problems of social injustice, of international and race relations,
and of religion than the present. We do not give as much head to these
young people as we should. At the same time I admit that there is some
ground for the charge. In so far as it is true, it presents a very real chal-
lenge to us, to solve the general problem of domestic and social relation-
ships with the different types of pleasures and profit involved in them.
The University’s policy of recognizing the value of spontaneity in the
formation of student groups has been admirable in its results, but should
be greatly extended in the future under the direction of a skilled leader,
trained in the educational value of recreation and of varied social contacts
and recognized as an expert in modern methods of contributing to the
complete development of human powers through “freedom and a variety
of situation,” as Humboldt expressed it. The urgent desire of the stu-
dents, supported as it has been by the expressed judgment of a member of
the Faculty, should be gratified in the near future.

We have been hearing much of the University as a place for the train-
ing of leaders—of course we mean good leaders. A sound democracy needs
not merely leaders. It needs also a citizenry that does not follow after
false gods, who are trained to recognize and to choose wise leaders. I
remember well hearing William James say, “The best claim that a college
education can possibly make on your respect, the best thing it can aspire
to accomplish for you is this: That it should help you to know a good man
when you see him . . . . The sense for human superiors and of their value.
Because of this we need close and constant contacts between leaders and
those not only who are to be future leaders, but those who are to choose
leaders and follow them. I cannot help thinking that we should miss many
from the ranks of our academic leaders here in the University if as under-
graduates they had not had their gaze turned toward the graduate schools
and worked under men of distinction in their fields.

I have pointed out that all grades of education are conducted under
the auspices of the University. It seems to me that just here lies its great-
est opportunity and the greatest challenge to its vision and power. The
different administrative units are directed independently of each other.
As President Judson so wisely pointed out four years ago, writing of educa-
tional organization in general, “the college plans are made by one set of
educational authorities, secondary school plans by another and the ele-
mentary school plans by one still different. The lack of co-ordina-
tion all along the line has resulted in a situation which is contrary to all sound educational principles.” This situation is rendered still more serious by the conviction held by many that education consists of essentially distinct stages conforming closely to certain ages, while many others, the majority I believe, are convinced that the process is continuous and not to be delimited arbitrarily by years or even by methods. There seems to be one conclusion to be drawn from these facts. The great work to be done by the University in the near future lies in seeking answers to these questions and devising methods of solving the existing difficulties and defects in educational procedure and administration. The University is founded primarily for research, and there is no larger field open for research than the one I suggest. The graduate school cannot thrive without well-equipped students, the colleges cannot thrive without an understanding of their function in concrete terms as related to preceding and following experiences, the secondary and the elementary schools cannot thrive unless they know what steps may be taken next by their pupils and what will be demanded from them. No single group, wise as it may be in its own field, can reach a sound judgment independently of those in adjacent fields. The University has an unparalleled opportunity to render the highest possible service to the cause of education by establishing an agency for the study of all the interrelated activities and problems of the different divisions of the University. Such a study would be based not merely on the records of students and of Faculties still more carefully kept than they are at present, but on educational research extended along the usual lines. A great fund of information is already in hand in the archives of the University. If it were assembled, co-ordinated, and analyzed, a great flood of light would be thrown on the dark places in the educational field in which we are groping. A still further step which would be essential in testing the soundness of our educational method would be to follow up those who pass out from the University. This would involve a recording and interpreting of their successes and failures so far as these successes or failures seem related to their University experiences, and would be a test of the efficiency of University methods. Such studies would lead naturally to the adoption of administrative devices for co-ordinating more effectively the various parts of the University, for securing coherence with freedom which would eliminate waste and give to the development of University policy a sureness and a certainty not to be obtained by current methods. A no less important result would be the contribution it would make toward better articulation of the various types of educational institutions, especially of secondary schools and universities, throughout the land. I see in this direction the one great challenge which past and present alike present to the University.

I would remind you who are about to go out with the seal of approval of the University that you are to join the ranks of the strong men and women from the University who are not only making this great Middle West a power in the nation, but influencing the life of the world in its remote corners. Take with you the spirit of the University as expressed in its motto, Crescat scientia; via excolatur, “Let knowledge grow from more to more, and so be human life enriched.” Take with you the idealism of this wonderful city which gave to the University a Ryerson and a Hutchinson, take with you a determination to enable the University through you and through coming generations to make manifest the saying of Jesus, “Ye shall know the truth, and the truth shall make you free.”
WITH THE COMPLIMENTS OF
MARION TALBOT
DEAN OF WOMEN

THE UNIVERSITY OF CHICAGO
CHICAGO, ILLINOIS
U.S.A.
THE DUTY AND THE OPPORTUNITY OF THE ASSOCIATION OF COLLEGIATE ALUMNÆ.

BY THE PRESIDENT, MISS MARION TALBOT, DEAN OF THE GRADUATE DEPARTMENT OF THE UNIVERSITY OF CHICAGO.
DELIVERED AT THE ANNUAL MEETING, DETROIT, OCT. 29, 1897.

A writer on American educational interests and needs has recently made the statement that "Education leads to ambition, ambition leads to discontent," and from this idea evolves some astounding views concerning the "pernicious fruits of free compulsory education." He considers that "probably in our whole system, there is no principle so fundamentally untrue, certainly none fraught with so much social and political peril for the future as that education in itself and for all is a good and desirable possession."

Other writers have raised, of late, such questions as these:—Have not the opportunities for the education of women in our land been sufficiently developed for the present? Is there not danger of over-educating American women? Is it true that our college girls are restless and discontented and unhappy, and that their training is hostile to the best interests of the home? Some of us have heard the question whispered, though it has not yet found its way into print, "Are positions of scholastic honor and responsibility coming to women in just proportion to their ability and training? In other words, are the efforts to promote among women an interest in higher scholarship and an ability to share in solving our national educational problem bringing only a sense of injustice and bitterness to those who sacrifice and toil in order to equip themselves worthily for their task?"

Statements and questions such as these are of value chiefly as indicating the interest of the public mind in educational matters, in general. Almost in proportion as a subject attracts wide-spread attention are there eccentric and grotesque perversions of judgment in relation to it. The world should welcome expressions of this kind,—not for the inherent truth in them,—
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far from it; but for their value as indications of the growing place which the world at large is giving to methods and results in education. The periodical and journalistic literature of the present day is teeming with writings on educational themes and not infrequently a series of articles on such topics is even heralded as a means of attracting subscribers or treated in a style which is frankly announced to be “satirical and humorous.”

A far more wholesome and rational indication that the educational needs of the country are receiving the consideration they deserve may be found in the large number of associations which under one name or another bring together educational experts for conference and counsel. They become leaders in forming correct public sentiment and in seizing upon and carrying out suggestions for reform and for the better adaptation of educational theory to the demands of the nation’s life.

Among the problems which are widely discussed is the education of women, or “the higher education of women”, to use the absurd phrase which is current. There seems to be no easier field for the satirist, the humorist, the scoffer, or the dogmatist to enter. The journalistic vivisection of the college woman which is now going on is an abuse which has not yet attracted the attention of humanitarians or of legislative bodies. Perhaps it is just as well that it should be so; for it serves as evidence that the public mind will consider an important problem, even if it is presented in a form cumbered with untruths and misconceptions. But fortunately there are other methods of treating this problem. All over the land there are groups of men and women, more or less versed in the fundamental conceptions which the problem presents, who are giving it their deepest study and most intelligent consideration. The value of their suggestions and theories is increasing as time brings further experience as a basis for practice. It is not too much to say that among these agencies for good may be ranked the Association of Collegiate Alumnae. No better foundation for a prophecy as to its usefulness in the future can be found than a glance at its past achievements; for in them may be felt the purpose which
The Duty of the Collegiate Alumnae.

inspired its founders and the spirit which controls its present activities.

It is difficult to realize, even for those whose personal experience has been varied and comprehensive, how rapidly opportunities for the education of women have increased in scope and thoroughness. More than a quarter of the present century had passed before an American girl could have even a high-school training unless it could be obtained under private personal direction. The opening of the universities and colleges to women has come within the memory of most of those who are present, and the holding of fellowships, professorships, trusteeships, and other positions of responsibility is of very recent date. Public opinion in regard to the desirability of giving girls a systematic mental training has changed with amazing rapidity; but many of us can easily recall the days when an effort to secure for herself the best intellectual training obtainable marked a young woman as eccentric and quite deserving of social ostracism.

In 1881, under interesting circumstances which I shall not stop to narrate, there came to the mind of Mrs. Emily Talbot, of Boston, as by an inspiration, a vision of constantly increasing numbers of young women with similar training and congenial tastes who by organization and co-operation might advance educational methods, encourage girls in more definite aims, support struggling students, formulate plans for original investigation, as well as learn to work together, in a common interest, with method and harmony and a spirit of self-sacrifice. The vision soon became a spoken thought; the idea was rapidly passed from one to another of the few college women in Boston; and on January 14, 1882, the Association of Collegiate Alumnae was organized, with the object of uniting alumnae of different institutions for practical educational work. The institutions represented were: Cornell University, Vassar College, University of Michigan, University of Wisconsin, Oberlin College, Boston University, Smith College, and Wellesley College. During the next two years, the number of associated institutions was
increased by the addition of the Massachusetts Institute of Technology, and Wesleyan, Kansas, Syracuse, and Northwestern Universities. The University of California was admitted in March, 1886, and Bryn Mawr College in October, 1890, and today Radcliffe College, the University of Chicago, Leland Stanford Jr. University and the University of Minnesota have been admitted; making the total number up to the present time nineteen only, with a membership of over two thousand.

It is well to make known these facts, for the statement has gone abroad that the Association of Collegiate Alumnae is made up of graduates from all the colleges and universities in the United States which are open to women. Many institutions besides those united in this Association are doing honorable service in behalf of the education of women, and it would be as presumptuous for the Association to attempt to represent all the collegiate work of women as to maintain that its membership list typifies exceptional intellectual attainment. We know only too well that many of the women in our colleges have had but a small share in the broadest culture and widest social privileges of to-day; but the intellectual training which they have enjoyed gives them a new interest in the work of the world and has placed upon them an added obligation to use their powers in the faithful fulfilment of the every day duties of life, even if they cannot aspire to the few places in the roll of honor set aside for genius.

Very early in the history of the Association, members who had had an opportunity to attend the meetings and to take some part in its work were so impressed with the stimulus coming from organized action and union that they took measures toward the formation of local branch associations, which now number over twenty and are scattered throughout the country.

In considering the various activities of these associations, it will be found that there has been a strict adherence to the fundamental principle of the original organization. The members of the Association, while working as individuals or in other organizations for many and varied objects, are here bound by
one tie, namely: practical educational work; and great as are the temptations to divert the strength of the Association from its legitimate field, the members have refrained from doing so, and by a concentration of effort, which otherwise might be easily squandered, have secured for the Association an influence which has grown steadily and quietly, and which should be jealously guarded and constantly increased by the faithful, loyal, and personal interest of every woman in its ranks.

It is significant that from the outset, the Association has laid special stress on the necessity for a sound physical basis for mental growth. The first paper presented before it was on Physical Education; and its first practical work was the publication of a circular tabulating the work done in physical education in the nine institutions then represented in the Association, pointing out deficiencies in their systems, and making suggestions: first, to parents; second, to governing bodies which grant degrees to women; and third, to women studying in those institutions.

The investigation made by the Association concerning the effect of college training on the health of women has attracted world-wide notice and all friends of the better education of women have rejoiced that the tendency of the testimony was that systematic mental training helps, not hinders, bodily health. The statistics gathered in this investigation brought out very clearly the significance, from the point of view of health, of the conditions of life during childhood and the years just preceding college life. The result has been that the Association has constantly given time and attention to some of the hindrances to the development of healthy bodies in growing school girls.

The emphasis which has been placed on the subject by the Association has undoubtedly been one of the factors which have led to great improvements both in the practical measures adopted by the institutions to secure a higher standard of health among their women students, and in the attitude of the public toward the problem. The tables prepared for the exhibit of the Association in the Department of Liberal Arts of the World's
Fair showed that many of the defects in the physical education of women which existed at the time at which the Association was organized had been removed; and the progress in this direction has been steadily going on. It is true, however, that only a beginning has been made; the work done by the Association in the past gives very clear evidence of what its duty and responsibility are in the future, in leading public sentiment and in devising practical ways and means of assisting experts who are giving time and thought, in their efforts to better the prevailing conditions.

There should be a standing committee in the Association and in each of its branches which should be charged with the duty of gathering facts and experiences which would be of use in devising better methods, and which should co-operate with the institutions whose efforts to develop physical vigor together with mental strength are progressive and sound. In untold ways the Association, both as a body and through its individual members, can aid in promoting measures which wise educational leaders have commended.

The study given to the conditions of school life have made very clear the fact that hand in hand with it should go a similar study of infancy and childhood. Under the able direction of some of the members, plans were formulated by which alumnae who are interested could unite in the systematic study of the development of young children, with special reference to securing the best basis for later intellectual and physical life. A special committee having this matter in charge has had the active co-operation of eminent specialists.

It seems very desirable that even if the Association does not take further organized measures to conduct this study, it should keep the matter before the attention of its members and be ready to co-operate to the extent of its power with the separate organizations which have been formed for the purpose of child-study.

The second work which the Association undertook was the encouragement of graduate work and the promotion of higher
ideals of scholarship among women. Its practical efforts in this direction seemed at the outset rather radical; the tide of public opinion had not turned even in favor of collegiate work for women, and the opportunities for advanced study beyond the undergraduate courses were very limited. At the second meeting of the Association an outline of the post-graduate courses open to women in this country and abroad was presented, and, later, this report was distributed widely in print. At a time when the scholastic riches of our greatest universities are freely open to women, it is hardly credible that only fifteen years ago regular courses for the higher degrees and the holding of fellowships were almost impracticable for women. The Association has eagerly watched every new opening in this direction and has taken steps to encourage its members to make use of the new opportunities as they have arisen. A peculiarly important practical work in this direction has been the establishment of fellowships, and members of the Association must all feel great pride and pleasure in the fact that since 1890, they have annually given to two women possibilities for advanced study and research which a few years ago the wildest fancy could not have imagined. The influence of this work, not only upon the women who directly share its privileges, but upon womankind everywhere, is unbounded. It is impossible to make too strong an appeal to every member to see that the work is loyally sustained and enlarged during the years that are to come.

Under the auspices of the Branches, a large number of clubs for graduate study have been formed, and in some of them the quality of the work done has been so high as to receive recognition and be accepted as regular graduate work by some of our leading universities.

In uniting the members of different institutions for practical educational work, the founders of the Association had more or less clearly in mind not merely the possible good which might be accomplished in behalf of the general movement for the better education of women, but they had also the hope that the chance thus afforded for the interchange of views among
women from different institutions might result in increasing the intelligent loyalty and efficient service of each member for her own institution. The papers which have been given before the Association on Women's Gifts to Educational Institutions, Endowments and Needs of Women's Colleges, Work of Alumnae for their Colleges, The Idea of the College, and Educational Progress in America, have shown members how they could most efficiently work in strengthening individual institutions. Moreover they have corroborated the observation and experience of nearly every member of the Association and have shown the importance of endeavoring to attract public attention to the financial needs of American colleges and universities. A glance at the list of institutions legally termed colleges, which is given in the report of the National Bureau of Education, or a slight knowledge of the statutes which exist in the different states regulating the authority to confer degrees is a sufficient proof that better colleges not more are needed. The committee on Endowment of Colleges has the difficult but important task of representing the Association in its desire to strengthen already existing institutions and to discourage the establishment of new institutions with inadequate endowment and unscholarly ideals. The duty and opportunity of the Association in this direction are very clear. Although the organized work of the committee has been very effective, there should be supplementary committees in the Branches, co-operating with it in the endeavor to prevent pernicious educational legislation, and to direct educational philanthropy into the most effective channels, and such work, if well organized, needs individual attention from the members and a feeling of personal responsibility.

Another sphere of activity in which the Association has done valuable work has been the making known of new vocations affording useful employment and occupation for women. A long series of papers have been presented to the Association whose aim has been to show that teaching is not the only occupation for women, which all women must enter regardless of their fitness and ability. The Association has a definite duty
and opportunity in joining in the effort to elevate the profession of teaching, and it can meet its obligation in no more effective manner than by making known to women other means of doing efficient service. The good results which come from the interchange of experience cannot be realized more fully than by extending and developing this phase of the Association's work.

Some years ago the Association established a Bureau of Collegiate Information, whose aim has been to gather material on the various topics allied to the education of women for the use of persons making investigations into the different phases of the subject. There is a great demand for studies which treat this subject from the point of view of fact rather than of theory, and not infrequently the Association has been able to give authentic and valuable information to investigators and writers both in this country and abroad. The co-operation of the members is constantly needed in supplying the Bureau with information of a definite character in order that its usefulness to inquiring correspondents may be increased. It is fitting that this Association should stand more and more as a recognized authority on all matters pertaining to the collegiate education of women, and if its voice is to be heard in these matters, it should certainly have at its command all the facts necessary to a sound judgment.

A valuable contribution by the Association to the sum of knowledge concerning the education of women has been the compilation of a Bibliography, recently published by the Trustees of the Boston Public Library. Although this work was done chiefly by two or three members of the Association, nevertheless, many individual members contributed freely of their time and labor, towards gathering, recording, and classifying the bibliographical references relating to the education of women. The future usefulness of the volume will depend largely on the efforts put forth toward keeping it accurate and complete, and it seems as though nearly every member could contribute to this end.

Many members of the Association have observed during
recent years that women seeking to study in foreign universities have frequently retarded the movement in favor of opening the universities to women, either because of their lack of serious purpose or because of their insufficient preliminary training. As the result of extended discussion both in the Association and with the representative officers of foreign universities, a plan has been adopted by which the Association will accredit to foreign universities such women as can give proof of their maturity of mind, adequate training, capacity for advanced work, and earnestness of purpose. In this delicate and difficult task, the Association has been fortunate in securing the cooperation of a large number of men known for their eminence in scholarship and their wisdom as educators; but the successful furtherance of the work will demand the helpful interest of the general body of alumnae of the country.

The most important administrative problem which has ever been before the Association has been the question of the extension of the institutional representation in its membership. The policy of the Association in admitting new colleges has been distinctly conservative. However justifiable and wise its cautiousness may have been in the past, the time has surely come when its real fearlessness and candor should be openly recognized. The subject has so many perplexing phases that it has been difficult to determine the range and method of its investigation. It has called for the serious and extended consideration of the actual conditions, scholastic and administrative, existing in the different institutions open to women. It may be fairly claimed that the work of investigation carried on for many years by various committees of the Association has resulted in much indirect good. While the problem of the admission of colleges may not yet be satisfactorily solved for the Association itself, a great deal has been accomplished in making known to the members at large some of the difficulties which confront the friends and supporters of the best education of women, and, in many cases it is undoubtedly true that weaknesses and defects in college methods have been remedied partly, at least, through the
influence which this extended discussion has exerted. The conviction is very general that in no way can the members better carry out the object of their organization than by endeavoring to raise the standard of collegiate education for women. This can best be done, not by admitting individual institutions in accordance with the enthusiastic judgment and hopeful promises of ardent or partisan friends; but by considering their attitude towards the highest collegiate ideals which are known.

In a brief résumé like this, it is impossible to give even a sketch of all the lines of thought and study which have seemed to the members to come legitimately within the scope of their organization. There is one more, however, which must surely not be overlooked. In nearly all the discussions and investigations which have been carried on, no matter how technical or limited the subject has appeared, the central thought has been how best to utilize for the needs of society and the home the training which the colleges and universities furnish the favored women of our age. This idea has found expression in a still more definite way in the discussions of such special topics as, The Relation between the Home and College; Opportunities for Women as Mothers in Fostering Patriotism; the Relation of College Women to Progress in Domestic Science; Opportunities for College Trained Women in Philanthropic Work; The Conditions of Domestic Service; and, The Relations of College Women to Social Need.

It can but be evident, from this outline of the Association's activities that none would be more eager than the members themselves to assert that a college course is not the end-all nor the be-all of educational method. The notion that women college graduates over-estimate their training and influence may seem to a casual observer to receive some support from the very fact of the existence of such an association as this; but any knowledge of its history or spirit can but show that this idea is erroneous. There may be women who place too high a value on acquirements which when possessed by men seem of mediocre worth; but it is often the fault of unwise and blind friends that
they are put in this false light. The newness of the whole movement must be taken into account in forming a judgment. Nearly all will agree that collegiate training for women is gaining in favor in most parts of the country more rapidly than institutions are showing themselves ready to cope with the questions inherent in the method. The next step, the placing of women of high scholastic attainment in academic positions, will come. But in our eagerness, we fail to see that just here there are many factors to be taken into account. It is true, perhaps it will always be true, that the fact of sex is an obstacle. It should certainly never be a claim to positions of trust and influence in the university world. Patience would be our plea; and patient we may well be on this score when we recall the marvellous record of the past quarter of a century. As time moves on, the day may come when the emphasis which this Association seems to put upon sex may be out of place and when education, not merely women’s education, may be its sphere. There remain, however, many subjects which fitly belong to it in its present form and which should command earnest and loyal attention.

In completing sixteen years of service for the Association, and giving up a trust which I have held most dear, I may be permitted to say that the dreams of its founders have been far more than realized in the past. Its friends can wish nothing better for its future than that its existing possibilities shall in due time prove realities and that in all its career, a wise and generous spirit shall pervade its work.

REPORT OF THE COMMITTEE ON FELLOWSHIPS.

BY THE CHAIRMAN, MRS. BESSIE BRADWELL HELMER, OF CHICAGO.

It is too late in the day to make a plea for the usefulness of fellowships to the members of the Association of Collegiate Alumnae. The superb work of your foreign fellows not only fulfilling the hopes of the founders of the fellowship, but fraught with possibilities of immense importance to the cause
afford the time and means to meet this demand by taking a teacher's course after leaving college. Pedagogy, as taught in college, ought to be, however, not a mere study of methods, but a wise and thoughtful presentation of the history of education and of psychology as applied to education. It should find place only in the last year of the course, when greater concentration on chosen subjects is desirable, and the thought of the student is more definitely directed to what life or work is to follow the college course. This last year, too, should train students more directly on the productive side by a requirement of research, and carefully written papers embodying the results.

I question the wisdom of leaving a pupil in the choice of electives to the sole guidance of the professor in whose department she is to do her special work. Professors with a decided liking for their own and related subjects—which is natural—have often an equally pronounced dislike for others; and their advice is not necessarily of the wisest outside of their own line of work. I should favor a group system that allowed the student great freedom in choosing what pleased her fancy apart from her special subject; or, preferably, an elective system, with certain definite requirements, not limited, however, to any particular year except in the Freshman year. Technical training should be relegated to the technical schools, which, in fact, are meeting this need most admirably. The last year should be largely a year of specialization for those who care to specialize; but many who have no well-defined purpose in view are profited more by continuing several subjects than by giving themselves mainly to one.

