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BOX 1 FOLDER 20

Unidentified manuscript on Woman's Laboratory

Mrs. Richards in her paper entitled What Some Technology Women have done said, in part, that the study of science by women at the M. I. T. was made possible thirty years ago through the liberality of the Woman's Education Association. For eight years separate laboratories for women were maintained but in 1884, an additional sum of money was raised & all the courses at the Institute were thrown open to women and the separate laboratories were done away with.

In 1870 a great firm of chemists in Philadelphia had never known of a woman studying chemistry and the Journal of the Franklin Institute declared woman's mind incapable of understanding science. Today some of the best science teachers in colleges, special schools and high schools are women.

79 women have been graduated from the Institute since 1876; among these we find one professor of geology, one of biology, two of chemistry and two of physics; as associate professors, instructors and high school teachers of chemistry there are fifteen; in physics seven; in biology seven; investigators in chemistry, physics and biology there are fourteen. . . .63%, therefore, have been actively engaged in educational work.

There have been 17 graduated from the department of Architecture and one in naval architecture.

34% of the graduates have married, and it is, perhaps, as wives and mothers that the greatest glory of the Tech women lies.

The 79 graduates represent only a small part of the number who have taken advantage of the opportunities for study at the Institute. 500 names have been enrolled on our list of women who have spent from one term to three years with us. From the kindergarten to the university, in nearly every state in the Union, certainly from Maine to California, our old students are found, and almost universally as leaders.

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BOX 1 FOLDER 21

Unidentified writing Re: Women's Laboratory

In the school year 1876-7, thirty years ago, the liberality --both of mind and of purse-- of the Woman's Education Association made possible the first series of laboratories for the study of science by women,- Physics, Chemistry, Industrial Chemistry, Botany and the then new Biology.

Advantage was taken of the erection of a tempory building for the Mechanic Arts shops to add about 2,500 feet of floor space. For eight years these laboratories were used in the morning by women of scientific tastes who might or might not wish to apply the knowledge in teaching or in research; in the afternoon and Saturdays by teachers who wished method and knowledge to apply directly. A few spent consecutive time in the work. The interest and self-sacrifice of Prof. John M. Ordway made this work of 106 women possible.

The evident openings for women's work in these lines led to the recognition of their claims in the throwing open of all courses in 1884 and doing away with a separate laboratory. But the need of a study, a library, and a rest room was met by a subscription largely secured through the efforts of the two women whose portraits we have recently hung upon the wall,- Miss Ellen Frothingham and Miss Abby W. May, and of the Woman's Education Association under the leadership of the two past Presidents whom we have with us today,- Mrs. C. D. Homans and Mrs. C. C. Smith.

There are now funds amounting to about $40,000 in the hands of the Institute for the use of women exclusively, including this room (the Margaret Swan Cheney reading room) and its generous endowment and scholarship funds.

With all this equipment, what has been accomplished ? So quiet and so various, and over so wide a range has been the onward movement that few realize its breadth or depth.

In 1870 the great firm of Philadelphia chemists had never known of a woman studying chemistry. The Journal of the Franklin Institute announced that woman's mind was incapable of understanding science.

It has been very difficult to secure information in regard to the nearly 600 students. Their merit seems to be equalled by their modesty.

Today some of the best science teaching is colleges, special schools and high schools is done by these Tech women, which includes the teaching of boys and girls.

I will read a few extracts from letters received.

"For the sake of others whose work in the world has been similar to myown, may I suggest that we bring photographs illustrating our work. . . . . it will be a comfort to look at our children's pictures--for they may become distinguished if we have not."

"What knowledge of Chemistry I obtained has been put to the most practical use possible--that of housekeeping. The value of oxygen, the harmfulness of poisonous gases, the necessity of absolute cleanliness, accurate measurements in cooking, etc.etc but it was the lessons of exactness which the study of Chemistry taught me which have proved the most valuable."

"My time has been occupied in rearing my children and keeping house. In this latter work I am always interested to hear what will add to the comfort and happiness of the family."

"As to the question of work, I am afraid I must be known solely by the work put into my boys and girls, there is little time for anything else. If I could only send some fine specimens of those that belong to me, I should be very glad."