The college course should not differ for men and for women. What makes for sound education in the one case must make for sound education in the other. When questions that affect woman's life and relations to society have become of sufficient importance to have a place in the consideration of general questions then they will be a recognized part of larger questions, and will be studied by men as well as by women. The function of the woman's college is not to champion the cause of woman in the battle of life, but to send her forth broadened and strengthened and resourceful to champion her own cause. As a brighter future opens for women, with widened opportunities for study and work, and with increased recognition of their efficiency in various directions, many questions of the curriculum will find their own answer, and women will choose more wisely, because life offers more choices.
SOME FURTHER CONSIDERATIONS ON COLLEGE CURricula:

I.

Before we can discuss the curriculum, we must decide upon the aim of the college education. There seem to be at least two conflicting ideals of education at present struggling for supremacy in the minds of educational experts. The one, by a study of the classic past, aims to give, besides a high mental discipline, an ethical and aesthetic culture. This is the education which the English university aims to give, suitable for a select class who are to be the rulers of the masses.

"This education," says Professor Peck, "should teach serenity of mind — lofiness of purpose, to see straight and to think clearly; should endue the students with a sense of proportion and a luminous philosophy of life," and he adds, "a thing impossible to those who do not draw their inspiration from the thought, the history, and the beauty of the classic past."

James Anthony Froude, in discussing the question, admits that this education does teach a man to be a gentleman, but to be nothing else.

Of the other, we may say that there has grown up an American ideal of education, suited to democratic conditions, which requires that not a select few, but the mass of men, shall be fitted both to be citizens and rulers, and this by study not only of the classic past, but of present conditions.

Perhaps this has never been better expressed than by Huxley: "The aim of college education is to make capable, cultivated, aspiring human beings. The student should become a man whose body is the ready servant of his mind, which does the work with the ease and pleasure that, as a mechanism, it is capable of — a man whose mind is stored with knowledge of the great and fundamental truths of nature and of the laws of her operations who has learned to love all beauty of nature or of art, to hate all vileness, and to respect others as himself. Students so developed will be neither idlers nor only bread-winners, but men and women of fine intelligence and lofty ideals.

We use the term college as distinct from university. Our American colleges do not, and should not, aim to give the scholastic and professional post-graduate education called a university training, which will, in general, be for both sexes and for a limited number.

We will now assume that girls entering the ideal college will bring a good working knowledge of English, having been accustomed to describe clearly, concisely, and accurately all the natural objects and phenomena which have come under their observation. They will have a fair knowledge of at least one ancient and one modern language; will be able to use mathematics through algebra and geometry, and will have acquired, by means of judiciously selected reading, a general knowledge of the chief events of the history of the world. They will bring to the three years of individual growth well-developed bodies and cheerful, eager spirits. They will have that fundamental knowledge of domestic affairs which is every woman's birthright. For the aim of this ideal college course is to fit the individual for better personal satisfaction in life, and for better service to society and the state. Women, not less than men, must be fed with mentally nutritive subjects. By common consent these are, at least, history, science, mathematics, astronomy, physics, chemistry, and the so-called natural sciences. Literature is held by many to belong here, as does anything which furnishes ideas; and as brain no less than muscle grows by use, these ideas are to be acquired by hard work and not by mere lazy absorption. But, simultaneously with acquisition must come expression of ideas — not bare ideas, but ideas clothed with emotion and imagination. Expression in language requires English, French, German, Spanish, or Italian. In the college course it would seem essential that training in language proper should continue in at least one foreign tongue. Language and literature, then, must go through two years, and may go through three and four years. And, since truth and respect for the immutable laws of nature, which cannot be changed or ignored, are taught by science as nothing else can teach them, science must form an essential part of our ideal curriculum. If women need anything different from men, they need this. The average woman to-day confidently expects water to run up-hill, and hot, bad air to come obediently down and go out at the bottom of the room, if it is convenient for her that they should do so.

Drawing, painting, and music, no less than words, express ideas, and this expression and meaning should be taught throughout the course, not as a trade, but as an education. What a source of pleasure for all life to come is the true appreciation of the meaning of music and of the great works of art.
Having given two years of quiet, individual development to the acquisition of ideas and to the means of expressing them, keeping up bodily exercise all the while, in order that the brain may have the best of chemical food, it is time for our college student to take up the relation of the individual to society and of the objects studied to the rest of the universe. Philosophy, psychology, ethics, sanitary, social and political science, history as a science—"the philosophy of history, which is a better and truer term than sociology"—the history of industrial and political progress, should now be brought into the curriculum, to increase the personal resources of the individual, to give an interest in life which will enable the woman to rise above circumstances, however untoward.

Whatever will best develop character, good judgment, sense of justice, power of discrimination, and give mental balance, should be pressed into service.

We have assumed that all through these three years the students have had their own debating societies, plays, athletics, and whatever seems to them worth while for individual recreation and as practice for self-poise, self-command, regard for others, and community life with common interests. In these opportunities lies the great advantage of dormitory life—a cosmos in little.

Whether or not a degree shall be given at the end of these three years, it is too soon to decide, but, in any case, a more practical and serious turn should be given to the fourth year. The young woman, now at twenty-one or twenty-two years of age, begins to look forward to the life that lies before her, and it is nothing less than criminal in the college to allow her to leave its halls with no preparation of mind or body, with no ideals, no ambitions, as to what she may accomplish with that life for which she will most surely be held accountable. The synthetic element in education should now be more strongly emphasized than the analytic. The student should put together that which she has dissected, and show that she really understands the relation of each part to the other. It is just at this point that our education is weakest to-day, from the grammar school up. This year's work should tend to develop the power of the student over herself and her environment. It should show her how to work independently, so that after leaving college she will find the world her field of study and not a dreary waste.

Ellen H. Richards

Massachusetts Institute of Technology
In my opinion this period of four years' training is not intended to fit a young person to earn her living and to do something which will have a direct and definite market value. That function belongs rather to the trade, graduate, or professional school. But it is of great importance, under existing social conditions, to train the women who are going to our colleges to spend wisely, and to use their privileges and meet their responsibilities as members of the leisure class. For, after all, what is involved in this aim of securing the proper discipline of all the higher powers, except that they be used as the tools in social service? The college, then, should give ample opportunity for the direction and expression of these powers as they develop.

It would be interesting to make a historical study of the change of motive in collegiate training from the individualistic need to the larger claims of society as a whole. Very much more remains to be done in this direction. Only a beginning has been made; but we are feeling the rush of the current, and it may be that sometime an appeal will have to be made again for the sacredness of individualism. But, taking things as they are to-day, I am convinced that, as an Association, we should gravely err if we should lay stress on the importance of using these four years for special preparation for wifehood and motherhood. Important as this may be for an unknown 40 per cent. of our college girls, of more importance for 100 per cent. of them is a training which will fit them to meet the obligations of membership in the larger body politic. That this training for a larger service is equally valuable for the 40 per cent. whose interests will lie within the family has been suggested by Miss Jane Addams in a wise paper called "The College Woman and the Family Claim." She says: "There is no doubt that he who finds the family life in its sweetness and strength is he alone who fulfills the larger claim (i.e., of race life), just as truly as he who finds the individual life is he who first loses it."

We need not be alarmed at the specter of a "man-made system of education for women." It was inevitable that the college curriculum should have been devised by men; and I see no reason for resentment of the fact, or for overthrowing, because of it, what has been gained for the higher education of women. If we attempt a woman-made scheme of education for women we shall make a serious blunder. We shall gain our end, the better training of women for life, much more surely if we join with men in developing the theories and practice of the new educational method. My reasons are these:

1. We find that in educational conferences certain principles are being evolved from the normal and fundamental phases of experience, and that these are being adopted as the guiding principles in the training of those faculties and powers which are a common possession of the human race regardless of the individual or the sex.

2. There is no such thing as the college curriculum—a fixed course of study to which all must conform—in any of our best colleges at the present time. Men have outgrown that idea. On the contrary, we see a rapidly increasing opportunity given to the development of individual (which includes sex) gifts and traits.

3. Not only are forces at work leading to the enrichment of every particular branch of knowledge which has been proved to have value as a means of training, but new subjects are constantly showing themselves worthy of a place in the list. The time is easily within the memory of some of us when history and modern languages were first recognized as fit studies for the college. Biology, hygiene, sociology, economics, and other subjects are now gradually making their way with quite as great rapidity as is warranted by the newness and uncertainty of the facts and theories they aim to present. But the recognition given to these new fields of knowledge is a sure proof that educational leaders are seeking to adapt the college training, so far as it relates to the acquisition of facts, to the needs of the present conditions of life.

4. As the aim of bringing the disciplinary training into close relationship with the activities of the individual in the family and in society is gradually taking shape, we see that teachers are relating all subjects of study more and more to domestic, social, and political interests. I could give many instances where large classes of men are studying topics whose interest under an older order of things would have seemed to be limited to women.

Bearing in mind those influences which are now at work and which seem to me to be tending in the right direction, what shall we be justified in expecting the college to offer a young girl?

First, from one to two years devoted to studies which are fundamental in training, such as language and literature, mathematics, science, and history, together with the cultural influences urged by Professor Smith, all presented in such a way as to furnish mental and moral enrichment, organized knowledge, love of learning, and the power to co-ordinate thought and action. Next, a period of free elective courses chosen under direction. During this period the individual needs of several different classes of students may be met.
There are those women who already feel sure of what their future destiny is to be, and wish to continue laying the foundation for the special training which is to fit them to enter on their vocation, be it that of teacher, physician, or wife. There are also those who have an eager thirst for some one kind of knowledge, purely theoretical, perhaps, and seemingly without any practical value, as mathematics, philosophy, or language. As I see evidences of this intellectual need and realize how often and how tragically it has failed of satisfaction in the past, I feel a sense of personal gratitude that the colleges of to-day are offering their rich stores of pure learning so generously to women. There are, besides, students slow in development, but with latent powers, who may make this a period of pure experimentation, and, under wise and sympathetic guidance, feel their way into the work for which they have hidden gifts. Finally, there is the constantly increasing class who are to prepare themselves for a life of general service; and just here comes the need for such general courses as Professor Smith has suggested, whose value for some students cannot be over-estimated.

In presenting this optimistic and conservative view of the subject, I realize fully how far the present collegiate training falls short of our ideals for women. I believe, however, that it will prove better for such an organization as this to lay hold on and foster the influences for good which are now at work than to cast them aside and seek new and untried methods based on sex distinctions. In this way we shall more surely hasten the day when our colleges will send forth students, both men and women, with more effective equipment for a noble service in life.

MARION TALBOT

THE UNIVERSITY OF CHICAGO
A family of two women and a servant kept house for seven weeks in the mountains and entertained several guests. The total number of meals served was 525, or the equivalent of three meals a day for 175 days for one person. The fine groceries were obtained from the city, but other provisions were supplied by the local dealer. Although care was used in purchasing, no special attempt was made to economize, except that no beef was bought, because of its very high price. The cost of the raw material of food was 45½ cents a day, a person. Calculations were made of the food actually consumed, and it was found that each person had been provided daily with 87 grams of proteids, 144 grams of fats, and 405 grams of carbohydrates, making a total of 3,250 Calories, while the proportion of nitrogenous to non-nitrogenous food was 1:8.3.

This study showed that there were several errors in the dietary. Too little proteid or nitrogenous food was supplied. More lean meat, fish, cheese, beans, and macaroni would be an improvement. The amount of fat should be reduced by about one-third. An examination of the bills of fare shows that this could be accomplished by furnishing less butter and olive oil, and by having less deep-fat frying done. A larger amount of fruits and vegetables would serve to keep the bulk of the food large while decreasing the amount of nutriment, which was above the normal. Under the circumstances, however, a specially nourishing bill of fare seemed advisable, although it would doubtless have proved unwholesome, if provided for a considerable period of time.

The labor involved in such a study is not great. The U. S. Department of Agriculture publishes bulletins (Numbers 28 and 142), which give the necessary help. In view of the scientific and painstaking study which farmers are giving to the feeding of stock, it would seem desirable for housekeepers to study more carefully the feeding of their families, with a view to obtaining the greatest efficiency and the highest standard of health.

The University of Chicago, May 1, 1903.

MARION TALBOT.
tions connected with it, and has been preparing what
is likely to prove a valuable report of their work
in the line of domestic service. New York, in a
branch of its Civic League under the direction of
Mrs. Robert Abbe and other women as well known,
is planning for investigation in these lines, and Bos-
ton is making practical tests of some of the new
theories. In short the new comer knocks at every
door, and in this swift moving generation it must,
from the very nature of things, find speedy entrance

long use of household
life of man. It is not co-operation that has brought
them to their present stage of development, but busi-
ness pure and simple; and the time is near when
business will join hands with the new movement
and take the simple, profitable, practical step that
is to follow. At present we creep, but the feet feel
the pull toward natural uses. Soon we shall walk,
and in good time run with joyful mind the race set
before us. God speed the day!
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Apples........... 736

Grapes............ 228

Oranges......... 2,590

Grape fruit..... 15

Tangerines..... 200

Bananas........ 3,000

Lemons......... 1,004

Pomegranates... 25

Melons......... 488

Watermelons... 205

Plums.......... 735

Nectarines.... 330

Peaches.... 332

Apricots...... 50

Pears........ 1,159

Pineapples... 414

Cherries...... 158

Quinces....... 50

Cranberries... 65

Rhubarb....... 659

Strawberries.. 768

Blueberries... 100

Raspberries... 52

Blackberries. 96

Currents..... 96

Bounds. 96

$131.55

67.29

110.75

.66

10.00

81.10

94.85

2.50

12.20

5.25

36.75

4.50

19.62

2.50

57.95

16.54

7.90

.90

3.25

13.18

46.00

8.90

1.50

5.42

4.00

3,000

250.4

30.2

3,066.2

$744.40

132.8

381.3

236

591

148.6

238.2

139

49.2

19

2.4

5.2

29

56.1

30.7

6.9

Total...... 23,374

From the figures obtained from this series of tables the articles of food were grouped into classes, of which the principal ones are shown in Table II. In order to make a comparison from which conclusions might easily be drawn, the figures actually obtained for 1895 are here given recalculated on the basis of the same number of people and days that were factors in the investigation of 1894.

The salient features of the entire investigation are indicated in Table III.

Up to this point the investigation is of value chiefly in adding a series of essentially accurate data to the information already known concerning Amer-
A PRACTICAL EXPERIMENT IN THE STUDY OF DIETARIES.

BY PROF. MARION TALBOT, DEAN IN THE GRADUATE SCHOOL OF THE UNIVERSITY OF CHICAGO.

The science of nutrition is a subject of such recent development that its practical application in the study of dietetics is only just beginning to be possible. Until within a few years the growth of crops and the feeding of domestic animals have been the fields to which the results of discoveries in regard to nutrition, made by physiology, chemistry, bacteriology and kindred sciences, have been chiefly applied. It is a source of satisfaction to observe that the need of extending the present knowledge of nutrition to the care of human beings is gradually receiving more and more recognition.

One of the most notable examples of this new movement toward the better and more intelligent use of food is the experiment which has been recently authorized at the University of Chicago. The results obtained thus far have proved so suggestive and practical as to lead to the belief that similar studies in a modified form would be well worthy the attention of intelligent housekeepers and stewards.

At the opening of the new Women's Halls, October 1, 1893, it was agreed that it was a fitting undertaking to attempt to supplement the intellectual and of the number of meals eaten. A supplementary record was made of the amount and cost of all the food eaten each day, for the purpose of determining readily whether a proper variety and proportion of nutrients were provided daily, and whether the daily expenditure of money were kept duly within the amount appropriated for the purchase of food in its raw state.

The record first indicated is the one from which the following tables are compiled. The books containing the record were examined and a careful tabulation made of the total amount and cost of each article of food consumed during the period of investigation. Following this came a calculation of the amount of nutrients and of Calories—i.e., energy—furnished by each article of food, based on the analyses of König and Atwater with modifications suggested by Mrs. Richards. The following table of fresh fruits is given as an example:

**TABLE I. QUANTITY, COST AND NUTRIENTS OF FRESH FRUIT.**
work of the National Household Economic Association, formed in 1893, having branches in many of our cities, state presidents in all the states, and a definite plan for work as follows:

The object of this association shall be:—1. To awaken the public mind to the importance of establishing bureaus of information where there can be an exchange of wants and needs between employer and employed, in every department of home and social life. 2. To promote among members of the association a more scientific knowledge of the economic value of various foods and fuels; a more intelligent understanding of correct plumbing and drainage in our homes, as well as need for pure water and good light in a sanitarily built house. 3. To secure skilled labor in every department in our homes, and to organize schools of household science and service.

The Federation of Woman’s Clubs has accepted this form as a basis for a section in every woman’s club for the study of household economics, and programmes for this work have been prepared by Dr. Mary Green, Mrs. Kate Watson and Mrs. Helen Campbell. Chicago is discussing earnestly the possibilities of a great training school for mistresses and maids, the organization of household service on a new basis, the forming of a genuine employment bureau, with graded rates of payment, and great central offices—another Bourse de Travail, with even larger scope than that most admirable bureau. Philadelphia, in its Civic League, has formed a branch for this study and the investiga—

—and a recognized footing—wherever thinking men and women work together for that future which is theirs in common.

What is the next practical step for all? Co-operation is the reply of many, but co-operation thus far has failed to demonstrate what its advocates claim for it. The reason is plain. Co-operation means the union of families to perform the business of housekeeping. Families do not, cannot, never will unite!

It is the business which must differentiate—not the families which must combine! The repeated failure of co-operative attempts is not owing to defects in special plan or people, but to a wrong conception of the thing to be done. Thus far it has been a matter in which business initiative has been chiefly ignored. Families have come together with no coherent plan, tried for a time, and given up the experiment in disgust. Builders here and there, as in the plan of Mr. Coleman Stuckert in Chicago, have arranged for a block of dwellings, and waited in vain for tenants willing to bind themselves for a fixed time. Subscriptions have been begged for, endowments sought—all means but the right one discussed, and the subject dismissed as unmanageable.

In the meantime, under our unseeing eyes, evolution has been attending to the matter, and our object lessons are before us in the present gain in the arrangement and scope of restaurants, bakeries, laundries, preserve and pickle factories, and the development of industries contributing to the household
A PRACTICAL EXPERIMENT IN THE STUDY OF DIETARIES.

TABLE II. QUANTITY, COST AND NUTRIENTS OF CHIEF GROUPS OF FOOD PURCHASED IN 1894, WITH APPROXIMATE FIGURES FOR SAME NUMBER OF PEOPLE IN 1895.

<table>
<thead>
<tr>
<th>Year</th>
<th>Group</th>
<th>Total pounds</th>
<th>Average price per pound</th>
<th>Total cost</th>
<th>Pounds of proteid.</th>
<th>Pounds of fat.</th>
<th>Pounds carbohydrates.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1894</td>
<td>Meats and fish</td>
<td>21,647</td>
<td>$0.081</td>
<td>$1,756.19</td>
<td>2559</td>
<td>2260.6</td>
<td></td>
</tr>
<tr>
<td>1895</td>
<td>Meats and fish</td>
<td>17,322</td>
<td>$0.091</td>
<td>1,584.85</td>
<td>2490</td>
<td>2238.3</td>
<td></td>
</tr>
<tr>
<td>1894</td>
<td>Eggs, milk, butter, cheese, sugar</td>
<td>39,179</td>
<td>$0.051</td>
<td>2,015.35</td>
<td>1305.8</td>
<td>3735.3</td>
<td>4997.9</td>
</tr>
<tr>
<td>1895</td>
<td>Eggs, milk, butter, cheese, sugar</td>
<td>45,169</td>
<td>$0.044</td>
<td>1,991.17</td>
<td>1544.4</td>
<td>3825.5</td>
<td>5512.6</td>
</tr>
<tr>
<td>1894</td>
<td>Grains</td>
<td>14,779</td>
<td>$0.042</td>
<td>615.62</td>
<td>1983.3</td>
<td>198.2</td>
<td>9374</td>
</tr>
<tr>
<td>1895</td>
<td>Grains</td>
<td>13,137</td>
<td>$0.036</td>
<td>365.03</td>
<td>281.1</td>
<td>199.6</td>
<td>1264</td>
</tr>
<tr>
<td>1894</td>
<td>Vegetables</td>
<td>21,399</td>
<td>$0.017</td>
<td>315.05</td>
<td>107</td>
<td>76</td>
<td>1391</td>
</tr>
<tr>
<td>1895</td>
<td>Vegetables</td>
<td>21,399</td>
<td>$0.017</td>
<td>315.05</td>
<td>107</td>
<td>76</td>
<td>1391</td>
</tr>
<tr>
<td>1894</td>
<td>Fresh fruit</td>
<td>32,457</td>
<td>$0.017</td>
<td>538.40</td>
<td>154.6</td>
<td>51.2</td>
<td>2764</td>
</tr>
<tr>
<td>1895</td>
<td>Fresh fruit</td>
<td>32,457</td>
<td>$0.017</td>
<td>538.40</td>
<td>154.6</td>
<td>51.2</td>
<td>2764</td>
</tr>
<tr>
<td>1894</td>
<td>Preserved fruit</td>
<td>1,611</td>
<td>$0.094</td>
<td>150.88</td>
<td>28.5</td>
<td>42.5</td>
<td>888.6</td>
</tr>
<tr>
<td>1895</td>
<td>Preserved fruit</td>
<td>1,611</td>
<td>$0.094</td>
<td>150.88</td>
<td>28.5</td>
<td>42.5</td>
<td>888.6</td>
</tr>
</tbody>
</table>

TABLE III. TOTAL AMOUNT PURCHASED AND COST, WITH NUTRIENTS AND NUTRIENT VALUE OF FOOD CONSUMED PER PERSON PER DAY.

<table>
<thead>
<tr>
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<tr>
<td>Pounds</td>
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<td>Grams</td>
<td>Grams</td>
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</tr>
<tr>
<td>1894</td>
<td>$0.25</td>
<td>121</td>
<td>121</td>
<td>381</td>
<td>3,183</td>
</tr>
<tr>
<td>1895</td>
<td>0.241</td>
<td>115</td>
<td>122</td>
<td>408</td>
<td>3,279</td>
</tr>
</tbody>
</table>

* A Calorie is the amount of heat which will raise the temperature of a kilogram of water 1° C.

Calculated by using König's formula: 1 gram proteid = 4.1 Calories, 1 gram fat = 9.3 Calories, 1 gram carbohydrates = 4.1 Calories.

ican dietaries. Its special value will of course lie in the practical suggestions for future use which may be deduced from it by those in charge and which could be more easily seen from a scrutiny of the detailed tables from which these summarized tables were prepared.

It may, however, be of some interest and profit to consider the point presented in Table III, which shows that whereas the daily amount of food and of energy supplied in 1894 was less than in 1895, the cost was greater. This points out the error in the popular belief that the amount of nourishment obtained is measured by the amount of money spent for food. It is, however, necessary to add that this is true only of the 1894 group.
tive material; therefore the larger of the two figures should be the minimum standard.

In families, however, which are subject to intelligent direction, and where the members are taught to co-ordinate both the duty and the pleasure of eating with the other activities of life, it would be a serious mistake to assume that the largest amount of nutritive material which the family could be induced to eat would be the right amount. The tendency in American dietetics seems to be to over-temp the palate by means of the great variety in flavor and form which the markets afford. The consequent taxing of the digestive organs is shown by the widespread disease which prevails from their abuse.

The American housekeeper should learn that, when the system has been provided with the full quantity of food necessary for its complete health and greatest activity, any further amount of food consumed leads not merely to pecuniary waste, but, what is worse, to physiological abuse. The figures given in the table prove that in this case an ample amount of nutritive material was actually consumed,—in fact, taking into account the difference in weight between men and women, a much larger amount than experience has shown to be sufficient. Undoubtedly there may have been individuals who, for different reasons, did not eat so much as they really needed, but, if this were the case, the reverse must have been true, and, in some instances, an unduly large amount may have been eaten.

Hydrates may be more or less substituted for each other, the dietary for 1895 may be chosen as the one with the more nearly theoretically perfect proportions. The modification suggested for the 1894 dietary would be the one actually adopted, as proved by the figures—viz., a larger amount of food containing starch and sugar.

In making a practical application of these conclusions, one consideration remains to be taken into account, which would be of equally great importance in any family where real economy is necessary. During the time covered by the investigation the income received from persons paying board at the rate of $3.50 per week was only sufficiently large to permit of an allowance of 25 cents for raw food material per day per person, including the large staff of servants. The balance of the income was applied to service, fuel, laundry, repairs, breakage and cleaning. An increase of income arising from a larger number of persons paying board would not proportionately increase the running expenses. The question would then be how to expend the larger sum which would be available for food. The figures show plainly that the smaller sum is sufficient to procure the proper amount of nourishment, provided great care is exercised in buying. Whatever is added to the dietary then need not be in the form of true nutrients, but may be furnished as dishes which by greater variety in flavor may add to the attractiveness of the bill of fare, as fresh fruits.
It is frequently asserted even by well-known students of social and industrial problems that the American workingman and his family are better fed than the German or French because they expend a larger amount for their food. This is not a necessary conclusion for two reasons—first, the food may be of less nutritious value though of higher price and of larger quantity; and second, more of it may be wasted in cooking or serving. It is indeed on this very point that there should be more general information, especially among people of limited income. It is trite to say that real economy consists, not in spending a small amount of money, but in securing the full value of the money, and yet very few persons act in accordance with this principle when the purchase of food is concerned.

Another question which may be asked is whether the first series of figures does not represent a sufficiently large amount of potential energy. The reply must be based on a knowledge of the conditions under which the people to be fed are working. In this case their intellectual duties are arduous, their life sedentary and confined, their tastes established either through rational training or as the result of caprice and local custom, while, as is too usual with students, they show little inclination to take wholesome exercise and often ignore the simplest rules of health; therefore every reasonable effort should be made to tempt the appetite with simple, well-cooked, digestible food of the widest practicable variety and attractively served. The limitations and exactions of every kind are such that it is quite safe to seek to provide the largest possible amount of nutri-

The most striking feature of Table III is the increase in weight of the daily amount of raw food material supplied in the second series (one third of a pound daily), while the amount of energy supplied, if increased proportionally, should be 3,393 calories instead of 3,279 as was the case. These figures show very plainly how the ignorant housekeeper or steward may be misled into thinking that more nourishment is supplied, if only the actual weight of the raw material is increased.

The question which naturally arises next is what is the source of this discrepancy, or, in other words, what kinds of food have been supplied in greater amount which have less nutritive value? The answer is plainly given in Table II, which shows that there was a marked increase in 1895 in the amount of fresh vegetables and fruits supplied, and these all contain a large amount of water in proportion to their nutrients. It must be noted, however, that the second series covered the spring and summer months, when such food is easily obtained, as well as the fall and winter, to which the first series was limited. Still another answer is given in the figures which show a smaller amount of grains and of preserved or dried fruits (prunes, raisins, dates, nuts, etc.) which are of high nutrient value when properly used.

...
large amount must have been eaten.

Closely connected with this matter is the question of dietetic standards. Should the proportions of proteids, fats and carbohydrates approximate the first or the second series as shown in Table II? An inspection of the following standard dietaries will help solve this problem:

A comparison of the figures obtained in the experiment with those in the standard American dietaries shows that the amount of carbohydrates in the 1894 ration was too low in proportion to the proteid and fat; on the other hand, in 1895 the carbohydrates were about right, while the fat was a little in excess of the standard. As, however, fats and carbo-

<table>
<thead>
<tr>
<th>STANDARD DIETARIES</th>
<th>Proteid</th>
<th>Fat</th>
<th>Carbohydrates</th>
<th>Total</th>
<th>Potential energy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woman at moderate work (German)</td>
<td>92</td>
<td>44</td>
<td>400</td>
<td>536</td>
<td>2,425</td>
</tr>
<tr>
<td>Man at moderate work (German)</td>
<td>118</td>
<td>56</td>
<td>500</td>
<td>674</td>
<td>3,055</td>
</tr>
<tr>
<td>Man at hard work (German)</td>
<td>145</td>
<td>100</td>
<td>450</td>
<td>695</td>
<td>3,370</td>
</tr>
<tr>
<td>Man with moderate exercise (English)</td>
<td>119</td>
<td>51</td>
<td>581</td>
<td>701</td>
<td>3,140</td>
</tr>
<tr>
<td>Active laborer (English)</td>
<td>156</td>
<td>71</td>
<td>588</td>
<td>795</td>
<td>3,630</td>
</tr>
<tr>
<td>Hard worked laborer (English)</td>
<td>185</td>
<td>71</td>
<td>568</td>
<td>824</td>
<td>3,750</td>
</tr>
<tr>
<td>Woman with light exercise (American)</td>
<td>80</td>
<td>80</td>
<td>300</td>
<td>460</td>
<td>2,300</td>
</tr>
<tr>
<td>Man with light exercise (American)</td>
<td>100</td>
<td>100</td>
<td>360</td>
<td>500</td>
<td>2,815</td>
</tr>
<tr>
<td>Man at moderate work (American)</td>
<td>125</td>
<td>125</td>
<td>450</td>
<td>700</td>
<td>3,520</td>
</tr>
<tr>
<td>Man at hard work (American)</td>
<td>150</td>
<td>150</td>
<td>500</td>
<td>800</td>
<td>4,060</td>
</tr>
</tbody>
</table>

Such a summary as this shows very inadequately the interesting and profitable field of study which should be explored by every responsible and intelligent housekeeper. It is true that the training and knowledge necessary for the most satisfactory results are just coming within reach of students. During the past year or two, however, much printed matter has been published which contains the information necessary as a basis for fruitful and practical study, and it is now a subject of vital concern that the problem of food and feeding should receive some measure of the intelligent attention which it is the duty of the housekeeper to give them.
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—SHAKESPEARE.

VOL. X. SEPTEMBER, 1895. No. 9.

DOMESTIC SCIENCE IN THE COLLEGES.

A N OLD school for girls, recently re-organized, announces among its advantages that it offers two independent courses of study—one for young ladies who expect in this way to complete their school education, and the other for those who wish to be prepared for college. Such a statement indicates a common error. It is often thought that a girl who fits herself for college and later takes the college course, thereby shows her intention of withdrawing from the every-day interests of life. It is frequently assumed that the affairs of the household will seem to her to be of little concern. Such an assumption has its source in the mediæval customs which made the life of the University student that of a recluse. It is a happy tendency of the higher education of our own times that it leads students to bring their intellectual acquirements into practical service and to force upon them their responsibility in the work of the world.

Side by side with this notion that college women must of necessity care little for domestic matters and partly dependent on it, has been urged the plea that the home is woman's sphere, a phrase of rather antique form.

The world is gradually learning that the continuation of a systematic course of study for four years beyond the ordinary school days is far from being a hindrance to the effective power of women, and the old prejudice against collegiate education for women is disappearing. The other idea remains, and will forever remain. In spite of the many new forms of activity in which women are happily and successfully engaging, domestic life will always be a most important function of womankind. Its value has been recognized more or less clearly in all times, but it is only recently that students and practical workers of life have come to an agreement concerning its importance. It is now generally believed that the degree of intelligence brought to bear upon it will be a factor of no mean value in determining the progress and prosperity of the individual, the family and the nation. The problem, then, which is before every intelligent educator and thoughtful woman is how to make use of the general knowledge and discipline which the college and university afford, as the basis for special activity in household life.

People in general, and women in particular, are rapidly outgrowing the idea that girls have a natural knowledge of domestic handicraft. The old theory that there is an inherent instinct which will lead girls in the right way when the test comes has resulted disastrously so many times that the world is quite ready to have a little special training to take the place of the theoretical, universal, natural proficiency.

The attempt to substitute tradition and custom for instinct has not met with much better success. Recipes copied from the mother's manuscript cook book, and family traditions in regard to Monday's washing or Friday's sweeping, are resources which a girl may well prize, even though they give her little more grasp of her subject than she would learn of a foreign language by conning a phrase book.

Since such methods do not prove adequate, it is natural to turn next to the schools for the special training which is desired. More than fifty years ago, when Catherine Beecher wrote her treatise on Domestic Economy, she made a plea for this training and gave it a practical turn by describing a course carried on in a school which was considered a model in those days.

"Each young lady is required to spend a portion of her time in domestic employments, either in sweeping, dusting, setting and
cleaning tables, washing and ironing, or other household concerns.

"Let not the aristocratic mother and daughter express their dislike of such an arrangement till they can learn how well it succeeds. Let them walk, as the writer has done, through the large airy halls, kept clean and in order by their fair occupants, to the washing and ironing rooms; there they will see a long hall conveniently fitted up with some thirty neatly-painted tubs, with a clean floor, and water conducted so as to save both labor and slopping. Let them see some thirty or forty merry girls, superintended by a motherly lady, chatting and singing, washing and starching; while every convenience is at hand and everything around is clean and comfortable. Two hours thus employed enable each young lady to wash the articles she used during the previous week, which is all that is demanded, while thus they are practically initiated into the arts and mysteries of the washtub. The superintendent remarked to the writer that after a few weeks of probation most of her young washers succeeded quite as well as those whom she could hire and who made it their business. Adjacent to the washing-room is the ironing establishment, where another class are arranged on the ironing day, around long extended tables, with heating furnaces, clothes-frames, and all needful appliances.

"By a systematic arrangement of school and domestic duties, a moderate proportion of time, not exceeding two hours a day from each of the pupils, accomplished all the domestic labor of a family of ninety, except the cooking, which was done by two hired domestics."

Twenty-five years passed. Vassar College was organized and brought into the life of American women an influence which has developed with significant and far-reaching results. Among the new educational features proposed by the college was that of a special course in domestic economy, which was outlined as follows in the prospectus issued in 1865:

"The household is, by common consent, woman's peculiar province. In the majority of cases, it is the only one in which she performs an independent and dominant part. The art of administering its various economies, therefore, is among the least dispensable of her acquisitions; nor can any one hope to be recognized as a thoroughly accomplished woman who is not an accomplished housekeeper.

"But home is the proper school for this art—the only school in which the housekeeper can be thoroughly trained and accomplished. The young lady at school is not placed in the proper condition for successful practice; nor can anything more than an approximation to those conditions be effected amidst the complex arrangement and crowded occupations of the college life, all looking to a widely different object. The trustees are satisfied that a full course in the arts of domestic economy cannot be successfully incorporated in a system of liberal or college education, without a far larger demand on the time of the students than would be either practicable or wise. The result of experiments already made in this direction is not such as to encourage a repetition.

"On the other hand, it is not forgotten that the young lady who takes the college course is withdrawn from home for years during the formative period of her life; placed in an artificial community, surrounded by influences and engaged in pursuits which, however exalted and salutary in themselves, are foreign to those with which her future life must be most conversant. In such circumstances, she is in danger of forming tastes and habits tending to unfit her for her allotted sphere, and to render its duties perhaps positively distasteful. Whatever the college can do, consistently with its special work, it will do to guard against such tendencies: to maintain a just appreciation of the dignity of woman's home sphere; to foster a womanly interest in its affairs; to teach a correct theory, at least, of the household and its management, and to give some practical training in such domestic duties as admit of illustration in college life.

"1. Domestic economy will be taught theoretically, through text-book and by lectures, by a competent instructress.

"2. Visible illustration of the principles under discussion will be furnished, to the utmost practicable extent, in the college kitchen, larder, dining-room, etc., with reference, to the selection of meats, vegetables, and other articles of food, their preparation for the table; the arrangement of a pantry; the setting and serving of the table; carving; care of silver and cutlery; distribution of domestics' work; washing, ironing, etc.

"3. Personal instruction will be given to every one who needs it, as to the care of her own clothing and her own room, with particular directions respecting the best treatment of carpet, bed, bureau and other furniture; and the laws of order, neatness, and taste will be systematically enforced on all. No servants' work will be exacted of the young ladies; yet they should be taught to superintend the work of servants in their own apartments, and to do with their own hands there whatever a lady ought to know how to do.
DOMESTIC SCIENCE IN THE COLLEGES.

4. Regular hours for sewing will be allotted to all the students first, for the necessary repair of their wardrobes, and then for ornamental or benevolent objects of their own selection. In these sewing groups, which will be placed under the direction of competent teachers, opportunity will be afforded for many useful suggestions; and, to some extent, regular instruction may be given in plain and ornamental needlework.

In the words of one of the early graduates, "So rapidly did the idea of college education change that, three years later, the only vestige of this programme left was the sewing hour. The steward's department and the laundry were forbidden ground, and the only 'domestic economy' taught was based on the making of the bed after due airing, and the dusting of the few articles which the parlor contained. No supervision of servants was hinted at."

This was the last notable effort in the higher schools to give instruction in domestic affairs according to the trade-school idea. It was learned that much time and effort were given without receiving results of corresponding educational value.

Believing that the time was coming when the domestic art might and should become a science to be worked out in the homes of educated women, and convinced that if girls were capable of thinking about the problems of house-work and of investigating and discovering new and better ways of solving them, they would find the work an interesting and worthy one, the trustees of Wellesley College in 1890 established a course in domestic science.

The fact that the sentiment of former days had not entirely died out is shown by the following extracts from current numbers of the college paper:

"The new course in Domestic Economy is very popular. It has only one drawback, that all the girls who elect it are immediately branded as engaged."

THE SENIOR.
A senior with dignified look
Domestic Economy took,
When they said 'you're engaged'
She became quite enraged,
And retired in the leaves of her book.

The central thought underlying the present place of domestic science in a college curriculum is that whatever may be said of the advisability of girls taking a systematic course of advanced study for four years, since they seem bound to do it in increasing numbers, intelligent effort should be directed toward adapting this general training to the special work in the home, which it should be the pride and ambition of women to carry on more successfully than is sometimes the case. Accordingly the subject should be put in the college curriculum on a par with the other sciences, and as a summing up of all the science teaching of the course.

The modern college course, with its increasing amount of free elective work, and the new subjects which are constantly introduced and offered to the students, affords a wide range of topics. It may truly be said that no form of activity in which women engage demands more varied attainment or wider knowledge than that of housekeeping.

It follows that nearly every subject offered in the college curriculum has a relation more or less direct to domestic science. The term of four years, however long it may seem in anticipation, passes all too quickly, and proves quite unequal to the plans of the ambitious student who dreams that in that time she can cover the whole realm of knowledge. It is necessary then, that those subjects should be indicated which have a very close relation to domestic science, and may be fitly called its stepping-stones. These may be said to be physics, chemistry, physiology, bacteriology, botany,physiography, political economy, logic, ethics and French and German. Since it is necessary for the student to have a good outfit in these allied subjects, domestic science should not be offered till the senior, or possibly the junior year, and should always have the place of a free elective. Instruction should be given in the class-room by means of lectures and quizzes, combined with practical work, which should include:

1. Visits of inspection, accompanied by the instructor, to houses in process of instruction, of good and bad types.
2. Visits to homes where the housekeeper has put in practice some or all the theories of modern sanitary and economic living.
3. Conferences with successful and progressive housekeepers.
4. Practical work and original investigation in the laboratory of sanitary chemistry.

The general topics studied in the course should be:

1. The house and its foundations from a sanitary as well as an architectural standpoint.
2. The mechanical apparatus of the house, heating, lighting, ventilation, drainage, etc., including methods of testing their efficiency.
3. Furnishing the general care of the house, including the chemistry of cleaning.
4. Sanitary aspects of clothing.
5. Food and water supplies with a more or less extended discussion of nutrition and dietaries.
6. Relation of domestic service to the general question of labor with a study of present conditions and proposed reforms.

The present outlook in regard to the adoption and further development of such courses of study is very hopeful in the minds of those who believe that progress is not to be measured merely by excitement and turmoil. The place given in the public schools and industrial institutes to the more elementary and practical aspects of the subject indicates that it is assuming its right place in public esteem, and is regarded as having distinct educational possibilities in addition to its utilitarian value. The duty now rests with the colleges and higher institutions of learning to provide training, not merely for those women whose field of activity will be chiefly restricted to their individual households, but also for those who will have the care and direction of similar training in other grades of schools.

The admirable work done by Pratt Institute and other institutions in their departments of domestic science will be far-reaching in its effects. Some of the agricultural colleges are feeling their way to the adoption of methods which will be in accord with the latest pedagogical theories concerning the subject matter and the aims of household science. At the Massachusetts Institute of Technology, women have a specially fine opportunity to train themselves in the different departments of science which bear upon household interests and prosperity, and in which men are day by day discovering truths fitted to contribute to the welfare of human homes, if women would but reach out and grasp them and put them to practical use. The influence of Wisconsin University in recognizing the fitness of the subject to the methods of university extension will be widely felt.

At the University of Chicago the subject is presented in still another aspect. Under the general term of "Sanitary Science," the work is at present united with the department of sociology, and an effort is made to coordinate the courses offered with the aims and methods of social philosophy in general. The trend of the courses offered, therefore, is not largely technical, but their aim is to serve as a helpful foundation for future duties and interests, not only as householders, but as owners and agents of tenements, students of social reform, administrators of schools, hospitals, prisons and kindred institutions, and practical philanthropists. It is thus evident that the course of study is by no means to be considered as restricted to women. Under this larger view of its importance, men may, equally with women, bear their part in helping secure the prosperity which to be truly national must first of all rest in the homes, whether they be of the poor and degraded or of the wealthy and favored classes. The courses at the University of Chicago begin with one on general hygiene, intended primarily for undergraduates, and quite practical in method and scope. It leads to a more complete and technical course on house sanitation, and the brief time devoted in it to the study of food is supplemented by fuller courses on the physiological and chemical principles of water and foods, including food analysis, food adulterations, dietaries and the scientific principles of the application of heat to food materials. A new laboratory has been recently opened which, with the aid of allied departments, will give an opportunity for independent investigations in regard to new and unsettled problems pertaining to household administration.

It will thus be seen that vast changes in educational methods, both general and special, have taken place in the last half century. It can but be believed that on the whole the changes have been in the direction of sound progress, and it is also to be hoped that the future has still richer fruits in store.

Marion Talbot.

AMONG THE HILLS.

Along the roadside, like the flowers of gold
That laxy Incas for their gardens wrought,
Heavy with sunshine dorea the goldenrod,
And the red penmons of the cardinal-flowers
Hang motionless upon their upright staves.
The sky is hot and hazy, and the wind,
Wing-weary with its long flight from the south,
Unfelt; yet, closely scanned, yon maple leaf
With faintest motion, as one stars in dreams,
Confesses it: The locust by the wall
Stabs the noon silence with his sharp alarm.

A single hay-cart down the dusty road
Creakes slowly, with its driver fast asleep
On the load's top. Against the neighboring hill,
Huddled along the stone wall's shady side,
The sheep show white, as if a snow drift still
Defied the dog-star. Through the open door
A drowsy smell of flowers—gray heliotrope,
And white sweet clover, and shy mimnoetone—
Comes faintly in, and silent chorus lends
To the prevailing symphony of peace.

—Whittier.
A PRACTICAL EXPERIMENT IN THE STUDY OF DIETARIES.

BY PROF. MARION TALBOT, DEAN IN THE GRADUATE SCHOOL OF THE UNIVERSITY OF CHICAGO.

THE science of nutrition is a subject of such recent development that its practical application in the study of dietetics is only just beginning to be feasible. Until within a few years the growth of crops and the feeding of domestic animals have been the fields to which the results of discoveries in regard to nutrition, made by physiology, chemistry, bacteriology and kindred sciences, have been chiefly applied. It is a source of satisfaction to observe that the need of extending the present knowledge of nutrition to the care of human beings is gradually receiving more and more recognition.

One of the most notable examples of this new movement toward the better and more intelligent use of food is the experiment which has been recently authorized at the University of Chicago. The results obtained thus far have proved so suggestive and practical as to lead to the belief that similar studies in a modified form would be well worthy the attention of intelligent housekeepers and stewards.

At the opening of the new Women's Halls, October 1, 1893, it was agreed that it was a fitting undertaking to attempt to supplement the intellectual and educational advantages of the institution with a corresponding care for the physical requirements of the students. Accordingly, under the direction of the women deans, with Mrs. Ellen H. Richards as expert adviser, a definite study and careful investigation was made of the food supply furnished to the occupants of the Women's Halls. The result of this investigation was published at the end of six months in a pamphlet entitled "Food as a Factor in Student Life,—a Contribution to the Study of Student Diet." The methods of investigation thus begun were continued from day to day, and it is now possible to draw some conclusions and useful suggestions from a comparative study of the results obtained during the six months ending April 1, 1894, and the year ending July 1, 1895.

It is impossible within the scope of the present article to describe every detail of the experiment or to take into account all the phases which lend interest and importance to the problem. Such matters as methods of cooking, digestibility, attractiveness in serving, amount and kind of waste, quality of food material bought, and the final results as shown in the physical condition of the students, while receiving the closest attention from the investigators, must be passed by without explicit consideration in this article, in order that special emphasis may be laid on such important and general questions as nutrient value, nutrient proportion and cost.

The method pursued was to keep an exact record of the amount and cost of all food purchased, and of the number of meals eaten. A supplementary record was made of the amount and cost of all the food eaten each day, for the purpose of determining readily whether a proper variety and proportion of nutrients were provided daily, and whether the daily expenditure of money were kept within the amount appropriated for the purchase of food in its raw state.