"My doings can be summed up as five years spent in teaching Physics and Chemistry to boys. In June, 1901 I began work as assistant in Physics and Chemistry at the Mt. Hermon School for Boys. After two years of hard work and fine experience. . . I left, in 1903, to accept a position as Physics and Mathematics teacher in

the Mechanics Arts High School of Springfield (now the Technical High School). Technology women will be interested to know that the Mt. Hermon management decided that women could teach science in their school. . . . but that the woman must be of M.I.T. training. ********** **We expect to send five boys from our school to the Institute next September. . . . . .

Grace MacLeod

Report of Dr. Mary E. Jones, M.I.T,'85: Fall of '85 went to Philadelphia for the study of medicine; June 1887 received degree of A.M. from Vassar; 1888-89 worked in medicine in Boston; fall of 1889 went to the Woman's Medical College of the N. Y. Infirmary, graduated in 1890. May 29,1890 Admitted to the practice of medicine in N. Y.; 1890-1891 practiced medicine in Boston; spent two years in travel and work in hospitals abroad , at present practicing medicine in Boston.

Whom the Gods love, die young: Some six or seven of our most promising investigators have fulfilled this saying.

Grace A. Van Everen Stoughton died in Jany,1905. ~~Swingxtox~~

~~Miss~~ 25 Stoughton chose the bacteriology of drinking water for her special subject and during the year before her death devoted her whole time to research work. During the last month of her life she prepared a paper on the pollution of the water supplies of New York City.

The Course in Architecture claims the largest number of graduates and about the success of this line of work most of our present interest centres.

In other lines we have proved our cause. Shall we fail here ? Two notes shall give us a clue, one from a special student of 1885-87; the other from our own M.S. of 1906.

"For six years after leaving Tech I was with Wm. C. Walker, architect, Rochester, N. Y. in the capacity of draughtsman and designer. For two years was a member of the faculty of the University of Arizona, in Tucson, Arizona, teaching English.

"Technology women may like to know that the only women (there are but two) who have become members of the American Institute of Architects are Miss Henrietta Dozier of Georgia, '98 or '99, M.I.T and Miss Howe of Boston. Miss Howe's membership - A.I.A. is notable because under present rules no more Boston women can be admitted. One must first join a local society, and the Boston Society of Architects is said to receive positively none but men.

research work

"I was Assistant in the Museum of the Boston Society of Natural History from 1890 to 1904; Prof. Hyatt's assistant several years before that. I have written in collaboration with him "Guide to Science Teaching VIII - Insecta, Clay Concretions of the Champlain Clays, Conn. Valley, Guide to the Investigators of the _____ Collection, in Mus. B.B.N.H. and a number of papers.

research work

"All my time is given to research work in Paleontology, the results of which, owing to the nature of the position I hold (that of assistant) are not published over my name.

"I am working at Columbia University on two subjects, major, The Ferns of Japan - Synopsis, and Origin of Fern Flora of that country; minor, on which I amputting scarcely less work, as it is a question of vital interest to me - Formation of a Scheme of Nature Study adapted to the Needs of a Great City.

Prof. Sedgwick tells me that out of thirty applications I am one of five appointed to a scholarship in the Rockefeller Institute for Medical Research.

Have exposed etchings and pen drawing at the Salon ('99) and am making a specialty of "book plates"-("ex libris").

Samples of the Ph.D. theses, the books and papers, and pictures of children are on the table.

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BOX 1 FOLDER 22

Unidentified writing Re: Woman's Laboratory

Total number of students in the Women's Laboratory 1876 to 83

the Walker Building was put up in 1883-4 and the Women's laboratory torn down

| | |
|---|---|
| Teachers before entrance | 49 |
| Teachers after | 60 |
| Medical students | 10 |
| Married women | 11 |
| College graduates | 19 |
| Professors or in charge of high or secondary school laboratories | 20 |
| Actively engaged in professional and educational work other than teaching | 10 |

Some of this ought to come in 18! Mrs Richards words in some where.



women work

25 have missed the scientific instruction of the present day and they cannot go back into the schools. They ask for, and they must have this knowledge, nevertheless, and here is the only place where they can obtain it in this simple manner. The Laboratory was opened to meet this very want and while it will strive to create new and wider fields for women's work in the professional branches of applied chemistry, it will hold as its first duty the teaching of those who cannot go boack into the schools and colleges. For this reason it makes the most liberal arrangements as to hours, so that the busy woman may yet find some hours each week to give to the study of science. The results have been very gratifying in addition to teaching ability, the students are showing themselves capable of doing their share in the world's work in investigation and patient careful work in The department of Household Chemistry promises to be very attractive to students and profitable to the world.