The record first indicated is the one from which the following tables are compiled. The books containing the record were examined and a careful tabulation made of the total amount and cost of each article of food consumed during the period of investigation. Following this came a calculation of the amount of nutrients and of Calories—i.e., energy—furnished by each article of food, based on the analyses of König and Atwater with modifications suggested by Mrs. Richards. The following table of fresh fruits is given as an example:

**TABLE I. QUANTITY, COST AND NUTRIENTS OF FRESH FRUIT.**

<table>
<thead>
<tr>
<th>Fruit</th>
<th>Pounds</th>
<th>Cost</th>
<th>Protein</th>
<th>Fat</th>
<th>Carbohydrates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apples</td>
<td>7.25</td>
<td>$3.55</td>
<td>3.7</td>
<td>18.6</td>
<td>1,122.6</td>
</tr>
<tr>
<td>Grapes</td>
<td>2.25</td>
<td>6.50</td>
<td>14.4</td>
<td></td>
<td>321.3</td>
</tr>
<tr>
<td>Oranges</td>
<td>2.00</td>
<td>18.75</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apple fruit</td>
<td>15</td>
<td>21.9</td>
<td></td>
<td></td>
<td>256</td>
</tr>
<tr>
<td>Tangerines</td>
<td>10</td>
<td>10.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bananas</td>
<td>10</td>
<td>12.0</td>
<td>145.5</td>
<td>18.</td>
<td>591</td>
</tr>
<tr>
<td>Lemons</td>
<td>1.50</td>
<td>18.25</td>
<td>10.2</td>
<td></td>
<td>145.8</td>
</tr>
<tr>
<td>Pomegranates</td>
<td>25</td>
<td>2.50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melons</td>
<td>2.00</td>
<td>2.30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watermelons</td>
<td>2.00</td>
<td>12.30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pears</td>
<td>1.00</td>
<td>15.0</td>
<td>7.9</td>
<td></td>
<td>228.2</td>
</tr>
<tr>
<td>Peaches</td>
<td>3.00</td>
<td>19.62</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apricots</td>
<td>5.00</td>
<td>2.50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pears</td>
<td>1.00</td>
<td>15.0</td>
<td>4.6</td>
<td></td>
<td>130</td>
</tr>
<tr>
<td>Pineapples</td>
<td>1.00</td>
<td>16.54</td>
<td>1.7</td>
<td>1.3</td>
<td>40.2</td>
</tr>
<tr>
<td>Cherries</td>
<td>1.00</td>
<td>7.00</td>
<td>9.0</td>
<td></td>
<td>19</td>
</tr>
<tr>
<td>Quinces</td>
<td>0.50</td>
<td>1.7</td>
<td></td>
<td></td>
<td>2.4</td>
</tr>
<tr>
<td>Cranberries</td>
<td>0.25</td>
<td>2.35</td>
<td>4.0</td>
<td></td>
<td>5.2</td>
</tr>
<tr>
<td>Raisins</td>
<td>5.00</td>
<td>13.18</td>
<td>5.3</td>
<td>9.0</td>
<td>29</td>
</tr>
<tr>
<td>Strawberries</td>
<td>0.50</td>
<td>16.00</td>
<td>3.8</td>
<td>5.1</td>
<td>16.1</td>
</tr>
<tr>
<td>Blueberries</td>
<td>0.50</td>
<td>18.30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Currants</td>
<td>0.50</td>
<td>1.4</td>
<td></td>
<td></td>
<td>20.7</td>
</tr>
<tr>
<td>Blackberries</td>
<td>0.50</td>
<td>5.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>23.24</td>
<td>$74.40</td>
<td>236.4</td>
<td>30.2</td>
<td>3,066.2</td>
</tr>
</tbody>
</table>

From the figures obtained from this series of tables the articles of food were grouped into classes, of which the principal ones are shown in Table II. In order to make a comparison from which conclusions might easily be drawn, the figures actually obtained for 1893 are here given recalculated on the basis of the same number of people and days that were factors in the investigation of 1894.

The salient features of the entire investigation are indicated in Table III.

Up to this point the investigation is of value chiefly in adding a series of essentially accurate data to the information already known concerning Amer-
work of the National Household Economic Association, formed in 1893, having branches in many of our cities, state presidents in all the states, and a definite plan for work as follows:

The object of this association shall be: 1. To awaken the public mind to the importance of establishing bureaus of information where there can be an exchange of wants and needs between employer and employed, in every department of home and social life. 2. To promote among members of the association a more scientific knowledge of the economic value of various foods and fuels; a more intelligent understanding of correct plumbing and drainage in our homes, as well as need for pure water and good light in a sanitorially built house. 3. To secure skilled labor in every department in our homes, and to organize schools of household science and service.

The Federation of Woman's Clubs has accepted this form as a basis for a section in every woman's club for the study of household economics, and programmes for this work have been prepared by Dr. Mary Green, Mrs. Kate Watson and Mrs. Helen Campbell. Chicago is discussing earnestly the possibilities of a great training school for mistresses and maids, the organization of household service on a new basis, the forming of a genuine employment bureau, with graded rates of payment, and great central offices—another Bourse de Travail, with even larger scope than that most admirable bureau. Philadelphia, in its Civic League, has formed a branch for this study and the investigations connected with it, and has been preparing what is likely to prove a valuable report of their work in the line of domestic service. New York, in a branch of its Civic League under the direction of Mrs. Robert Abbe and other women as well known, is planning for investigation in these lines, and Boston is making practical tests of some of the new theories. In short the new comer knocks at every door, and in this swift moving generation it must, from the very nature of things, find speedy entrance—and a recognized footing—wherever thinking men and women work together for that future which is theirs in common.

What is the next practical step for all? Co-operation is the reply of many, but co-operation thus far has failed to demonstrate what its advocates claim for it. The reason is plain. Co-operation means the union of families to perform the business of housekeeping. Families do not, cannot, never will unite!

It is the business which must differentiate—not the families which must combine! The repeated failure of co-operative attempts is not owing to defects in special plan or people, but to a wrong conception of the thing to be done. Thus far it has been a matter in which business initiative has been chiefly ignored. Families have hove together with no coherent plan, tried for a time, and given up the experiment in disgust. Builders here and there, as in the plan of Mr. Coleman Stuckert in Chicago, have arranged for a block of dwellings, and waited in vain for tenants willing to bind themselves for a fixed time. Subscriptions have been begged for, endowments sought—all means but the right one discussed, and the subject dismissed as unmanageable.

In the meantime, under our unseeing eyes, evolution has been attending to the matter, and our object lessons are before us in the present gain in the arrangement and scope of restaurants, bakeries, laundries, preserve and pickle factories, and the long list of industries contributing to the household life of man. It is not co-operation that has brought them to their present stage of development, but business pure and simple; and the time is near when business will join hands with the new movement and take the simple, profitable, practical step that is to follow. At present we creep, but the feet feel the pull toward natural uses. Soon we shall walk, and in good time run with joyful mind the race set before us. God speed the day!
of dietetic standards. Should the proportions of proteids, fats and carbohydrates approximate the first or the second series as shown in Table II? An inspection of the following standard dietaries will help solve this problem:

A comparison of the figures obtained in the experiment with those in the standard American dietaries shows that the amount of carbohydrates in the 1894 ration was too low in proportion to the proteid and fat; on the other hand, in 1895 the carbohydrates were about right, while the fat was a little in excess of the standard. As, however, fats and carbohydrates.

The interesting and profitable field of study which should be explored by every responsible and intelligent housekeeper. It is true that the training and knowledge necessary for the most satisfactory results are just coming within reach of students. During the past year or two, however, much printed matter has been published which contains the information necessary as a basis for fruitful and practical study, and it is now a subject of vital concern that the problem of food and feeding should receive some measure of the intelligent attention which it is the duty of the housekeeper to give them.

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**STANDARD DIETARIES.**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Woman at moderate work (German)</td>
<td>92</td>
<td>44</td>
<td>400</td>
<td>536</td>
<td>2,425</td>
</tr>
<tr>
<td>Man at moderate work (German)</td>
<td>118</td>
<td>56</td>
<td>500</td>
<td>674</td>
<td>3,055</td>
</tr>
<tr>
<td>Man at hard work (German)</td>
<td>145</td>
<td>100</td>
<td>450</td>
<td>695</td>
<td>3,370</td>
</tr>
<tr>
<td>Man with moderate exercise (English)</td>
<td>145</td>
<td>51</td>
<td>531</td>
<td>701</td>
<td>3,170</td>
</tr>
<tr>
<td>Active laborer (English)</td>
<td>156</td>
<td>71</td>
<td>598</td>
<td>795</td>
<td>3,630</td>
</tr>
<tr>
<td>Hard worked laborer (English)</td>
<td>185</td>
<td>71</td>
<td>568</td>
<td>824</td>
<td>3,750</td>
</tr>
<tr>
<td>Woman with light exercise (American)</td>
<td>80</td>
<td>80</td>
<td>300</td>
<td>460</td>
<td>2,300</td>
</tr>
<tr>
<td>Man with light exercise (American)</td>
<td>100</td>
<td>100</td>
<td>390</td>
<td>560</td>
<td>2,815</td>
</tr>
<tr>
<td>Man at moderate work (American)</td>
<td>125</td>
<td>125</td>
<td>450</td>
<td>700</td>
<td>3,520</td>
</tr>
<tr>
<td>Man at hard work (American)</td>
<td>150</td>
<td>150</td>
<td>500</td>
<td>800</td>
<td>4,060</td>
</tr>
</tbody>
</table>
to those who are inclined to make such dietic studies to know along what general lines such suggestions would lie, or, in other words, what would be some of the practical and helpful results of such a prolonged and painstaking study.

The most striking feature of Table III is the increase in weight of the daily amount of raw food material supplied in the second series (one third of a pound daily), while the amount of energy supplied, if increased proportionally, should be 3,393 calories instead of 3,279 as was the case. These figures show very plainly how the ignorant housekeeper or steward may be misled into thinking that more nourishment is supplied, if only the actual weight of the raw material is increased.

The question which naturally arises next is what is the source of this discrepancy, or, in other words, what kinds of food have been supplied in greater amount which have less nutritive value? The answer is plainly given in Table II, which shows that there was a marked increase in 1895 in the amount of fresh vegetables and fruits supplied, and these all contain a large amount of water in proportion to their nutrients. It must be noted, however, that the second series covered the spring and summer months, when such food is easily obtained, as well as the fall and winter, to which the first series was limited. Still another answer is given in the figures which show a smaller amount of grains and of preserved or dried fruits (prunes, raisins, dates, nuts, etc.) which are of high nutrient value when properly used.

American workingman and his family are better fed than the German or French because they expend a larger amount for their food. This is not a necessary conclusion for two reasons—first, the food may be of less nutrient value though of higher price and of larger quantity; and second, more of it may be wasted in cooking or serving. It is indeed on this very point that there should be more general information, especially among people of limited income. It is trite to say that real economy consists, not in spending a small amount of money, but in securing the full value of the money, and yet very few persons act in accordance with this principle when the purchase of food is concerned.

Another question which may be asked is whether the first series of figures does not represent a sufficiently large amount of potential energy. The reply must be based on a knowledge of the conditions under which the people to be fed are working. In this case their intellectual duties are arduous, their life sedentary and confined, their tastes established either through rational training or as the result of caprice and local custom, while, as is too usual with students, they show little inclination to take wholesome exercise and often ignore the simplest rules of health; therefore every reasonable effort should be made to tempt the appetite with simple, well-cooked, digestible food of the widest practicable variety and attractively served. The limitations and exactions of every kind are such that it is quite safe to seek to provide the largest possible amount of nutri-
A PRACTICAL EXPERIMENT IN THE STUDY OF DIETARIES.

### TABLE II. QUANTITY, COST AND NUTRIENTS OF CHIEF GROUPS OF FOOD PURCHASED IN 1894, WITH APPROXIMATE FIGURES FOR SAME NUMBER OF PEOPLE IN 1895.

<table>
<thead>
<tr>
<th>Year</th>
<th>Group</th>
<th>Total pounds</th>
<th>Average price per pound</th>
<th>Total cost</th>
<th>Pounds proteid.</th>
<th>Pounds fat.</th>
<th>Pounds carbohydrates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1894</td>
<td>Meats and fish</td>
<td>21,647</td>
<td>$0.081</td>
<td>$1,756.19</td>
<td>2559</td>
<td>2260.6</td>
<td>4907.9</td>
</tr>
<tr>
<td>1895</td>
<td>Meats and fish</td>
<td>21,399</td>
<td>$0.081</td>
<td>$1,737.58</td>
<td>2238.3</td>
<td>4779.6</td>
<td>8767.8</td>
</tr>
<tr>
<td>1894</td>
<td>Eggs, milk, butter, cheese, sugar</td>
<td>30,179</td>
<td>$0.051</td>
<td>$1,508.53</td>
<td>1305.8</td>
<td>3795.3</td>
<td>5512.6</td>
</tr>
<tr>
<td>1895</td>
<td>Eggs, milk, butter, cheese, sugar</td>
<td>32,457</td>
<td>$0.042</td>
<td>$1,363.3</td>
<td>1363.3</td>
<td>4907.9</td>
<td>9374</td>
</tr>
<tr>
<td>1894</td>
<td>Grains</td>
<td>14,779</td>
<td>$0.044</td>
<td>1,901.17</td>
<td>1544.4</td>
<td>581.1</td>
<td>281.1</td>
</tr>
<tr>
<td>1895</td>
<td>Grains</td>
<td>15,822</td>
<td>$0.036</td>
<td>1,546.6</td>
<td>198.2</td>
<td>76</td>
<td>2764</td>
</tr>
<tr>
<td>1894</td>
<td>Vegetables</td>
<td>21,390</td>
<td>$0.017</td>
<td>365.05</td>
<td>251.1</td>
<td>51.2</td>
<td>1336</td>
</tr>
<tr>
<td>1895</td>
<td>Vegetables</td>
<td>21,399</td>
<td>$0.017</td>
<td>365.05</td>
<td>251.1</td>
<td>51.2</td>
<td>1336</td>
</tr>
<tr>
<td>1894</td>
<td>Fresh fruit</td>
<td>12,082</td>
<td>$0.026</td>
<td>315.03</td>
<td>107</td>
<td>76</td>
<td>3991.8</td>
</tr>
<tr>
<td>1895</td>
<td>Fresh fruit</td>
<td>15,682</td>
<td>$0.032</td>
<td>501.82</td>
<td>199</td>
<td>76</td>
<td>3991.8</td>
</tr>
<tr>
<td>1894</td>
<td>Preserved fruit</td>
<td>2,143</td>
<td>$0.087</td>
<td>187.19</td>
<td>35.1</td>
<td>19</td>
<td>2067</td>
</tr>
<tr>
<td>1895</td>
<td>Preserved fruit</td>
<td>1,611</td>
<td>$0.094</td>
<td>150.88</td>
<td>28.5</td>
<td>13.3</td>
<td>1139.1</td>
</tr>
</tbody>
</table>

### TABLE III. TOTAL AMOUNT PURCHASED AND COST, WITH NUTRIENTS AND NUTRIENT VALUE OF FOOD CONSUMED PER PERSON PER DAY.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1894 ... 5.00</td>
<td>$0.35</td>
<td>121</td>
<td>121</td>
<td>381</td>
<td>3,183</td>
</tr>
<tr>
<td>1895 ... 5.33</td>
<td>0.341</td>
<td>115</td>
<td>122</td>
<td>408</td>
<td>3,279</td>
</tr>
</tbody>
</table>

* A Calorie is the amount of heat which will raise the temperature of a kilogram of water 1° C.

Calculated by using König's formula: 1 gram proteid = 4.1 Calories, 1 gram fat = 9.3 Calories, 1 gram carbohydrates = 4.1 Calories.

Another significant fact shown in Table III is that, whereas the daily amount of food and of energy supplied in 1894 was less than in 1895, the cost was greater. This points out the error in the popular belief that the amount of nourishment obtained is measured by the amount of money spent for food. It is frequently asserted even by well-known students of social and industrial problems that the...
REVIEWS.  

Nutritive material; therefore the larger of the two figures should be the minimum standard.

In families, however, which are subject to intelligent direction, and where the members are taught to co-ordinate both the duty and the pleasure of eating with the other activities of life, it would be a serious mistake to assume that the largest amount of nutritive material which the family could be induced to eat would be the right amount. The tendency in American dietetics seems to be to over-tempt the palate by means of the great variety in flavor and form which the markets afford. The consequent taxing of the digestive organs is shown by the widespread disease which prevails from their abuse. The American housekeeper should learn that, when the system has been provided with the full quantity of food necessary for its complete health and greatest activity, any further amount of food consumed leads not merely to pecuniary waste, but, what is worse, to physiological abuse. The figures given in the table prove that in this case an ample amount of nutritive material was actually consumed,—in fact, taking into account the difference in weight between men and women, a much larger amount than experience has shown to be sufficient. Undoubtedly there may have been individuals who, for different reasons, did not eat so much as they really needed, but, if this were the case, the reverse must have been true, and, in some instances, an unduly large amount must have been eaten.

Closely connected with this matter is the question of carbohydrates may be more or less substituted for each other, the dietary for 1893 may be chosen as the one with the more nearly theoretically perfect proportions. The modification suggested for the 1894 dietary would be the one actually adopted, as proved by the figures—viz., a larger amount of food containing starch and sugar.

In making a practical application of these conclusions, one consideration remains to be taken into account, which would be of equally great importance in any family where real economy is necessary. During the time covered by the investigation the income received from persons paying board at the rate of $3.50 per week was only sufficiently large to permit of an allowance of 25 cents for raw food material per day per person, including the large staff of servants. The balance of the income was applied to service, fuel, laundry, repairs, breakage and cleaning. An increase of income arising from a larger number of persons paying board would not proportionately increase the running expenses. The question would then be how to expend the larger sum which would be available for food. The figures show plainly that the smaller sum is sufficient to procure the proper amount of nourishment, provided great care is exercised in buying. Whatever is added to the dietary then need not be in the form of true nutrients, but may be furnished as dishes which by greater variety in flavor may add to the attractiveness of the bill of fare, as fresh fruits.

Such a summary as this shows very, inadequately.
Food as a Factor in Student Life

A Contribution to the Study of Student Diet

By

Ellen H. Richards and Marion Talbot

CHICAGO
The University of Chicago Press
1894
I.

SOCIAL AND DOMESTIC CONDITIONS OF THE INVESTIGATION.

CHARACTER OF INVESTIGATION.

It has seemed fitting to many students of sociology that there should be exemplified in some college or other educational institution the possibilities of healthful physical and mental life, as they have been made known by recent advances in both social and physiological science. Under the auspices of the University of Chicago, a practical study of the subject has been made. Its results seem of sufficient value and interest to warrant the presentation of a brief account of them.

NEGLECT OF DIETETICS.

In nearly every state in the Union there is an agricultural experiment station, and in many there are agricultural colleges. The government, representing the people, in this way expends large sums annually for the study of the food of cattle and other animals, but it rarely makes any appropriation for the study of the food of any citizen, even though his body and brain may represent hundreds of thousands of dollars in invested capital, while the brute animal is worth only one or two hundred dollars.

HUMAN BODY AS A MACHINE.

The animal body both of brute and of human being is a living machine, capable of doing work—raising weights, pulling loads and the like. The power of the engine to do its work comes from the consumption of fuel—the burning of wood, coal, or gas. The power of the animal body to do its work comes from the
consumption of fuel which is furnished to it in the form of food. Animals are more economical machines than the most perfect steam-engine. The latter cannot convert more than one eighth of its available energy into work; the animal may yield as much as one fifth. In spite of its superiority, however, it is incapable of evolving something from nothing. Nevertheless, it is a common delusion that the animal can go on and do its work indefinitely without fuel, and, therefore, that it has nothing in common with the locomotive or engine. The reason for this delusion is that the latter runs only so long as the supply of visible fuel lasts and then stops dead; while the human body runs on comfortably for a long time with very little fuel, and it may keep on for some three weeks without any visible supply at all. The explanation of this difference is that the body contains a store of fuel laid up in itself against the time of need. Fat is just as available as fuel when stored up in the body as if supplied from an external source. Five pounds of fat will last ten or twelve days, and the body will support itself on other reserve materials still longer. The work which the human machine can do may be measured by the same standard as the work of any machine, i.e., by the mechanical unit of energy, the foot ton, or the Calorie. The foot ton represents the amount of energy required to raise one ton one foot. The Calorie represents energy in the form of heat sufficient to raise one kilogram of water one degree Centigrade. One Calorie corresponds to 1.53 foot tons.

The animal body, however, is more than a machine. It requires fuel, not only to enable it to work, but it must live or exist, even though it does no work in the ordinary meaning of the term. About two thirds of the food eaten goes merely to sustain existence. While the inanimate machine is sent periodically to the repair shop, the living machine must do its own repairing day by day, and minute by minute.

The food eaten over and above the amount needed to sustain life is the source of the energy which may be manifested in the power to think, to create artistic designs, to write essays and poems, to stimulate others to high endeavor, as well as in the activities which are more purely physical. When its importance
is thus measured, it becomes a matter of wonder why the study of food is a subject that is so generally ignored.

There is another phase of the subject which often escapes notice. It is not enough to shovel fuel into the locomotive. It must burn. So food must be assimilated and made a part of the body, and thus become the available capital of the brain. It is therefore necessary that the conditions of nutrition should be as favorable as possible. The engineer knows that he must not clog his drafts with smoke, nor load his fire-box with stony coal. The student does not seem to know that his fire of genius will not burn clear if he clogs his brain with irritating substances, loads his stomach with indigestible or semi-poisonous food, and neglects exercise and sleep.

SPECIAL NEGLECT OF STUDENT DIETETICS.

The prevalent disregard of the importance of human dietetics is especially noticeable in connection with the life of students. Farmers know that their oxen and horses must be well fed in order that they may do their best work. On the other hand, college trustees and professors too frequently think that they do their duty by their students if they provide a sufficiently heavy load to be hauled. If a student breaks down, the remark is heard on all sides, "What a pity he studied so hard," and no one asks, "Was he well fed?"

PRESENT EXPERIMENT.

It was the privilege of the University of Chicago to take the first step toward remedying this condition, undaunted by the evident difficulties which, owing to the apathy of the community in regard to such matters, seemed almost insurmountable.

To make the experiment in a college was eminently suitable, and as young women are proverbially more exacting and critical as to the table than young men, and at the same time more conversant with household matters, it was quite appropriate to make the first trial in a women's dormitory.

The conditions existing at the University of Chicago were very favorable for an experiment of this kind. The authorities were in sympathy with the movement and the students coming from all parts of the world formed a cosmopolitan community.
FOOD AS A FACTOR

ARRANGEMENT OF BUILDINGS.

Three well-appointed, adjoining buildings, each providing accommodations for about 40 students, were ready or nearly ready for occupancy. Each hall had its well-equipped dining room and serving room. Supplementary cooking apparatus only was placed in the two end buildings, the central kitchen, in which the bulk of the cooking was done, being placed in the central building, Kelly Hall. From this the food, ready cooked, was carried to the dining rooms. To these were admitted only the officers and students living in the houses and their guests, or the guests of the University.

It was also at this time possible to secure not only the apparatus used in the widely known Rumford Kitchen at the World’s Fair but also the invaluable services of its manager.

THEORETICAL PLAN.

The three halls were organized with the aim in view of establishing a healthful mental and physical life for the 100 or more women who should live in them. In order to help secure the latter end, it was decided to provide a limited variety of food of the best attainable quality, prepared in the best manner, and selected so as to give sufficient nutriment in the right proportion. The low sum of three dollars and a half per week was the price tentatively fixed for board, in the hope that the advantages of life in the halls might thus be made possible to a large number of students. This theoretical plan was held very elastic in order to make it possible to adapt instantaneously the results of the study of the existing conditions. A working scheme having been established, it was hoped that the details might give to others a basis for further accomplishment.

TIME COVERED.

The time assigned to the experiment was from October 1, 1893, to April 1, 1894. Owing to delays in obtaining possession of the halls, and to the difficulty in securing workmen or service during the last month of the World’s Fair, the whole plant was not in full working order until nearly the end of the first quarter, so that in reality, the plan as perfected was in operation only three months. During that time the average number of students occupying the halls was 106.
IN STUDENT LIFE.

THE STAFF.

The entire staff of service for the three halls included, besides the director of the experiment, three housekeepers,—one for each hall,—two indoor men, three cooks, one kitchen maid, seven waitresses, seven chambermaids, one scrubbing woman, one laundress, twenty-five persons in all.

SOCIAL SIDE.

The life in the Women's Quadrangle began without any fixed traditions save those which had been forming gradually, while the women students were temporarily residing in an apartment house during the first year of the University.

It was the desire of the Deans that the new life should have as far as possible the simple quiet attractions of a home, and be freed from the objectionable features of an ordinary students' boarding house. Hence it was attempted to adopt the standard of living which prevails in good American homes; and it was deemed an economy of mental power, as well as of physical strength, to secure the relief of the students from duties which could be performed by others. The saving of time and potential energy which was thus effected, although involving considerable outlay for service, was believed to outweigh the advantages which have been claimed for domestic work done by students themselves. The possibilities of the social side of the life were not overlooked. An element of educational value is added to a college home when hospitality may be extended with freedom and ease, and in the new University the contribution of the Women's Halls to the general social life seemed of significance, apart from the direct benefit to those partaking in it. At best the life of any student living in a dormitory has a monastic tinge, a selfish or self-absorbed side unfavorable to the best development of character. Provision was therefore made not only for the occasional entertainment of guests privately, but for weekly receptions to members of the University and their friends, the expense of which should not be met by any special tax, but which should be included in the general price for board. This hospitality increased the expense of service far more than that of food, and it should be taken into consideration in comparing the cost of this experiment with that of any other institution.
AUXILIARY MEASURES.

To secure this amount of service and this freedom and dignity in the dining rooms for the limited sum of three and one half dollars a week would have been difficult with full numbers of paying members and with years of experience; with two thirds the maximum number and with little or no precedent, it was not an easy task. It was evident that the outlay for food material must be kept as low as possible, but it was believed that inexpensive food, if it were at the same time wholesome and nutritious, would be eventually, if not at first, acceptable to the majority, provided that it could be made perfect of its kind, and could be served attractively. Special attention was therefore given to the choice of table ware, to the quality and freshness of the table linen, and to serving the food in courses and so quickly that it would be quite hot on reaching the table. The closest attention was paid to securing the greatest attainable digestibility of the food material by means of the best known methods of cookery. It seems to be true that for this purpose a low degree of heat applied for a greater length of time is in general more effective than a high degree applied for a shorter time; hence the largest part of the cooking has been done with apparatus designed according to this idea. Coal, gas, steam and kerosene were all used as fuel, each in the most efficient form.

It is, however, true that even the best methods of cookery will not always make an article of inferior grade equal to one of superior grade; therefore special attention was given to securing the best quality of the food material bought. Even after the standard of quality was once set, constant vigilance was needed to maintain it, as is the common experience. Excellent cold storage facilities aided greatly in the possibilities of economical buying at wholesale rates.

FINANCIAL RESULTS.

The financial results were very satisfactory. By unremitting attention to every detail of expenditure and administration, the income was made to meet the entire cost of the experiment, although it had not been thought probable that, in addition to the current expenses, the extra items of the cost of the inaugura-
tion and the salary of the director of the experiment could be met within so short a time. These last expenses once incurred will not be needed again, and the sum thus saved can go in future for greater variety in food, repairs, replacement, etc.

Since detailed records were kept of each item and of the time of service required for each part of the work, it has been possible to gain valuable information for future use.

For instance, the following facts were learned as to the apportionment of the $3.50 received per week, per person:

For food, $1.54
  " condiments, tea, coffee, .105
  " food of servants, .385
  " cooking food .35
  " serving food .50
Extra service in cleaning, laundry, and small expenses .39
For expense of inauguration .18  1.805
Balance reserve for depreciation of equipment .95

**$3.50**

**SUMMARY OF SCIENTIFIC RESULTS.**

The scientific results may be summed up as follows: The family was well fed, having, after all allowances for waste and refuse, a ration of equal food value to that furnished to the American soldier, if the relative weights of the man and woman are taken into consideration. The proportion of the several ingredients, as will be seen in the statement in Table VI, was also closely corresponding to the theoretical.

An additional proof of the sufficiency of the food was the fact that nearly all gained in weight, in general physical condition, and were able to work with less headache than usual, in spite of the fact that fundamental principles of right living were occasionally ignored, as is unfortunately too frequently the case when the liberty of the individual is unrestricted.

Lest it should be supposed that the simple diet necessitated monotony, there is taken from the record books the menu of three consecutive weeks in the most difficult month of the year, when the winter diet palls and the spring vegetables are yet costly.

In order to indicate the liberality of the diet, there is given in the following pages a comparison of the quantity and cost of each class of food with that of the most economical dietary known to us, that of the Normal School and Business Institute at Valparaiso, Indiana, kindly furnished by Mr. O. P. Kinsey.
Many other results of value from a scientific point of view might be deduced from the tables, notably the large proportion of food purchased which never reaches the table, and the large proportion of that so prepared which is not eaten.

This is due in part to the method in vogue in the market of selling without trimming, so that each household has much garbage, and in part to careless ways of providing, and in part to the fact that service costs more than food, and that it is cheaper to lose one third of a bushel of potatoes by paring than to pay for careful peeling.

COOPERATION OF HOUSEHOLD.

As to the readiness with which the students accepted the diet, there is less assurance of complete success. So many people are in the habit of finding fault with whatever food is provided, and expect, usually with good reason, to have a choice of a dozen dishes, out of which number one or two may suit, that it would be unreasonable to expect that a simple, nourishing diet, known to be of low cost, would be entirely pleasing to every one, especially in a household made up of people used to the most varied standards of living. It is not too much to say, however, that while a few of the college women failed to enter into the experiment with sympathy, the general body of students were pleased, and made frequent expressions of their interest and approval.

A large measure of the success of the plan and its establishment on a firm foundation is due to the Heads of the Houses, Miss Myra Reynolds, Miss Elizabeth Wallace, and Miss F. C. Brown.

The carrying out of the matter was entrusted to the Deans, Mrs. Alice Freeman Palmer and Miss Marion Talbot, with Mrs. Ellen H. Richards, of the Massachusetts Institute of Technology, as expert adviser, and Miss Maria Daniell as manager. Their efforts were ably seconded in a technical way by Miss S. E. Wentworth, of the New England Kitchen, Miss Antoinette Cary, Mrs. Biggers, Miss Knapp, and Miss Yeomans.

The employees, although laboring under many difficulties with new kinds of apparatus, new methods of work and unusual division of labors, contributed largely to the success of the experiment by their willing efforts.
II.

SCIENTIFIC RESULTS OF THE INVESTIGATION.

Table I.—Detailed Statement of the Cost and Composition of the Food Materials Used in the Kitchen at Kelly Hall, University of Chicago, during the Six Months from October 1 to April 1.

The three most important classes of the nutritive ingredients of foods are proteids, fats, and carbohydrates. The human being must have enough of proteid or tissue building substance to make up for the wear and tear of the body, and since many have not reached the period of full development, students must also be furnished with enough to allow also for growth. In the second place, there must be a supply of the energy and heat producing ingredients of food, viz., the proteids, fats and the carbohydrates. The right proportion of fat must be introduced in a palatable and digestible form, since there are indications that its general use in this country may in part account for the excess of energy of the American over his continental neighbors. It is becoming increasingly probable that fat in the daily diet is one of the most necessary ingredients for brain workers, partly for the reason above stated, that it is a storehouse of energy, but also in that it can produce energy without the intervention of some of the processes required in the conversion of starch. After the proteid and fat elements of the food are supplied, there remain the starch, sugars, etc., the so-called carbohydrates, which furnish the rest of the heat and energy needed by the body.

The following table gives therefore not only the quantities and prices, but also the nutrients in the food material purchased and sent to the Kitchen.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Beef</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rib roast</td>
<td>3887</td>
<td>$426.97</td>
<td>31.7</td>
<td>332</td>
<td>584</td>
<td></td>
</tr>
<tr>
<td>Tongue</td>
<td>429</td>
<td>55.95</td>
<td>34</td>
<td>75</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>Canned</td>
<td>162</td>
<td>14.75</td>
<td></td>
<td>46</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Dried</td>
<td>210</td>
<td>27.45</td>
<td></td>
<td>52</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>Shoulder</td>
<td>473</td>
<td>35.71</td>
<td></td>
<td>50</td>
<td>118</td>
<td></td>
</tr>
<tr>
<td>Corned</td>
<td>758</td>
<td>55.32</td>
<td></td>
<td>164</td>
<td>125</td>
<td></td>
</tr>
<tr>
<td>Shin</td>
<td>3553</td>
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## Food as a Factor

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<th>Total lbs</th>
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<th>Protein, net</th>
<th>Fat, net</th>
<th>Carbohydrate, net</th>
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<td>Mutton:</td>
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### In Student Life

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<th>Fat, net</th>
<th>Carbohydrate, net</th>
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### Ingredient Analysis

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<td>4</td>
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Note: The figures are divided by the number of persons and days for person for day.
FOOD AS A FACTOR

TABLE III.—TABULAR STATEMENT OF BILLS OF FARE OF THREE CONSECUTIVE WEEKS, WITH COSTS AND QUANTITIES.

Table III. gives bills of fare for a period of three consecutive weeks. These are presented with a view to showing the variety secured and the daily apportionment of expense. The proposed limit of expenditure was fixed at $29.00 per day, or $0.223 per day per person for 130 persons fed. Any sum spent in excess of this on one day was necessarily offset by the choice of some less expensive articles of food on a following day. After some careful study it was learned that nearly the same amount of certain articles (constants) was used daily. Their value (13.51) deducted from the day’s appropriation of $29.00 gave the sum to be spent on variables.

It will be noted that the season when these bills of fare were given is one when it is difficult to secure much variety. With the advance of spring many articles can be procured which add to the variety and relish.

The following abbreviations are used:
K—Kelly Hall.
B—Beecher Hall.
F—Nancy Foster Hall.

Ciphers indicate that the cost of the article was charged on the account of a previous day.

<table>
<thead>
<tr>
<th>Constants furnished daily:</th>
<th>Dinner:</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 lbs. Butter ..........</td>
<td>60 lbs. Beef shank for</td>
</tr>
<tr>
<td>Coffee, Cocoa, Tea ......</td>
<td>soup ..........</td>
</tr>
<tr>
<td>15 lbs. Sugar..........</td>
<td>61 lbs. Lamb, boiled..</td>
</tr>
<tr>
<td>12.5 lbs. Flour ........</td>
<td>50 “ Potatoes, mashed,</td>
</tr>
<tr>
<td>24 gals. Milk ..........</td>
<td>10 cans Corn ..........</td>
</tr>
<tr>
<td>1.6 “ Cream ...........</td>
<td>Caper Sauce ..............</td>
</tr>
<tr>
<td>25 loaves home-made</td>
<td>Lettuce Salad ..........</td>
</tr>
<tr>
<td>Bread ..................</td>
<td>Delicate Pudding ......</td>
</tr>
<tr>
<td>10 doz. Rolls ..........</td>
<td>—— 10 04 ——</td>
</tr>
<tr>
<td>$13 51</td>
<td>Total for the day ......</td>
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</table>

Thursday, March 1.

<table>
<thead>
<tr>
<th>Constants .................</th>
<th>$13 51</th>
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</table>

<table>
<thead>
<tr>
<th>Breakfast:</th>
</tr>
</thead>
<tbody>
<tr>
<td>.5 box Grape fruit ....</td>
</tr>
<tr>
<td>5 lbs. Farinose ..........</td>
</tr>
<tr>
<td>12 “ Codfish, creamed ..</td>
</tr>
<tr>
<td>57 “ Potatoes, baked..</td>
</tr>
<tr>
<td>—— 3 16 ——</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Luncheon:</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 lbs. Ham, cold ....</td>
</tr>
<tr>
<td>4 “ Sausage .........</td>
</tr>
<tr>
<td>14 “ Corned Beef ...</td>
</tr>
<tr>
<td>16 “ Potatoes, creamed</td>
</tr>
<tr>
<td>12 “ Peaches ........</td>
</tr>
<tr>
<td>6 “ Sugar ...........</td>
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<tr>
<td>—— 3 83 ——</td>
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</table>

Friday, March 2.

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<table>
<thead>
<tr>
<th>Breakfast:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prune Sauce .........</td>
</tr>
<tr>
<td>Apple Sauce ........</td>
</tr>
<tr>
<td>6 lbs. Rolled Wheat ..</td>
</tr>
<tr>
<td>Hash on Toast ........</td>
</tr>
<tr>
<td>35 lbs. Potatoes, baked</td>
</tr>
<tr>
<td>—— $0 77 ——</td>
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</tbody>
</table>

<table>
<thead>
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<th>Luncheon:</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 lbs. Tongue, cold...</td>
</tr>
<tr>
<td>44 “ Potatoes, escal’p’d</td>
</tr>
<tr>
<td>Parsnips, fried (K.)...</td>
</tr>
<tr>
<td>Pickled Beets ..........</td>
</tr>
<tr>
<td>6 lbs. Peaches for sauce,</td>
</tr>
<tr>
<td>—— 3 20 ——</td>
</tr>
</tbody>
</table>
### Dinner:
- 4 cans Okra for Gumbo: $0.64
- 3 cans Tomatoes, Gumbo: $0.30
- 62 lbs. Beefsteak: 8.68
- 51 " Potatoes, mashed: 5.1
- 4 " Hominy, boiled: 0.08
- Parsley: 0.05
- Lettuce Salad: 0.75
- Chocolate Blanc-mange: 1.22

**Total for the day...** $20.71

### Saturday, March 3.

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<table>
<thead>
<tr>
<th>Breakfast</th>
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</tr>
</thead>
<tbody>
<tr>
<td>8 box Oranges</td>
<td>$1.88</td>
</tr>
<tr>
<td>4.5 lbs. Rolled Wheat</td>
<td>1.18</td>
</tr>
<tr>
<td>10 &quot; &quot; Beef, frizzled</td>
<td>1.12</td>
</tr>
<tr>
<td>37 &quot; &quot; Potatoes, baked</td>
<td>3.55</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Luncheon</th>
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</tr>
</thead>
<tbody>
<tr>
<td>25 lbs. Hamburg Steak</td>
<td>$2.00</td>
</tr>
<tr>
<td>2 doz. Eggs</td>
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</tr>
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<td>Potatoes, fried</td>
<td>0.00</td>
</tr>
<tr>
<td>1 gal. Pickles</td>
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</tr>
<tr>
<td>12 lbs. Prunes for sauce</td>
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<tr>
<td>6 &quot; Sugar</td>
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**Total for the day...** $27.35

### Sunday, March 4.

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<table>
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<tr>
<th>Breakfast</th>
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</tr>
</thead>
<tbody>
<tr>
<td>12.5 doz. Oranges</td>
<td>$1.88</td>
</tr>
<tr>
<td>4.5 lbs. Rolled Oats</td>
<td>1.13</td>
</tr>
<tr>
<td>6 qts. Beans, to be baked</td>
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<tr>
<td>4 lbs. Pork</td>
<td>0.35</td>
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<tr>
<td>Fish balls</td>
<td>0.60</td>
</tr>
<tr>
<td>12 loaves Boston Brown Bread</td>
<td>0.77</td>
</tr>
<tr>
<td>1 gal. Pickles</td>
<td>0.55</td>
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</tbody>
</table>

**Total for the day...** $22.51

### Dinner:
- 60 lbs. Beef shank for soup: $1.85
- 35 lbs. Beef, roast: 6.60
- 25 " Turkey, roast: 2.88
- 25 " Potatoes, mashed: 2.25
- 10 " Parsnips: 0.14
- 4 cans Peas: 0.55
- 3 qts. Olives: 0.85
- Frozen Pudding: 1.71

**Supper**
- Cold meat: $0.00
- 8 lbs. Peaches for sauce: 0.12
- 8 lbs. Sugar: 0.40
- 2 boxes Wafers: 0.46
- Crackers: 0.32

**Total for the day...** $14.83

### Monday, March 5.

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</thead>
<tbody>
<tr>
<td>12.5 doz. Oranges</td>
<td>$1.88</td>
</tr>
<tr>
<td>5 lbs. Farinose</td>
<td>0.22</td>
</tr>
<tr>
<td>36 &quot; &quot; Ham</td>
<td>4.05</td>
</tr>
<tr>
<td>40 &quot; Potatoes, baked</td>
<td>4.00</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Luncheon</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Cold meat</td>
<td>$0.00</td>
</tr>
<tr>
<td>Fried Potato balls: 0.00</td>
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</tr>
<tr>
<td>Peach sauce</td>
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</tr>
<tr>
<td>Apple sauce</td>
<td>0.24</td>
</tr>
</tbody>
</table>

**Dinner**
- Beef soup: $0.00
- Beef, roast (K.): 0.00
- 14 lbs. Lamb Chops (B. and F.): 1.19
- 30 lbs. Potatoes: 3.30
- Beets: 0.25
- Cabbage: 0.20
- Dressing: 0.17
- Prune Pudding: 0.47

**Total for the day...** $0.24

### Reception and supper, Beecher:
- Salmon: $0.64
- Mayonnaise: 0.53
- Cold Ham: 0.00
- Celery: 0.45
- 5 lbs. Tea: 0.30
- 9 boxes Wafers: 2.39
- 2 doz. Oranges: 0.30
- 1.5 doz. Lemons: 0.18
- 5 bunch Bananas: 0.75

**Total for the day...** $28.51
### Tuesday, March 6.

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</tr>
<tr>
<td>Breakfast:</td>
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</tr>
<tr>
<td>12 lbs. Prunes, for sauce, $1.08</td>
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</tr>
<tr>
<td>5 &quot; Farinose</td>
<td>2.20</td>
</tr>
<tr>
<td>12 doz. Eggs, dropped.</td>
<td>2.40</td>
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<tr>
<td>38 lbs. Potatoes</td>
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</tr>
<tr>
<td><strong>Luncheon:</strong></td>
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</tr>
<tr>
<td>Biscuit stew</td>
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<tr>
<td>Parsnips, fried</td>
<td>0.00</td>
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<tr>
<td>Peach sauce</td>
<td>0.00</td>
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<tr>
<td>Apple &quot; (K.)</td>
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<tr>
<td><strong>Dinner:</strong></td>
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<tr>
<td>14 lbs. Potatoes for soup $0.14</td>
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</tr>
<tr>
<td>10 &quot; Turkey, roast</td>
<td>1.20</td>
</tr>
<tr>
<td>61 &quot; Chicken, broiled</td>
<td>6.71</td>
</tr>
<tr>
<td>50 &quot; Potatoes, mashed</td>
<td>5.00</td>
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<tr>
<td>3 &quot; Rice to be boiled</td>
<td>0.18</td>
</tr>
<tr>
<td>Pickled Beets</td>
<td>0.00</td>
</tr>
<tr>
<td>12 lbs. Dates</td>
<td>0.06</td>
</tr>
<tr>
<td>1 &quot; Ginger</td>
<td>0.30</td>
</tr>
<tr>
<td>12 &quot; Figs</td>
<td>1.32</td>
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<tr>
<td><strong>Total for the day</strong></td>
<td>$28.18</td>
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### Wednesday, March 7.

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<tbody>
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<td>Constants</td>
<td>$13.51</td>
</tr>
<tr>
<td>Breakfast:</td>
<td></td>
</tr>
<tr>
<td>4.5 lbs. Rolled Wheat, $0.18</td>
<td></td>
</tr>
<tr>
<td>Meat, creamed (F. &amp; B.), 0.00</td>
<td></td>
</tr>
<tr>
<td>3 cans Salmon, creamed (K.)</td>
<td>4.50</td>
</tr>
<tr>
<td>36 lbs. Baked Potatoes, 3.36</td>
<td></td>
</tr>
<tr>
<td>Apple sauce</td>
<td>4.20</td>
</tr>
<tr>
<td><strong>Luncheon:</strong></td>
<td></td>
</tr>
<tr>
<td>Baked Beans (K.)</td>
<td>$0.00</td>
</tr>
<tr>
<td>Brown Bread (K.)</td>
<td>0.00</td>
</tr>
<tr>
<td>Ihash (B. and F.)</td>
<td>0.00</td>
</tr>
<tr>
<td>10 lbs. Golden Grains, mush</td>
<td>3.00</td>
</tr>
<tr>
<td>Syrup</td>
<td>0.85</td>
</tr>
<tr>
<td><strong>Dinner:</strong></td>
<td></td>
</tr>
<tr>
<td>2 gals. Tomatoes, for soup $0.00</td>
<td></td>
</tr>
<tr>
<td>15 lbs. Beefsteak (K.)</td>
<td>2.10</td>
</tr>
<tr>
<td>27 &quot; Beef, roast (F.)</td>
<td>2.24</td>
</tr>
<tr>
<td>Beef, cold (B.)</td>
<td>0.00</td>
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<tr>
<td>52 lbs. Mashed Potatoes</td>
<td>5.20</td>
</tr>
<tr>
<td>Kidney Beans</td>
<td>0.40</td>
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<tr>
<td>5 heads Cabbage, for salad</td>
<td>3.00</td>
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<tr>
<td>Dressing</td>
<td>1.17</td>
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<tr>
<td>Rice Pudding</td>
<td>3.33</td>
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<td><strong>Total for the day</strong></td>
<td>$25.38</td>
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### Thursday, March 8.