in 18 Mrs Richards says We shall hardly be able to maintain the best students among the women unless several scholarships shall be given to them. It will be all that they can do to provide for their board and clothes. I have had two in my own family every winter since the opening of the laboratory

and no doubt the friends of education will in future help young women to at least partial independence in this way - by giving them writing and other duties which can be performed in the evening or at times which will not interfere with school exercises. As to the working of co-education, I have not learned of a single drawback. The young women have been in the main older than the young men,- earnest workers with quiet, dignified bearing which has won the favor of all. Even those who still doubt the policy of the government in allowing women in the school do not, to my knowledge, complain of any existing evil resulting. As to scholarship, all the regular students rank very high and it would seem as tho the capability of women to carry through a severe course of scientific education without injury to body or mind is now established.

The next grave question is what will they do after they graduate. Mr. Edward Atkinson has been paving the way for them in his endeavor to show to the business world the results of work done by women. We find an absence of prejudice among many business men which argues well for the future employment of skilled women. One of the greatest obstacles will be the opinion of ladies of position and influence and to all who have at heart the true welfare of educated women, we must appeal to form this public opinion

on the right basis. To this end, we induced the W. E. to raise four or five hundred dollars for some investigations in household chemistry. This work is now going on. Two old students, Miss Lucia Peabody and Mrs. Adams giving their time for two mornings a week to special branches. Mrs. Adams is studying spices. Other subjects are taken up by some of the students who are capable and pay for their work is given from the money. This enables some to stay longer with us than they otherwise would do.

1882

April

It is now just six years since this Association pledged itself to the project of a woman's laboratory in connection with the Institute of Technology. The circular which stated the case and asked for funds was issued about the first of May 1876 and within three weeks the ~~first~~ sum asked for $2, 000, was obtained. The change of plan consequent upon the erection of the new building for the Mechanic Arts School required an outlay of $500 more which sum was given through the efforts of the Association in the winter of 1876-7

The laboratory has been open for the instruction of women in chemistry, mineralogy, botany and allied subjects for six winters. During this period 85 women have availed themselves of its advantages. 20 of these have done very little work, being prevented by illness or other causes from working as much as one day a week for three months. The instruction attempted in these cases has of course been unsatisfactory but there remain 65 women who have been aided. 19 of these were teachers at the time of their connection with the laboratory and they have carried the instruction so received to perhaps 2,000 pupils already.

10 students have taken an extended course, remaining three years or more. Two have died.Four have been medical students; Eight have put their knowledge to

some real and practical use other than teaching: Nine are new students this year. This leaves eleven of the 65 students who have taken instruction for at least 1 day a week for four months or more for various reasons they have wished to suppliement their previous edu ation or have looked forward to a possible use in the future.

Six years ago the most sanguine of us would not have dared to predict these results and yet as is often the case the success has not come wholly in the line in which we looked for it.

The service which has been done to the country through the teachers is probably the greatest which the laboratory has rendered. Its influence has been in the line of true scientific teaching, not for popular, showy experiments. It has been in the line of hand work governed by head knowledge. The endeavor has been so to train the young girls that they may become more capable, reasonable, and logical women by reason of their science and we have good reason to know that missionary work of this kind was needed from the evidence of the teachers themselves as to the manner in which science has often been taught. TThe result in this direction alone would have justified the outlay of $2,500

We must not forget to consider the work of the laboratory from another standpoint, in its relation to the higher education of women, and this is in one

sense the most important relation for the committee under whose care the institution was organized. As a committee, we may well be satisfied for without any public discussion, in fact without the knowledge of the general public and without any undue pushing from outside or inside, the doors of the Institute have opened year by year as the young women showed themselves trustworthy and capable, until now there is very little doubt that a larg majority of all connected with the administration are in favor of giving women every advantage of the school provided space can be found for suitable accommodations. Even in the present crowded condition of the building, there is separation of the sexes only in laboratory work.

I believe it to be a fact that no other scientific school in the world a can say as much. While great advances have been made in England and on the continent since 1876 when Miss Capen and I were refused the privilege of visiting some laboratories and were quietly smuggled through others, I do not think any of the professional or technical schools of a hig high grade have as yet opened their doors.