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<tr>
<td>Breakfast:</td>
<td></td>
</tr>
<tr>
<td>8 lbs. Apple Sauce</td>
<td>8.32</td>
</tr>
<tr>
<td>4.5 &quot; Rolled Wheat</td>
<td>1.18</td>
</tr>
<tr>
<td>10 &quot; Bacon</td>
<td>1.18</td>
</tr>
<tr>
<td>Fried Mush</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Luncheon:</strong></td>
<td></td>
</tr>
<tr>
<td>Cold Meat (K.)</td>
<td>$0.00</td>
</tr>
<tr>
<td>14 cans Salmon</td>
<td>2.10</td>
</tr>
<tr>
<td>58 lbs. Potatoes</td>
<td>5.58</td>
</tr>
<tr>
<td>17 &quot; Raspberry jam</td>
<td>2.04</td>
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<tr>
<td><strong>Dinner:</strong></td>
<td></td>
</tr>
<tr>
<td>60 lbs. Beef shank, for soup</td>
<td>$1.80</td>
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<tr>
<td>64 lbs. Lamb, roast</td>
<td>5.44</td>
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<tr>
<td>62 &quot; Potatoes, mashed</td>
<td>6.20</td>
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<tr>
<td>Rice</td>
<td>1.18</td>
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<tr>
<td>2 gals. Tomatoes</td>
<td>6.00</td>
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<tr>
<td>5 lbs. Raisins</td>
<td>3.50</td>
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<tr>
<td>1.7 lbs. Nuts</td>
<td>5.50</td>
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<tr>
<td>10 &quot; Candy</td>
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### Friday, March 9.

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<td>Constants</td>
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<tr>
<td>Breakfast:</td>
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</tr>
<tr>
<td>15.5 doz. Oranges</td>
<td>$1.98</td>
</tr>
<tr>
<td>4.5 lbs. Rolled Wheat</td>
<td>1.18</td>
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<tr>
<td>25 &quot; Sausage (beef)</td>
<td>1.63</td>
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<tr>
<td>34 &quot; Baked Potatoes</td>
<td>3.34</td>
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<tr>
<td><strong>Luncheon:</strong></td>
<td></td>
</tr>
<tr>
<td>Cold Ham (K.)</td>
<td>$0.00</td>
</tr>
<tr>
<td>&quot; Lamb (B.)</td>
<td>0.00</td>
</tr>
<tr>
<td>Meal in brown sauce (F.)</td>
<td>0.00</td>
</tr>
<tr>
<td>14 lbs. Potatoes, baked</td>
<td>1.14</td>
</tr>
<tr>
<td>Prune Sauce</td>
<td>0.00</td>
</tr>
<tr>
<td>2 lbs. Apple Sauce</td>
<td>1.16</td>
</tr>
<tr>
<td><strong>Dinner:</strong></td>
<td></td>
</tr>
<tr>
<td>9 cans Asparagus, for soup</td>
<td>$1.66</td>
</tr>
<tr>
<td>32 lbs. Turkey, roast (K.)</td>
<td>3.34</td>
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<tr>
<td>Oyster Sauce</td>
<td>1.10</td>
</tr>
<tr>
<td>6 cans Peas (F.)</td>
<td>0.84</td>
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<tr>
<td>40 lbs. Corned Beef (B. and F.)</td>
<td>2.40</td>
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<tr>
<td>50 lbs. Potatoes, mashed</td>
<td>5.55</td>
</tr>
<tr>
<td>8 heads Cabbage (B. and F.)</td>
<td>3.39</td>
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<tr>
<td>2 pkgs. Beets (B. and F.)</td>
<td>3.35</td>
</tr>
<tr>
<td>50 heads Lettuce</td>
<td>5.00</td>
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<tr>
<td>Dressing</td>
<td>1.17</td>
</tr>
<tr>
<td>Lemon Sherbet</td>
<td>1.07</td>
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<tr>
<td>Wafers</td>
<td>0.69</td>
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<tr>
<td><strong>Total for the day</strong></td>
<td>$32.00</td>
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### Saturday, March 10.

<table>
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<th>Constants</th>
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</thead>
<tbody>
<tr>
<td>Breakfast:</td>
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</tr>
<tr>
<td>6 lbs. Apple Sauce</td>
<td>$0.48</td>
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<tr>
<td>6 &quot; Farinose</td>
<td>23</td>
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<tr>
<td>7.5 lbs. Beef, frizzled</td>
<td>88</td>
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<tr>
<td>37 &quot; Potatoes, baked</td>
<td>46</td>
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<td>Luncheon:</td>
<td>210</td>
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<tr>
<td>Hash on Toast</td>
<td>$0.00</td>
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<tr>
<td>Potato Balls</td>
<td>00</td>
</tr>
<tr>
<td>Fried Potatoes</td>
<td>00</td>
</tr>
<tr>
<td>6 lbs. Apricots for sauce</td>
<td>81</td>
</tr>
<tr>
<td>1.5 lbs. Sugar</td>
<td>08</td>
</tr>
<tr>
<td>4 lbs. Apple Sauce</td>
<td>32</td>
</tr>
<tr>
<td>Dinner:</td>
<td>121</td>
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<tr>
<td>58 lbs. Beef Shank, for soup</td>
<td>$1.74</td>
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<tr>
<td>20 lbs. Corned Beef (F.)</td>
<td>1.20</td>
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<tr>
<td>Turkey with Oysters (K.)</td>
<td>0.00</td>
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<tr>
<td>23 lbs. Veal, roast (B.)</td>
<td>2.30</td>
</tr>
<tr>
<td>1 can Peas (K.)</td>
<td>14</td>
</tr>
<tr>
<td>55 lbs. Potatoes</td>
<td>69</td>
</tr>
<tr>
<td>10 &quot; Parsnips</td>
<td>15</td>
</tr>
<tr>
<td>Pickled Beets</td>
<td>00</td>
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<tr>
<td>Tapioca, cream</td>
<td>91</td>
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<td><strong>Total for the day</strong></td>
<td>$23.95</td>
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### Sunday, March 11.

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<tbody>
<tr>
<td>Breakfast:</td>
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<tr>
<td>0.5 box Oranges</td>
<td>$1.06</td>
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<tr>
<td>5 lbs. Rolled Oats</td>
<td>22</td>
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<tr>
<td>Fish Balls</td>
<td>1.30</td>
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<tr>
<td>Baked Beans</td>
<td>63</td>
</tr>
<tr>
<td>Brown Bread</td>
<td>77</td>
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<tr>
<td>0.5 gals. Pickles</td>
<td>27</td>
</tr>
<tr>
<td>Dinner:</td>
<td>4.85</td>
</tr>
<tr>
<td>2 gals. Tomatoes, for soup</td>
<td>$0.60</td>
</tr>
<tr>
<td>27 lbs. Beef, roast (K. and F.)</td>
<td>3.24</td>
</tr>
<tr>
<td>27 lbs. Turkey, roast (B.)</td>
<td>2.97</td>
</tr>
<tr>
<td>52 &quot; Potatoes, mashed</td>
<td>1.65</td>
</tr>
<tr>
<td>23 &quot; Turnips</td>
<td>23</td>
</tr>
<tr>
<td>Lettuce</td>
<td>50</td>
</tr>
<tr>
<td>Dressing</td>
<td>17</td>
</tr>
<tr>
<td>Peach Sherbet</td>
<td>2.30</td>
</tr>
<tr>
<td>3 boxes Wafers</td>
<td>63</td>
</tr>
<tr>
<td>Supper:</td>
<td>11.35</td>
</tr>
<tr>
<td>Potato Salad</td>
<td>$0.60</td>
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<tr>
<td>Dressing</td>
<td>17</td>
</tr>
<tr>
<td>Peach Sauce</td>
<td>84</td>
</tr>
<tr>
<td>3 boxes Wafers</td>
<td>63</td>
</tr>
<tr>
<td>8 lbs. Sugar</td>
<td>40</td>
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<tr>
<td><strong>Total for the day</strong></td>
<td>$31.81</td>
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### Monday, March 12.

<table>
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</thead>
<tbody>
<tr>
<td>Breakfast:</td>
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<tr>
<td>5 lbs. Farinose</td>
<td>$0.22</td>
</tr>
<tr>
<td>10 pots Marmalade</td>
<td>1.40</td>
</tr>
<tr>
<td>Sausage (beef)</td>
<td>00</td>
</tr>
<tr>
<td>6 doz. Eggs</td>
<td>96</td>
</tr>
<tr>
<td>Potato Balls</td>
<td>00</td>
</tr>
<tr>
<td>Luncheon:</td>
<td>2.58</td>
</tr>
<tr>
<td>Cold Meat (K. and B.)</td>
<td>$0.00</td>
</tr>
<tr>
<td>Hashed Turkey (F.)</td>
<td>00</td>
</tr>
<tr>
<td>20 lbs. Baked Potatoes (F.)</td>
<td>25</td>
</tr>
<tr>
<td>Creamed Potatoes (K. and B.)</td>
<td>00</td>
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<tr>
<td>12 lbs. Prune Sauce</td>
<td>78</td>
</tr>
<tr>
<td>Biscuit</td>
<td>12</td>
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<td><strong>Total for the day</strong></td>
<td>$25.53</td>
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### Tuesday, March 13.

<table>
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<tbody>
<tr>
<td>Breakfast:</td>
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</tr>
<tr>
<td>Bananas</td>
<td>$1.25</td>
</tr>
<tr>
<td>4.5 lbs. Rolled Wheat</td>
<td>18</td>
</tr>
<tr>
<td>Broiled Ham and Eggs (F.)</td>
<td>63</td>
</tr>
<tr>
<td>33 lbs. Cold Ham</td>
<td>3.72</td>
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<tr>
<td>33 &quot; Potatoes, baked</td>
<td>41</td>
</tr>
<tr>
<td>Mayonnaise</td>
<td>3.33</td>
</tr>
<tr>
<td><strong>Total for the day</strong></td>
<td>$31.81</td>
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</tbody>
</table>

### Reception and supper, Kelly:

| .5 lb. Tea | $0.30 |
| 4 cans Salmon | 60 |
| 4 boxes Wafers | 1.15 |
| 1 doz. Lemons | 25 |
| 1.2 doz. Oranges | 25 |
| 1 doz. Bananas | 25 |
| Mayonnaise | 3.33 |
| **Total for the day** | $25.53 |

### Tuesday, March 13.

<table>
<thead>
<tr>
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<td>Breakfast:</td>
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</tr>
<tr>
<td>Bananas</td>
<td>$1.25</td>
</tr>
<tr>
<td>4.5 lbs. Rolled Wheat</td>
<td>18</td>
</tr>
<tr>
<td>Broiled Ham and Eggs (F.)</td>
<td>63</td>
</tr>
<tr>
<td>33 lbs. Cold Ham</td>
<td>3.72</td>
</tr>
<tr>
<td>33 &quot; Potatoes, baked</td>
<td>41</td>
</tr>
<tr>
<td>Mayonnaise</td>
<td>3.33</td>
</tr>
<tr>
<td><strong>Total for the day</strong></td>
<td>$31.81</td>
</tr>
</tbody>
</table>

### Reception and supper, Kelly:

| .5 lb. Tea | $0.30 |
| 4 cans Salmon | 60 |
| 4 boxes Wafers | 1.15 |
| 1 doz. Lemons | 25 |
| 1.2 doz. Oranges | 25 |
| 1 doz. Bananas | 25 |
| Mayonnaise | 3.33 |
| **Total for the day** | $25.53 |
**FOOD AS A FACTOR**

### Dinner:
- Gumbo Soup $0.58
- 36 lbs. Lamb, roast 3.06
- 11 " Veal, roast 1.10
- 48 " Potatoes 0.61
- Turnips 0.00
- Parsnips 0.00
- 3 heads of Cabbage for salad 0.21
- Dressing 0.17
- 0.6 box Oranges 1.08
- 3 lbs. Walnuts 0.24
- 1 lb. Raisins 0.07

Total for the day $28.04

**Wednesday, March 14.**

**Constants** $13.51

**Breakfast:**
- 0.5 box Oranges $1.13
- 5 lbs. Rolled Oats 0.22
- Minced Meat on Toast 0.22
- 20 lbs. Potatoes, baked (F.) 0.22
- Potatoes, fried (K. and B.) 0.00

Luncheon:
- Baked Beans (K.) $0.00
- 10 lbs. Irish Stew (F.) 0.86
- 9 " Shepherd's Pie (B.) 0.76
- Stewed Peaches 0.00
- 16 lbs. Potatoes, baked 0.20

Dinner:
- 8 lbs. Potato for soup $0.12
- 59 " Beef, roast 6.24
- 53 " Potatoes 0.74
- Corn 0.00
- Blanc-mange 0.00

Total for the day $24.99

**Thursday, March 15.**

**Constants** $13.51

**Breakfast:**
- 4.5 lbs. Rolled Wheat $0.18
- 12 pots Marmalade 1.00
- 11 lbs. Beef, frizzled 1.30
- 35 " Potatoes 0.44

Luncheon:
- 28 lbs. Tongue, cold $2.52
- 23 " Potatoes, cream'd 0.20
- English Loaf Cake 0.87
- Corn Bread 0.16
- Peach Sauce 0.00

Total for the day $3.84

**Friday, March 16.**

**Constants** $13.51

**Breakfast:**
- 3 bunch Bananas (K.) $0.48
- 5.5 box Oranges (B. and F.) 1.08
- 5 lbs. Rolled Oats 0.18
- 23 " Potatoes 0.32
- Minced Beef 0.00
- Sausages 0.00
- 4.5 oz. Eggs, scrambled 0.90
- Potato balls (F.) 0.00

Luncheon:
- 51 lbs. Irish stew (K. and B.) 4.33
- 6 cans Salmon, cream'd 0.90
- 38 lbs. Potatoes, baked 0.48
- 4 " Apple Butter 0.32

Dinner:
- 2 gals. Tomatoes for soup $0.60
- 11 lbs. Beef Steak (K.) 1.54
- 51 " Lamb, boiled (B. and F.) 4.33
- 51 lbs. Potatoes 0.64
- 22 " Turnips 0.22
- Cottage Pudding 0.07
- Lemon Sauce 0.24

Total for the day $7.64

**Saturday, March 17.**

**Constants** $13.51

**Breakfast:**
- 1 bunch Bananas $1.25
- 2.5 oz. Oranges (K.) 0.30
- 5 lbs. Farinose 0.22
- Fried Potatoes 0.00
- 6 oz. Eggs, scrambled (B. and K.) 1.08
- Beef, frizzled (F.) 0.00
- 15 lbs. Potatoes (F.) 0.19

Total for the day $3.04
<table>
<thead>
<tr>
<th>Lunch (F.)</th>
<th>$0.00</th>
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<tbody>
<tr>
<td>Meat in brown gravy (B. and K.)</td>
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<tr>
<td>16 Loaf cakes</td>
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<tr>
<td>60 lbs. Sweet Potatoes, baked</td>
<td>1.00</td>
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<tr>
<td>Fruit Sauce</td>
<td>0.00</td>
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<table>
<thead>
<tr>
<th>Dinner</th>
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</thead>
<tbody>
<tr>
<td>9 lbs. Potatoes for soup</td>
<td>0.12</td>
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<tr>
<td>26 &quot; Turkey, roast (F.)</td>
<td>2.60</td>
</tr>
<tr>
<td>14 &quot; Steak (B.)</td>
<td>1.96</td>
</tr>
<tr>
<td>41 &quot; Lamb, boiled (K.)</td>
<td>3.48</td>
</tr>
<tr>
<td>50 &quot; Potatoes</td>
<td>0.63</td>
</tr>
<tr>
<td>3 &quot; Boiled Hominy</td>
<td>0.06</td>
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<tr>
<td>Tapioca Pudding (K. and B.)</td>
<td>0.60</td>
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<tr>
<td>Lemon Sherbet (F.)</td>
<td>0.80</td>
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<tr>
<td>Water Cress</td>
<td>0.25</td>
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Total for the day: $29.36

Sunday, March 18.

<table>
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<tr>
<td>.6 box Oranges</td>
<td>$1.69</td>
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<td>Baked Beans</td>
<td>0.63</td>
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<tr>
<td>Brown Bread</td>
<td>0.77</td>
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<tr>
<td>Fish balls</td>
<td>0.30</td>
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<table>
<thead>
<tr>
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<tr>
<td>Beef Soup</td>
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<td>52 lbs. Turkey, roast (B. and K.)</td>
<td>5.20</td>
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<tr>
<td>25.5 lbs. Beef, roast (F.)</td>
<td>3.18</td>
</tr>
<tr>
<td>51 lbs. Potatoes, mashed</td>
<td>0.75</td>
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<tr>
<td>16 &quot; Parsnips</td>
<td>0.16</td>
</tr>
<tr>
<td>Cranberry Jam</td>
<td>0.80</td>
</tr>
<tr>
<td>Water Cress</td>
<td>0.25</td>
</tr>
<tr>
<td>Lemon Sherbet</td>
<td>0.17</td>
</tr>
<tr>
<td>2 boxes Wafers</td>
<td>0.60</td>
</tr>
</tbody>
</table>

Total for the day: $33.37

Monday, March 19.

<table>
<thead>
<tr>
<th>Breakfast</th>
<th>$13.51</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 lbs. Farinose</td>
<td>0.22</td>
</tr>
<tr>
<td>11 pots Marmalade</td>
<td>1.54</td>
</tr>
<tr>
<td>Cold Meat</td>
<td>0.60</td>
</tr>
<tr>
<td>Potato Balls</td>
<td>0.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lunch</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Meat in brown gravy</td>
<td>$0.00</td>
</tr>
<tr>
<td>60 lbs. Sweet Potatoes</td>
<td>1.00</td>
</tr>
<tr>
<td>Corn Bread (K.)</td>
<td>0.20</td>
</tr>
<tr>
<td>Fruit Sauce</td>
<td>1.10</td>
</tr>
</tbody>
</table>

Total for the day: $29.05

Tuesday, March 20.

<table>
<thead>
<tr>
<th>Breakfast</th>
<th>$13.51</th>
</tr>
</thead>
<tbody>
<tr>
<td>.7 box Oranges</td>
<td>$1.69</td>
</tr>
<tr>
<td>6 lbs. Oatmeal</td>
<td>0.18</td>
</tr>
<tr>
<td>8 &quot; Sausage</td>
<td>0.52</td>
</tr>
<tr>
<td>Chops</td>
<td>0.75</td>
</tr>
<tr>
<td>Potatoes, fried</td>
<td>0.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lunch</th>
<th>3.14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minced Meat</td>
<td>$0.00</td>
</tr>
<tr>
<td>60 lbs. Sweet Potatoes</td>
<td>1.00</td>
</tr>
<tr>
<td>Corn Bread (F.)</td>
<td>0.45</td>
</tr>
<tr>
<td>12 lbs. Apricot Sauce</td>
<td>1.88</td>
</tr>
<tr>
<td>5 gal. Pickles</td>
<td>0.27</td>
</tr>
</tbody>
</table>

Total for the day: $3.70

Dinner:

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10 cans Corn for soup</td>
<td>$0.00</td>
</tr>
<tr>
<td>54 lbs. Lamb, roast</td>
<td>4.50</td>
</tr>
<tr>
<td>50 &quot; Potatoes</td>
<td>0.63</td>
</tr>
<tr>
<td>3 &quot; Hominy</td>
<td>0.06</td>
</tr>
<tr>
<td>3 qts. Olives</td>
<td>0.65</td>
</tr>
<tr>
<td>9 lbs. Dried Fruit</td>
<td>0.90</td>
</tr>
<tr>
<td>5 bunch Bananas</td>
<td>0.65</td>
</tr>
<tr>
<td>2 cans Peaches</td>
<td>0.32</td>
</tr>
</tbody>
</table>

Total for the day: $8.70
FOOD AS A FACTOR

Wednesday, March 21.

Constants $13.51

Breakfast:
- 5 box Oranges $1.00
- 5 lbs. Rolled Oats 18
- 23 " Sausage (K.) 33
- 38 lbs. Potatoes, baked 47
- Potatoes, fried 00

Luncheon:
- Cold Meat $0.00
- Baked Beans (B.) 00
- Creamed Potatoes 00
- Cottage Cheese 00
- 11 lbs. Apple Butter 88
- Lemonade 13
- 11 lbs. Sugar 15

Dinner:
- Soup $0.00
- 89.5 lbs. Chicken, roast 1074
- 50 lbs. Potatoes 63
- Corn 00
- Homeny, blanc-mange 12
- 3 lbs. Sugar 15

Total for the day $31.72
Average for the 21 days $29.55

TABLE IV.—ONE DAY’S FOOD, MARCH 17, AT THE UNIVERSITY OF CHICAGO, CALCULATED TO DETERMINE THE AMOUNTS AND PROPORTIONS OF THE VARIOUS CONSTITUENTS AND THEIR COMPARISON WITH THE GENERAL AVERAGE.

<table>
<thead>
<tr>
<th>Lbs.</th>
<th>Stew and cold meat</th>
<th>21.0</th>
<th>8.0</th>
<th>10.5</th>
<th>4.0</th>
<th>17.2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>White potatoes</td>
<td>1.8</td>
<td>2.2</td>
<td>1.6</td>
<td>.18</td>
<td>11.7</td>
</tr>
<tr>
<td></td>
<td>Sweet potatoes</td>
<td>1.5</td>
<td>4.6</td>
<td>26.0</td>
<td>.7</td>
<td>11.7</td>
</tr>
<tr>
<td></td>
<td>Dried beef</td>
<td>34.0</td>
<td>7.5</td>
<td>8.9</td>
<td>1.4</td>
<td>53.9</td>
</tr>
<tr>
<td></td>
<td>Flour and grain</td>
<td>11.5</td>
<td>1.8</td>
<td>70.0</td>
<td>8.9</td>
<td>14.5</td>
</tr>
<tr>
<td></td>
<td>Tapioca</td>
<td>1.3</td>
<td>83.0</td>
<td>2.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Milk</td>
<td>3.5</td>
<td>7.0</td>
<td>6.8</td>
<td>7.1</td>
<td>9.0</td>
</tr>
<tr>
<td></td>
<td>Cream</td>
<td>3.0</td>
<td>12.0</td>
<td>4.1</td>
<td>1.6</td>
<td>.4</td>
</tr>
<tr>
<td></td>
<td>Butter</td>
<td>2.0</td>
<td>83.0</td>
<td>12.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sugar</td>
<td>3.5</td>
<td>96.5</td>
<td>14.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prunes</td>
<td>3.5</td>
<td>96.5</td>
<td>14.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oranges, less 20% waste</td>
<td>1.0</td>
<td>11.0</td>
<td>8.6</td>
<td>.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bananas, less 50% waste</td>
<td>4.85</td>
<td>19.7</td>
<td>1.3</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eggs</td>
<td>12.5</td>
<td>12.0</td>
<td>.9</td>
<td>.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lamb</td>
<td>20.0</td>
<td>15.0</td>
<td>8.2</td>
<td>6.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Turkey</td>
<td>19.0</td>
<td>5.0</td>
<td>5.0</td>
<td>1.3</td>
<td>6.2</td>
</tr>
<tr>
<td></td>
<td>Steak</td>
<td>15.0</td>
<td>22.0</td>
<td>2.1</td>
<td>3.1</td>
<td></td>
</tr>
<tr>
<td>657.2</td>
<td>Less turkey, lamb and bread left over</td>
<td>48.3</td>
<td>38.6</td>
<td>119.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>76.0</td>
<td>Divided by 130.</td>
<td>4.0</td>
<td>36.2</td>
<td>95.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>581.2</td>
<td>Per person, nutrients</td>
<td>.310</td>
<td>.281</td>
<td>.731</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.4</td>
<td>Daily average for the 6 mos., nutrients</td>
<td>108.</td>
<td>102.</td>
<td>381.</td>
<td></td>
<td>2946</td>
</tr>
<tr>
<td>126.5</td>
<td>grams. grams. grams.</td>
<td></td>
<td></td>
<td></td>
<td>332.0</td>
<td>2953</td>
</tr>
</tbody>
</table>
IN STUDENT LIFE.

Table V.—Comparison of a School Dietary with the University of Chicago Dietary.

Several significant and interesting facts are shown by an examination of the following comparison of a wholesome and sufficient dietary of a school in Indiana, where 600 students were boarded at $1.40 per week, with that of the University of Chicago, where 106 students were boarded at $3.50 per week. One source of advantage on the side of the school is that a much larger number of persons are fed and certain expenses are proportionately reduced. In the second place, very little service beside student help is furnished at the school, and a large item of expense is thus removed. Another difference is seen in the substitution at the school of cheaper foods, such as cereals, vegetables, syrup, and butterine, for meat, milk, cream, fruits, and other more expensive foods, though the actual amount of nourishment furnished was practically the same in both cases.

<table>
<thead>
<tr>
<th></th>
<th>Quantity per Person per Day</th>
<th>Percentage of Total Cost of Each Article</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beef</td>
<td>.476</td>
<td>.442</td>
</tr>
<tr>
<td>Other meats</td>
<td>.119</td>
<td>.062</td>
</tr>
<tr>
<td>Fish</td>
<td>.785</td>
<td>.437</td>
</tr>
<tr>
<td>Flour and Grain</td>
<td>1.085</td>
<td>.820</td>
</tr>
<tr>
<td>Potatoes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vegetables (other than potatoes)</td>
<td>.490</td>
<td>.219</td>
</tr>
<tr>
<td>Beans</td>
<td>.057</td>
<td>.015</td>
</tr>
<tr>
<td>Milk</td>
<td>.666</td>
<td>1.285</td>
</tr>
<tr>
<td>Cream</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sugar</td>
<td>.135</td>
<td>.140</td>
</tr>
<tr>
<td>Syrup</td>
<td>.085</td>
<td>.017</td>
</tr>
<tr>
<td>Butter</td>
<td></td>
<td>.089</td>
</tr>
<tr>
<td>Butterine</td>
<td>.119</td>
<td>.014</td>
</tr>
<tr>
<td>Dried fruits</td>
<td>.171</td>
<td>.000</td>
</tr>
<tr>
<td>Fresh ” }</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canned “</td>
<td>2.59</td>
<td>5.08</td>
</tr>
<tr>
<td>Sundries</td>
<td></td>
<td>.022</td>
</tr>
<tr>
<td>Tea, coffee</td>
<td>.026</td>
<td>.020</td>
</tr>
<tr>
<td>Cocoa, chocolate</td>
<td></td>
<td>.006</td>
</tr>
<tr>
<td>Eggs and Cheese</td>
<td></td>
<td>.043</td>
</tr>
<tr>
<td>Unclassified groceries</td>
<td>.036</td>
<td>.020</td>
</tr>
</tbody>
</table>
TABLE VI.—STANDARD AND ACTUAL DIETARIES.

The question arises of how much significance are such computations as to real nutrition. In other words how much dependence can be put upon calculations of nutritive values. It can only be completely answered by many experiments of a character similar to the present one, but the results of many investigations in Germany and elsewhere have given considerable confidence in certain standards for the average person, although it is granted at the outset that there are personal idiosyncrasies in the human animal more often than in the domestic animal, so that only a general average dietary can be assumed. From this, however wisely it may be chosen, a few individuals will of necessity vary in their needs.

To the zeal of Professor W. O. Atwater, of Wesleyan University and the Storrs Agricultural Experiment Station, is due most of the work in the investigation of foods and dietaries which has been done in this country. From his tables are taken the following standard dietaries with which the one now reported is compared:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Dietaries.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Woman at moderate work (German)</td>
<td>92</td>
<td>44</td>
<td>400</td>
<td>536</td>
<td>2425</td>
</tr>
<tr>
<td>Man</td>
<td>118</td>
<td>56</td>
<td>500</td>
<td>674</td>
<td>3055</td>
</tr>
<tr>
<td>Man at hard work</td>
<td>145</td>
<td>100</td>
<td>450</td>
<td>695</td>
<td>3370</td>
</tr>
<tr>
<td>Man with moderate exercise (English)</td>
<td>116</td>
<td>51</td>
<td>531</td>
<td>701</td>
<td>3140</td>
</tr>
<tr>
<td>Active laborer</td>
<td>126</td>
<td>71</td>
<td>568</td>
<td>795</td>
<td>3630</td>
</tr>
<tr>
<td>Hard-worked laborer</td>
<td>135</td>
<td>71</td>
<td>568</td>
<td>824</td>
<td>3650</td>
</tr>
<tr>
<td>Woman with light exercise (American)</td>
<td>80</td>
<td>80</td>
<td>390</td>
<td>460</td>
<td>2300</td>
</tr>
<tr>
<td>Man</td>
<td>100</td>
<td>100</td>
<td>360</td>
<td>560</td>
<td>2815</td>
</tr>
<tr>
<td>Man at moderate work</td>
<td>125</td>
<td>125</td>
<td>450</td>
<td>700</td>
<td>3520</td>
</tr>
<tr>
<td>Man at Hard work</td>
<td>150</td>
<td>150</td>
<td>500</td>
<td>800</td>
<td>4060</td>
</tr>
<tr>
<td>Actual Dietaries.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sewing-girl (London) bare subsistence</td>
<td>53</td>
<td>33</td>
<td>316</td>
<td>402</td>
<td>1820</td>
</tr>
<tr>
<td>University professor (Germany)</td>
<td>100</td>
<td>100</td>
<td>240</td>
<td>440</td>
<td>2324</td>
</tr>
<tr>
<td>Average of wage-workers in Mass. and Conn., food purchased</td>
<td>152</td>
<td>225</td>
<td>625</td>
<td>1002</td>
<td>5275</td>
</tr>
<tr>
<td>Average of professional men and students, food purchased</td>
<td>132</td>
<td>163</td>
<td>508</td>
<td>894</td>
<td>4140</td>
</tr>
<tr>
<td>U. S. army ration</td>
<td>129</td>
<td>161</td>
<td>454</td>
<td>735</td>
<td>3850</td>
</tr>
<tr>
<td>Women Students University of Chicago, average weight 120 pounds</td>
<td>126</td>
<td>131</td>
<td>402</td>
<td>659</td>
<td>3383</td>
</tr>
<tr>
<td>Equivalent calculated for 156 pounds weight</td>
<td>164</td>
<td>170</td>
<td>521</td>
<td>855</td>
<td>4338</td>
</tr>
</tbody>
</table>
In order to establish a factor for future calculations, an estimate of actual waste was made, which, although far from being as exact as is desirable, is a distinct contribution to our knowledge. It shows that ten per cent., the usual estimate, is the minimum amount which must be deducted from the usual dietaries, while the actual amount is frequently much larger.

The per cent. of indigestibility would be in most cases somewhat greater than in the present one, since in this case great pains was taken to secure the highest limit of digestibility as well as the lowest limit of waste.

<table>
<thead>
<tr>
<th>Nutrients.</th>
<th>Protein, grams</th>
<th>Fat, grams</th>
<th>Carbohydrate, grams</th>
<th>Total grams</th>
<th>Calories used by a person weighing 150 lbs.</th>
<th>Equivalent calories for 150 lbs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food as bought</td>
<td>126</td>
<td>131</td>
<td>402</td>
<td>659</td>
<td>3370</td>
<td>4398</td>
</tr>
<tr>
<td>Less 10% waste</td>
<td>113</td>
<td>118</td>
<td>362</td>
<td>553</td>
<td>3045</td>
<td>3058</td>
</tr>
<tr>
<td>Less actual waste</td>
<td>108</td>
<td>102</td>
<td>381</td>
<td>591</td>
<td>2953</td>
<td>3838</td>
</tr>
</tbody>
</table>
FOOD AS A FACTOR

III.

BIBLIOGRAPHY OF SOME RECENT PUBLICATIONS

Abel, Mary H., Practical Sanitary and Economic Cooking, Rochester, N. Y., 1890.
Atwater, W. C., Reports of Connecticut Agricultural Experiment Station.
Davis, C. W., A Compendium of the World's Food Production and Consumption.
Goddard, Kansas, 1891.
Ebstein, W., Ueber eiweissreiches Mehl und Brot als Mittel zur Aufbesserung der Volksernährung. Wiesbaden, 1892.
Fothergill, J. M., The Food We Eat; Why We Eat it and Whence it Comes. London, 1892.
Reports of the American Public Health Association.
Rumford, Count, Works, Volume IV. American Academy, Boston.
Thompson, Sir H., Diet in Relation to Age and Activity. Boston, 1888.
" " " Food and Feeding. London, 1880.
Wilder, B. G., Health Notes for Students. 3d ed. New York, 1890.
Woltering, Diätetisches Handbuch für praktische Ärzte. Berlin, 1892.

CHICAGO, July, 1894.
is not, of course, nearly as high as would be shown with larger machines. Activities varying from 1.31 horse-power to 0.004 horse-power have been obtained, with efficiencies varying from 84.5 per cent to 10.1 per cent. Professors Ayrton and Perry in their paper on “Electro-Motors, and their Government” (Journal Society of Telegraph Engineers, 1883), state that motors may be constructed to deliver one horse-power per one hundred pounds of dead weight. Table III. shows the horse-power per pound weight of the various motors tested, and in no case does it rise as high as 0.01 of a horse-power. Their own motor, as will be seen by referring to the table, gives but 0.0045 of a horse-power per pound of dead weight. In the most efficient machine tested, the horse-power delivered per one hundred pounds dead weight of machine falls a little short of 0.8 of a horse-power. I think that for moderately small motors, about three hundred pounds per horse-power would be a closer figure, although with larger motors this would of course be considerably reduced.

Rogers Laboratory of Physics; March 1887.

ON THE DETERMINATION OF ORGANIC MATTER IN AIR.

BY MARION TALBOT, A.M.

THE determination of the nature of organic matter in air is one of the most difficult problems which can be presented to the chemist, as well as one of the most interesting to the sanitarian.

The methods employed by Dr. R. Angus Smith* were based upon the power of water to absorb organic matter. Dr. Smith also attempted to use a dilute solution of permanganate as an indicator of different degrees of purity of the air; but the presence of other reducing agents than organic matter vitiated the results, and led to the abandonment of the method. It has been revived recently in a modified form by Carnelley and Mackie.†

Dilute sulphuric acid is used as an absorbent in the Observatory of Montsouris.

Mr. E. T. Chapman‡ attempted to modify the process of Wanklyn and Smith for the estimation of ammonia, and apply it to a determination of

* Air and Rain, pp. 399, 421.
organic matter in air. He used several kinds of absorbers, and finally decided upon pumice-stone as the most efficacious.

The suggestion of Chapman was adopted by Prof. Ira Remsen,* who substituted for the funnel used by Chapman a glass tube,—13 to 18 cm. long and 10 mm. internal diameter. By this means he sought to accomplish two aims,—"To diminish the surface of the absorbing material directly exposed to the air, and to increase the thickness of the mass through which the air was to be passed."

During the past six years, several students at the Massachusetts Institute of Technology have tried to make determinations according to Prof. Remsen's method. The results have been most varied, but in no case completely satisfactory. This experience has served to confirm the last of Prof. Remsen's "general conclusions" in regard to his method. It is stated as follows: "It would be useless to have examinations of air made by any but the most careful workers. It would be time thrown away to have such analyses made by the average practical chemist."

In seeking the causes of the failure, the operation of filling the tube with pumice and transferring it to the flask was found to present serious difficulties. Blank determinations indicated also that mere ignition of the pumice which was used could not be depended upon to secure freedom from organic matter.

The writer made a blank determination, using pumice which had been boiled in permanganate several times and had been standing in permanganate for a year, and was therefore supposed to be entirely free from ammonia. The object was to ascertain if, with this specially prepared pumice and using extreme care, one could perform the necessary manipulation and make the transference without introducing an error. In spite of the precautions taken, ammonia was found in the distillate. The conclusion was, either that, contrary to the supposition, the pumice used was not free from organic matter, or that the mere act of transference resulted in a considerable error. An experiment, showing that a few drops of water trickling over the tip of a finger gave as much free ammonia as several cubic feet of air would give of total ammonia, indicated that inadvertent or incautious handling might prove a serious source of error.

The suggestion was then made to treat the air which was to undergo examination directly with boiling alkaline permanganate, without the intervention of an absorbent, and measure the ammonia in the distillate. The air was made to bubble slowly through the boiling permanganate by means of a platinum tube with minute perforations.

* Bulletin of the National Board of Health, Sept. 11, 1880.
The first point determined was, that no free ammonia escaped condensation. This was shown by passing the air through a U tube containing acidulated water. Although no ammonia was obtained in this U tube it was retained as a part of the apparatus, as the bubbles of air passing through the liquid served as a more delicate measure of the rate of flow and the tightness of the connections than the index of the meter.

A series of determinations proved that the rate of flow through the permanganate directly affected the results, and two or three cubic feet per hour was generally adopted as the maximum rate.

It was found that the first distillate, on being redistilled, gave an increased amount of ammonia. The conclusion was, that some of the organic matter escaped oxidation in the permanganate, and was retained in the steam which was condensed and collected at various points in the condenser and its connections. It was this fact which led to the adoption of a long, vertical connection between the flask and the condenser. A large proportion of the steam was thus condensed and returned to the flask, bearing with it a certain amount of unconverted organic matter to be acted upon over and over again by the permanganate. In spite of this precaution the process of redistilling was found essential.

Up to this point no step had been taken to ascertain whether all the organic matter was actually retained and converted. In order to decide this important question two sets of apparatus were so arranged that the air examined would pass from one to the other, and be twice subjected to the process of oxidation and distillation. It was somewhat startling, as well as disappointing, to find that the first flask had merely played the part of a coarse filter, the second flask giving half as much ammonia as the first. A logical procedure, but one which was also impracticable, would have been to add set after set of apparatus, until finally the distillate from the last would give no ammonia; but the question at once arose, did the ammonia in the second flask come from the organic matter which had escaped oxidation, or was it introduced by the act of transference of the distillate? Four determinations were made to decide this point. No air was passed through the boiling permanganate, but the process of distillation, transference, and redistillation was carried on just as in preceding experiments. The apparatus was entirely free from ammonia at the beginning of the operation, and at the end the following amounts were obtained: 0.000010, 0.000015, 0.000011, 0.000010 mg., or as much as had been obtained from one to two cubic feet of air in previous experiments. The error could
hardly be called constant; indeed, the fact that there was an error led to the inference that it probably could not be constant. The utmost care was used in transferring the condensed liquid back to the flask, but it seemed impossible to prevent minute particles of dust, which had settled upon the lip of the flask, from working their way into the crack between the flask and the cork, and dropping into the permanganate when the tightly fastened cork was removed.

This experiment, discouraging as it seemed at first sight, nevertheless presented, in definite form, the objections to the method as carried out by the writer. They were seen to be transference and redistillation. A simple expedient for removing the difficulty was tried. During the passage of the air the condenser was inclined upward, so that all the steam, as it condensed, returned to the flask containing the boiling permanganate. The tube was thus sealed with condensing steam, and in this way the particles of organic matter which were not completely decomposed at the first passage, were returned again and again to be acted upon by the permanganate. As a check upon this modification the second set of apparatus was again used to receive the air as it emerged from the first set. The result was, that no ammonia was obtained from the second flask, provided the water seal in the first condenser was deep and remained unbroken.

The arrangement of the apparatus is shown in the accompanying sketch. The condenser is replaced in its normal position without breaking the connections for the final distillation.

In spite of the fact that this method avoided the ammonia which was introduced by the transference in the previous experiments, the total ammonia found was much larger than had been before obtained. This was doubtless due to the more complete retention and effectual breaking up of the organic matter.

Sample results of the determinations made are as follows:

<table>
<thead>
<tr>
<th>Source of Air</th>
<th>Amount taken cubic feet</th>
<th>Rate per cubic foot</th>
<th>NH$_3$ gm. per 1000 cu. meters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory</td>
<td>4.3</td>
<td>4.3</td>
<td>0.0000114</td>
</tr>
<tr>
<td>Laboratory, dust raised by sweeping</td>
<td>1.9</td>
<td>2.5</td>
<td>0.0000126</td>
</tr>
<tr>
<td>Lungs</td>
<td>2.1</td>
<td>3.1</td>
<td>0.0000150</td>
</tr>
<tr>
<td>Body, sifted through clothes</td>
<td>1.9</td>
<td>2.1</td>
<td>0.0000105</td>
</tr>
<tr>
<td>External</td>
<td>3.1</td>
<td>1.6</td>
<td>0.0000074</td>
</tr>
<tr>
<td>External (duplicate)</td>
<td>3.05</td>
<td>1.6</td>
<td>0.0000069</td>
</tr>
</tbody>
</table>

The following figures are given by Professor Remsen, stated in terms of grams per thousand cubic meters:

<table>
<thead>
<tr>
<th>External Air</th>
<th>First experiment</th>
<th>0.343</th>
</tr>
</thead>
<tbody>
<tr>
<td>Second</td>
<td>0.361</td>
<td></td>
</tr>
<tr>
<td>Third</td>
<td>0.449</td>
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<table>
<thead>
<tr>
<th>External Air</th>
<th>First experiment</th>
<th>0.154</th>
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<tbody>
<tr>
<td>Second</td>
<td>0.140</td>
<td></td>
</tr>
<tr>
<td>Third</td>
<td>0.115</td>
<td></td>
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<table>
<thead>
<tr>
<th>Laboratory Air</th>
<th>First experiment</th>
<th>0.65</th>
</tr>
</thead>
<tbody>
<tr>
<td>Second</td>
<td>0.72</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Laboratory Air</th>
<th>First experiment</th>
<th>0.519</th>
</tr>
</thead>
<tbody>
<tr>
<td>Second</td>
<td>0.495</td>
<td></td>
</tr>
</tbody>
</table>

The slightly increased amount of ammonia obtained from the lungs over that found in the laboratory air, and the still smaller amount in the air from the body, which had been sifted through the clothes, led to the supposition that the suspended matter in air, revealed by the sunbeam, was the principal source of the ammonia. Various kinds of dust were distilled in alkaline permanganate, in order to obtain some idea of the amount of ammonia which they contained. The samples were collected in different rooms at a considerable height, where the finest dust had floated. That taken from a beam fifteen feet high in the Sanitary Laboratory, yielded 0.0000023 gram of ammonia per milligram. Other samples from rooms in houses were collected from the tops of doors and book-cases. The amounts of ammonia obtained were 0.0000130 gram.
per milligram, 0.0000185, and 0.0000055,— the last being largely dust from a coal fire. These figures confirmed the supposition that during the course of a determination of the organic matter in air, enough fine dust might settle on the lip of the flask and the cork to seriously vitiate the result.

The writer desires to express her indebtedness to Mrs. Ellen H. Richards and Prof. T. M. Drown for suggestions and criticisms.

LABORATORY OF SANITARY CHEMISTRY; April, 1887.

A REGULATOR FOR MAINTAINING CONSTANT EXHAUSTION.

BY S. W. HOLMAN, S.B.

In an investigation on the transpiration of gases through capillary tubes,* the following problem presented itself: to maintain a constant partial exhaustion in a closed space of about 10 liters capacity, into which a slow, continuous inflow of air or other gas took place; it being also necessary to vary, in separate experiments, the degree of the exhaustion. The apparatus devised to meet these requirements proved satisfactory; and as many occasions arise in physical and chemical work in which this simple device may be of service, the following description is given.

A glass tube i, about an inch in diameter, stands upright in a mercury trough g h, two or three inches in diameter. Into the top of i is inserted a rubber stopper with two borings. Through one of these passes one arm of a T joint, a b c d, whose other two arms are connected with the aspirator and with the vessel to be exhausted. The latter, if great steadiness is desired, should be several liters in capacity, or be connected with a closed space of at least that volume. Through the other boring passes a tube e f p, of one or two millimeters internal diameter, bent twice at right angles, and dipping into the mercury in h g. Suppose that the vessel to be exhausted is closed,—the apparatus is available for cases ranging from this condition to a leakage at about half the rate of exhaustion, which can be had through a,—and that the exhaustion is begun. As it proceeds, the mercury rises equally in both j and f, until the mercury

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But the theme is too wide and alluring for the crowded space of *The University Magazine*, which, in its aims, endeavors and successes, is, in many ways, itself an Alumni Association.

G. S. Plumley.

---

**Night.**

In the golden and crimson of evening I ponder,
And gaze on the cloud-castles wondrous and rare.
Far away in the sunset full fain would I wander,
And sport with the fairies I fancy are there.

How soft o'er the campus the moonlight is stealing,
The landscape all bathed in the pale, clinging light;
All silent the air, save the chimes' muffled pealing,
But oh, it is study time! Farewell to thee, Night.

—R. J. Kellogg.
The Work of College Women.

The annual meeting of the Association of Collegiate Alumnae, held recently in Chicago, brought together nearly one hundred women from eleven different states and representing eleven different colleges. There was no tinge of sectional spirit or collegiate prejudice in the gathering. Educational matters of universal concern were discussed broadly and ably by American women with American collegiate training.

The chief aspects of the meeting may be summed up under three general heads, viz.: work accomplished, future plans, and social features, while a few facts in relation to the structural organization of the Association may not be without interest. It numbers at present 1205 members, about half of whom are also members of the local branches.