This is surely a great gain in the way of really higher education for the Institute course necessitates at least two years study after graduation at a college, and the whole four years course means a kind of work of which women have frequently been

declared incapable. It may not be out of the way to say that all the young women who have taken the regular courses have more than held their own. Beside the question of mental ability lies that of physical power and here also we are proud of our facts. Two young women graduated lawt June, two will graduate next month. These four have been steadily at work for at least three years; two of them for nearly four years, six days in the week during the eight months of the school year with only one week vacation in the whole eight months. Three of the four I believe have not lost one day in the whole time on account of illness, the other one lost one day only on account of a cold and ear-ache. Besides the eight months school work they have worked each summer on professional work at least two months.

The success of the work in one relation and that the one of all others perhaps the most dear to t the heart of the original committee,- that of practical professional work by women - has not been startling. We have at the present time only eight women who are sufficiently trained to be able to do good professional work, and yet, when we consider that three years at least is required for such training and that the laboratory has been open not quite six years, we ought not to be discouraged.

There is an absence of prejudice on the part of business men which argues well for the future em-

ployment of skilled women. We know of no one who has refused to have investigations confirmed when it was found that the work was done by women. One manufacturer from the western part of the state asked to be taken through the laboratory as he wished to see how a woman chemist looked. He afterward remarked that he didn't see that they looked any different from any other women.

The greatest obstacle to fitting women for distinct professions is the fact that it has not yet become a recognized necessity to spend three or four years in training. We cannot expect to have many graduates until public opinion has advanced another stage. Again, many women who would gladly fit themselves have not the means, and they cannot borrow money as readily as young men can. This much we can say, none of the students are out of employment. Of the two who graduated last June, one was retained as an assistant in th Institute, the other has obtained a very nice situation in Brooklyn, her home, as chemist with Dr. Squibb, a large manufacturer of pharmaceutical chemicals.

So much for thre results of the past six years. Before we consider what may be the future results, we must take a look at the financial part of the situation. This has not changed materially from year to year. There have been from three to six young women each year who have earned their tuition

either by assisting in the laboratory or in the library, thus saving to the Institute about $600 each year or the tuition for three students. The amount received by the Institute from paying students has been $1,000 or $1,100 each year. This has gone into the general account to pay for gas, water, and heat for the building. I presume that this amount about covers it although the buildings are so connected that it is difficult to form an estimate. The Institute has not paid out anything for the support of the laboratory; it has given tuition to one student for work done there. But it will be seen that the income from the 20 students of each year is only that received from 5 young men, and is not sufficient to pay i an instructor, hence it becomes a serious question what is the best policy for the future. Shall a special laboratory be maintained, or shall special men students be admitted to the same laboratory,- elderly people, etc.,- those who cannot come at regular hours, or shall the doors be closed to all who cannot come at stated times ?

If the laboratory is given up, then all the past schemes of household chemistry investigations and the present headquarters of supply for teaching by the hour in private schools, will be without a home.

An income of $800 or $1,000 a year ought to secure a good instructor who could eke out the salery by some analytical work, but unless this can be se-

cured it is doubtful if it is best to keep the open house of the past years.

We can hardly raise the fee to the terms of private tuition, which much of our work amounts to, for now we have to favor the students all we can by loaning to them apparatus which the men are required to buy, by loaning books, and in every way we can lessening the money expense for them.

( Here there is a hiatus. What was the situation between 1882 and 1883 ? I judge Mrs. Richards began to feel that she had given her time as long as it was right for her to do so. ) See loose sheet "A"

In June, 1883 the Laboratory for Women was given up. This change is noted in President Walker's report of December of that year as follows:

"When the erection of the new building [Walker Building] of the Institute was last year determined upon, the Corporation accepted the gift of $8,000 from certain associations and individuals interested in the object, as a means of providing, in the contemplated chemical laboratory, adequate space and facilities for the instruction of women. The completion of these laboratories of necessity supersedes the separate laboratory which has been so long maintained, largely through the zeal and self-devotion of Mrs. Ellen H. Richards, herself a regular graduate of the Institute, who has for seven years given instruction, several hours of each school day, without any compensation for her services."

About $2,000 of the $8,000 above mentioned was contributed by the W. E. A. [in memory of Margaret Cheney, one of the first students of chemistry in the Woman's Laboratory] ?

Was this $2000 in addition to the apparatus from Woman's Lab? - yes it was. I can't think.