Graduates from fifteen colleges are now entitled to membership, one of the first and most pleasant items of business being the ratification of the committee reports recommending the admission of Bryn Mawr College. The report of the special committee on admission of colleges, represented by Mrs. Florence M. Cushing, was an able discussion of an important and difficult theme, and showed that there had been much careful investigation of the standards of different colleges, and that the Association may have an opportunity in the future to strengthen the hands of those who are working for the advancement of collegiate standards in this country. A cordial welcome was given to new Branches which had been organized during the year in Detroit, Indianapolis, Buffalo and Albany. This makes the total number twelve, the others having their headquarters in Washington, New York, San Francisco, Philadelphia, Boston, Syracuse, Minnesota and Chicago. The work of these local organizations was reported in an interesting manner. It is of greatly diversified character, while its general scope is naturally educational, yet it has a special tendency toward social problems. Fifty-two business, social and literary meetings had been held during the year with a corresponding number of papers and formal discussions. Nine clubs for the systematic study of special subjects have been formed under the auspices of the branches, and several lines of work have been carried on by special committees.

The annual meeting is the principal opportunity which the members in general have of meeting personally, but the publications of the Association issued frequently, form a bond of union. Last year eleven thousand copies of eight different leaflets and pamphlets were printed and distributed.

The Committee on American Fellowship reported that a fellowship had been maintained at Michigan University and the Committee on European Fellowship announced that its work had been organized and the first fellow appointed. The efforts of the Association will be directed during the coming year to placing these fellowships, amounting to $350 and $500 respectively, on a more permanent basis. The administration of the fellowships has been placed in the hands of a single committee under the chairmanship of Mrs. Alice Freeman Palmer.

The Committee charged with the task of bringing the needs of existing colleges to the notice of educational philanthropists, made a report which showed the value of such work and the importance, in most parts of the country, of strengthening rather than multiplying educational institutions. The Committee on Withdrawals from College presented a preliminary report outlining their proposed method of investigating the causes which lead girls to discontinue their college course before its completion. This investigation will extend over a term of years and will undoubtedly prove effective not only in correcting some popular misunderstandings, but also in improving certain conditions from which the present system of collegiate education suffers. The suggestions made in this report led directly to a discussion of the importance of the training given to a child during its earliest years, and it was resolved that the Association could undertake no more valuable work than an investigation in this line. Accordingly a Committee was appointed to make inquiries concerning the work which has already been done in studying the development of childhood and to report what can be done by the Association in the future.

The Committee on Educational Progress made a preliminary report concerning the status of collegiate education for women in the United States, and during the coming year will conduct a systematic investigation.

Among other new undertakings the Association voted to publish the bibliography of the literature on the higher education of women, already nearly compiled by a sub-committee, to authorize the head of the Bureau of Collegiate Information to keep a list of women qualified in every respect to occupy positions on college faculties and to appoint a Committee to organize a system whereby information concerning opportunities for work as teachers or in other departments can be interchanged between the members of the Association.

The members received most courteous hospitality from the Chicago Branch, whose guests they were, and also enjoyed a day spent at Northwestern University. All who were present are glad because of the new sympathies which have sprung up as a result of the meeting.

Marion Talbot.
Japanese Students.

CONFUCIUS once represented himself as a scholar "who, in his eager pursuit of knowledge, forgot his food, and in the joy of its attainment forgot his sorrow and approaching old age." Of another famous Chinese student it is said: "He studied by the light of the glow-worm and by the glare of the snow." Similar hyperboles may picture the enthusiasm of the Japanese, particularly since the Meiji, "the era of enlightenment."

In the 28,000 elementary schools of Japan there are two and a half million pupils. In the next higher grade there are 1,450 schools and 140,000 pupils. The 28 ordinary middle schools have 10,000 pupils. The period is five years, and only boys attend. Most of them go no higher. Some, however, take the final two years in the higher middle schools. There are seven of them, with but 420 in attendance. Dr. Knox, of Tokyo, from whose compilations for 1890 these figures are taken, says that relatively little has been done for female education. Few fathers care to give daughters an education. The early age of marriage is another obstacle. All education, he confesses, lacks the moral element. Having broken away from Confucianism, and being unwilling to adopt Christianity, Japan has no dominating moral system. One result is relaxed parental discipline. Boys are their own masters, choose their schools, studies and professions. They develop fast. "At an age when American boys are intent on base ball and tennis, these precocious Japanese are establishing themselves as politicians. They are keen to understand the heavens and the earth, and think no discussion too recondite for their powers. They not only discuss, but they act. They really exert a considerable influence in many public affairs, and they see no reason why their advent into political life should be deferred. These young men study hard and often think clearly and well. They are patriots to the last drop of blood, and are as ready to serve Japan as were ever their warrior ancestors. They are bright and earnest. They are the soul of new Japan." Many of the Japanese of these government schools are sons of samuri, the military class, the governing class in fact, for plebeians cannot readily rise to high positions, and the old feudal lords have lagged behind in the race the past two decades.

The Japanese mind is clear rather than deep, acute rather than comprehensive. The memory is often disproportionately developed as in China. It would not do to punish a student by giving him an additional task in memorizing and then stay after school to hear him recite. You might be served as Daniel Webster served Samuel Woods, his teacher. When about 14, he was found to be too fond of fishing and hunting. Mr. Woods told him one day, after reprimanding him, that he must recite the next morning as many lines in Virgil as he could
DOMESTIC SCIENCE AS A SYNTHETIC STUDY FOR GIRLS

BY MRS. ELLEN H. RICHARDS, INSTITUTE OF TECHNOLOGY, BOSTON, MASS.

If “the youth must always begin again at the beginning, and as an individual make his way through the epochs of the world’s civilization,” and if “the aim of education is to have the pupil reach the highest intellectual and moral standpoint of the race in the briefest time and with the greatest economy of effort,” it is evident that the recapitulation of the experimental knowledge which the race has slowly accumulated thru one or two hundred centuries must be condensed into ten or twenty years of the pupil’s existence—a thousand years of race development into one year of the child’s life. It, therefore, behooves all who have to do with the education of children to search for the fundamental ideas of each race epoch, those which lifted the race highest, and not to waste time on mere survivals. Certain short-cuts must be found which will lessen the time and effort required.

Morgan gives as the fundamental ideas which have induced invention and discovery, and resulted in civilization: (1) subsistence, (2) government, (3) language, (4) the family, (5) religion, (6) house life and architecture, (7) property.

For the purposes of this argument, the epochs may be provisionally stated as animal, savage, earlier and later barbarian, earlier and later civilized.

According to Romanes, “the highest development of the animal mode of thought is reached by the child in the first part of its second year.” The long period of savagery is shortened for the modern child into two or three years by the circumstances of family life. He does not need to search for subsistence, or to provide shelter, or to invent a language. His environment offers this, and he needs only to correlate himself with it to discover himself as an individual.

The early barbarian age comes to the average child at about three to five years. Characteristic of this epoch are picture writing, symbolic of dawning ideas of a religious character; the making of rude implements; the beginning of ownership. The later barbarian age may correspond to the age of five to eight years. The use of sharp tools, the ornamentation of clothes and of articles for ceremonial observance, the excessive use of color, the acquisition of property, the beginnings of government and community life, belong to this period.

1 Goethe. 2 Vincent.
The epoch of early civilization includes a control of the newly discovered forces of nature, namely science, and, as a result, the beginning of arts and manufactures, the extension of industrial processes, the consequent evolution of house life and architecture. It is this epoch which has been neglected in most schemes of education, and for which I wish to plead as an educational force.

To make the point clear, let us review the ruling impulses of the epochs: The savage seeks food and shelter, such as nature offers him. His whole life is bound up in the preservation of the race. The barbarian feels the thrill of conquest, is fired by ambition for the future power of his family, and he begins to accumulate. Civilization, being more or less permanent, looks to perpetuate its victories in stone and in song; to please itself with creating, from the bountiful gifts of nature, things for its own pleasure which are not necessary for daily life as mere existence. It creates wants and then supplies them. A new breath of life has been breathed into the race. "Free ideas," the "creative instinct"—call it what you will—it expresses itself in the effort to make something, a constant activity, instead of basking in the sun when hunger is satisfied. There is now a hunger of the soul which is never satisfied. Underneath child-study is the study of the race stages which influence the child's mental development. What do our schools offer to our children to foster their mental growth by utilizing this race impulse? What do we not do to kill this yearning? We put young children on hard seats, in cramped positions—barbarians, nay savages, that we are—force into their hands a dead book, which must not be crumpled or torn, and exclaim, "Study! study! recite!" and this when the race instinct demands things, objects to be handled, to be put together, built up into something which pleases and gratifies. The pulling into pieces of flowers and animals has no place in the curriculum at this age, and the length of time required for seeds to grow and eggs to hatch precludes much of this work as an educational factor in the lives of those to whom an hour is as long to wait for results as is a year to the adult. Constructive is the keynote of the education of the child between the ages of eight and fourteen years, synthesis in distinction from analysis.

Is it safe to ignore this fundamental phase of race development? If we have neglected it at its proper time, is it safe to count upon the survival of the creative force after the pupil has passed thru the fiery ordeal of study from books and examination for promotion? There is an economic conservatism in all nature's apparent lavishness, and there are fundamental economic principles underlying all advance in science, in art, in aesthetic ideals. What is the "economic function" of woman in this race progress? According to Edward Devine, the home, made possible by the mother's love for and care of the family, in which the higher of economic functions, that of determining how wealth shall be used in order to secure the highest enjoyment, is the center of interest in any study of present social and economic progress.

Prosperity depends quite as much upon the choice of the various commodities and their combination, in order to secure the greatest pleasure and satisfaction, as upon their production. In fact, production is limited by choice; manufacture ceases when demand ceases; hence, in order to influence production, choice must be wisely directed. Production has been stimulated by combination and competition; many thoughts of many minds have gone into the perfection of a machine, into the design of a beautiful building. Whatever may be said from the artistic standpoint, from the economic, collective industry alone has made possible the rapid advance of the nineteenth century.

But the home is still an individualistic industry, protected from competition, hedged about by tradition, and nearly smothered by the dust from the wheels of progress now far ahead; it seems to be no longer the center of enjoyment for the products of wealth, because the woman has lost her grip, and the cable travels only the faster without her; because, in her struggle to become an active producer, she has lost sight of the science of consumption—that destruction of wealth which gives the highest satisfaction. It is her privilege to stand on a higher level and say what shall be produced, and in what combination materials shall be used in order to give that greatest satisfaction which is the end of all effort. It is for her, with dainty touch and artistic insight, to transform the crude products of the factory and the workshop into things of joy. It is for her to make her labor more in demand by that refinement of taste which, when educated rightly, she is best fitted to give.

That the home is not fulfilling this function is evident from the decadence of true home life and the loss of industrial skill. One of the severest arraignments of even the college women of today, who are aiming at higher professional work, is that, when compared with men in their classes, they cannot think, judge, and decide—that is, they cannot use to advantage the knowledge they have confessedly gained. Just as in domestic affairs women have not yet availed themselves of the opportunities which the scientific progress of the time has placed in their hands. And this in the face of the fact that in early civilization the women were the manufacturers, and that nearly all industries were in their hands. Why has everything slipped from them? Why is it that, although this last hundred years has seen the greatest advance ever known in mechanical device, has seen the greatest feats of constructive invention, women have allowed all the arts relating to house and home to pass from their hands into those of the hotel clerk and the janitor of the apartment house? Why do they buy fabrics, furniture, and utensils on the recommendation of the salesman at the bargain counter, and not because of their intrinsic value? I believe it is the fault of the school education,
which has taken no account of the value of the constructive arts as a
stimulus to original thought; which has neglected to cultivate that sense
of power over things and over environment which the study of arithmetic does not seem to give to girls.

The time to encourage this original thought is in the early years of
childhood, before any question of copying anyone else can arise.
From the earliest years the child's thought should be expressed in its
own way, and what it will learn naturally should not form the major part
of its tasks, but rather that which must be placed systematically before it,
in order that it may miss none of the stimulating incentives which have
proved such factors in the past. It has been said that responsibility is
an inspiration, not a burden, in the evolution of the race; our schools
have taken the responsibility, and the pupils have lost the inspiration.

The child should have his or her mind quickened, as the race was
stimulated, by the pleasure of producing results by his or her own labor,
and these results should be judged by his or her own standards, and not
by those of the adult. That is, instead of requiring fine stitches in sew-
ing, the effect of color and form and idea should be reached in coarser
material and with more rapid action. A large doll might be most
effectively dressed in barbarian fashion in the time taken by the child in
painfully toiling over the fine stitches of a sample patch. Neither savage
nor barbarian woman felled her seams. The fundamental ideas
of early civilization were invention and conquest. The fact that all values
are created by human labor, that the hand-made article owes its higher
price to the fact that human brain has guided human hand in its produc-
tion, should be impressed upon the child's mind.

Since "abundant food hastens maturity, namely, abbreviates the
recapitulation process," advantage may be gained by placing the child in
environment rich in suggestion, by furnishing the materials for dis-
covery and invention, so that he will find himself possessor of a rich
and varied experience, not by mere information, but by personal acquis-
tion.

The growth of the body follows an even line of gradual increase
from five to eleven, and at about eleven a half makes a decided
upward rise of rapid increase; and, since all energy is one, it follows that
in the periods when less is required for the body more may be given to
the mind. Hence the years from five to eleven are the school years in
the sense that the child may be abundantly fed with the facts accumulated
by the race, in order that he may have the richer store to draw upon in
the next period, from eleven to fourteen, when the stirring forces within
need outlets for their race instincts, in order that the fancies may not be
turned within and so become mere morbid phantoms, instead of realized
visions. The imagination should be cultivated thru the use of materials
in building up real forms. Creative industry is essential to a lasting
growth of true imagination, not that sentimental revery which too often
passes under that name.

By the age of eleven, girls are ready to consider the care-taking which
is to be their work in the world. They love responsibility and are
inspired by it. They enjoy work, even what the fine lady calls men-
tal work. They are still in the race epoch when work was a pleasure because
of the results obtained; there is then a delight in the mere doing, when
the end is not far off, and it is nothing short of a wicked waste of nature's
forces to deprive girls of this unreplaceable stimulus to mental effort.

Give to the girls, then, an opportunity to develop normally, to care
for things, to handle things, to build up, according to their own devices
out of materials furnished, certain creations of their own fancy. Express-
ion of ideas is not confined to painting pictures. A bonnet or a dress
can and should express the individual's thought.

If brain development is a consequence of bodily activity, then
the child should be encouraged to use his bodily powers. Because the news-
boy by his varied activity has learned much of the evil of the world, along
with its wisdom, shall we keep back our children from competing with
him in sharpness of wit and keenness of intellect? If children have no
horses, or if children are taken from their homes, where they should learn
all arts of daily life under the best conditions, the foster home, i. e., the
school, must make up to them for their loss, and it can, if it will, do a
better job with more intelligence in certain directions, because of a
broader outlook over race conditions.

Once again let us ask: What does the young savage need in order
to make him a civilized man? He needs, in addition to food for the
animal, clothes and shelter. He needs to keep these and himself clean.
He needs pleasant surroundings— color, form, flowers, music—to
express his ideas and yearnings. All these stimulate him to imaginative
thoughts looking forward to the future. He needs a mastery of the
forces of nature, in order to minister to his wants and to give him that
sense of power, that oneness with the creative faculty, which is man's dis-
tinguishing characteristic. There must be awakened early this sense of
power, of mastery over environment, while yet no fear of consequences is
known, and before cold calculation destroys spontaneity.

What can give this sense of power except the early knowledge of, and
control over, matter? The child who makes a boat or a steam engine,
who puts up a telephone, has a greater sense of power than one who
only does what he is told to do, because he is told to do it. Book
learning and obedient manners are all right and suitable, but they are not
all, and they do not, in the child, advance civilization, because they are not
the expression of the child himself, but are added from without.

I envy the child who rides a bicycle without learning; he just jumps on
and rides. We should give young children a chance to do things. They
do not require much teaching. We teach too much. The child is far quicker than the adult to grasp what is suited to him. We present to him something which he cannot grasp, the large end, and he wisely refuses it. We call him stubborn, when he is only wise. We forget that the abstract is arrived at after much experience with the concrete. We must not deprive the young intelligence of the satisfaction of seeing the work which is the joint product of his hand and brain.

A most suggestive series of experiments on animal intelligence has recently been made, which indicates that the animal learns by doing, by his own discovery of how to do, and that this individual discovery makes a brain groove which is persistent and permits the action to be repeated without effort; also that no amount of teaching can replace this sense of individual discovery. Pascal, wiser than his time, says: "We are more easily persuaded by the reasons we ourselves discover than by those which have been suggested to us by others."

Here, then, is a lesson as to the manner of taking the child thru the race stages. He must be allowed to make these useful grooves early, so that his later conscious effort may be available for higher endeavors. Apparent failures may be the most productive experiments.

If the habit of care-taking, of responsibility for the welfare of the household, of the daily doings of the thousand and one things which insure the well-being of the family, is essential to women; if the race is not only to be preserved, but advanced, then these grooves of habit should be made early, while the child, girl as well as boy, is one bundle of activities, only eager to be used, which may just as easily fall into the lines of constructive as of destructive application.

It is contrary to all laws of race development to allow the child to pull to pieces without putting together again. The kindergarten teaches wisely in this, but later, unfortunately, botany and zoology are often chiefly taught by dissection, involving the destruction of the life which has built up the delicate structure. The productive ideal in education should keep the constructive forces to the front, until sufficient progress has been made to understand the necessity for some analytical work before a further constructive action can follow. Not until the age is reached when a clear comprehension is acquired of abstraction and of a connected line between the concrete and the abstract idea, when the cycle so evident in all nature can be understood in its entirety, should this analytic habit be formed.

It is claimed by many that women cannot observe, are not good scientific experimenters: that as medical students, for instance, they cannot use either eyes or hands as they should; in short, that they are merely imitative, not inventive, and, therefore, that they are in a less advanced state of civilization than men. I believe that this is a true indictment, and that it is true in the college laboratories and university class-rooms because it is true in the daily life of the household, and that this household life is the place to begin a reform, if the higher intellectual life of women is to be influenced. The lack of sympathy with the great industrial progress of the century is apparent in every house, the lack of original thought is apparent in every woman's dress. Blind bondage to custom is shown by the views women take of all new and larger questions. I do not believe this is because of any inherent inability to advance with the race, but is solely a matter of education and of habit—that purgatory in which we suffer for our past sins.

It is, perhaps, not too much to say that women are—today—the stumbling-blocks in the way of higher industrial, social, and ethical progress, and that they remain so because the leaders of educational thought neglect the path by which advance would be rapid, and refuse to see the value of a study of the history of industry as a synthetic element now lacking in the education of girls.
condition, we must "educate our masters," the legislators and the sociologists, by showing them that the hypothesis of Lamarck is not sustained by scientific evidence and that the complete recognition of the Darwinian principle of the Selection of the Fittest is the only method by which the human race can become permanently master of its destiny.

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SOAP AS A DISINFECTANT.

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An investigation on soap as a disinfectant made by Dr. Richard Reithoffer, of Vienna, has been reportedț and presents several points of practical importance.

Koch's early investigations indicated that potash soap could be widely used as a disinfectant. Max Quisl later brought forward objections and showed that while the growth of bacillus anthracis was prevented by a solution of potash soap of 1 to 1000, other kinds of bacteria were not affected by soft soap. As the result of these investigations of Quisl, potash soap had to be stricken from the list of disinfectants.

Later investigations obtained such contradictory results that it seemed desirable to undertake a new investigation of the problem in the light of more modern knowledge. Three different kinds of soap were tested, viz.: a common soft soap, a white almond soap perfumed with nitro-benzol, and a hard patent soap.

In a 1% solution the soaps proved to have a decided effect on the vibriones. In a solution of 5% the patent potash soap destroyed the cholera vibriones, while the Massowah vibriones were more resistant.

The investigator concluded from his experiments that cholera germs in fabrics, clothing, furniture, etc., can be destroyed by simple soaking, and washing and the hands can be disinfected by rapid and complete washing with soap. The fact is practically important that in washing the hands a solution of soap is always used which is stronger than necessary, since the weakest solution contains 5% and when soap is plentifully used the solution may reach a strength of 45%.

Care must be taken in the choice of potash soaps. The ordinary soft soaps of commerce are often extremely unclean products of little value, and some of the early results may be explained on this ground.

The extraordinarily favorable results on vibriones naturally led to the hope that soap might be more generally used for disinfection. The effect of soaps on the typhus bacillus and bacterium coli were next determined. The results of these experiments showed that the soaps possess such a high disinfecting power in respect to both these forms that when other means of disinfection are not available, soaps can be used for practical disinfection against typhus. Stronger solutions, however, are necessary than with the cholera vibrio, and the disinfection of the hands is only accomplished by means of soap when the hands are washed very carefully and with a plentiful amount of soap.

Unfortunately, soaps fail completely, or at least practically so, as regards pus cocci. Staphylococcus pyogenes aureus can remain an hour and longer in an 18% to 20% solution of soap without being destroyed. Soaps, therefore, are not effective in surgical practice.

In all the experiments, the almond soap was most effective. The nitro-benzol, which is almost insoluble in water is largely dissolved by the soap solution, and this
solution is much more powerful than the soap solution alone.

Similar experiments were carried on with potash cream soaps, containing in one case 40% of lysol and in the other 40% of carbolic acid, in order to determine whether practical disinfection is affected more completely and rendered more simple by the addition of these substances. The results of these experiments were a great disappointment. The effect of the lysol and carbolic acid is actually weakened by the addition of soap, when it exceeds a certain proportion.

A practical and important result of these observations is that the manufacture of soaps with the addition of disinfectants is not rational, and that in so far as the disinfectant is not in and by itself cleansing, the old custom of first washing the hands with soap and afterwards with the disinfectant is the proper one.

ALCOHOL AND THE DEATH-RATE.

We have received a letter from the Honorary Secretary of the National Federation of "Off" Licence Holders' Associations, objecting to a reference to grocers' licences in an article in the British Medical Journal of October 2nd. This article was the summary of a letter addressed to us on insurance offices and publicans' lives, by a competent insurance expert, Mr. W. Bingham, of the Sceptre Life Association. No contradiction is given to any of our statements, but it is pleaded that there should be a "statute of limitations" to the quotation from the Registrar-General's report of 1885, referring to the increased mortality of licensed grocers. This report by Dr. William Ogle to Dr. Farr is simply an historical fact to which a "statute of limitations" does not apply. Nor does it prove anything one way or the other, unless the increase has been observable during the succeeding years. To this the Honorary Secretary might direct his attention in the interests of his Association.

It is urged that the increased mortality noted by Dr. Ogle was due rather to the stress and strain of modern competition—a plea that might with equal fairness be applicable to other occupations. We can only repeat that some offices charge an extra on the premium to licensed grocers, and that, in Mr. Bingham's opinion, the limited number of these offices is due to the fact that the same amount of consideration has not yet been given to the mortality of licensed grocers as to that of publicans. He is also of opinion that the extra charge by a few offices goes to show that in their opinion, as derived from their own experience, an extra was deemed, as necessary to meet the increased risk. Ere long the procedure of life offices generally will definitely settle this vexed question, as their action, whatever it may be, will be based not on sentiment but on financial experience.—Br. Med. Jour.