IMPRESSIONS RELATING TO POSITIONS FOR WOMEN IN CHEMISTRY.

It is gratifying to know that the openings for chemists are multiplying at the present time. The years of shrinkage in both academic and commercial lines seem to be over, if the positions now being offered to the graduates of 1936 are an indication. It is not apparent however, that the women who really wish to do chemical work have the same improved situation.

That women can be successful in chemistry is undeniable. Those who are recorded in the early membership lists of the American Chemical Society indicats that fact. The first membership list to be published included 133 names in all, one of which was a woman. In 1903, a little over a quarter of a century later there were 2364 members, forty-three of whom were women. Meanwhile, quite a few others had joined or dropped their membership. It is interesting to note that twenty of those forty-three in the 1903 list, have been included in American Men of Science. All of these women have been connected with some educational institution and only one did most of her work in other than an academic position.

If a list of the members of the American Chemical Society who are women could be made to-day, there would not be such a proportion of them who have gained recognition because the majority are beginning their careers. However, there would be many more who have found a place for themselves outside of a college or university. This in itself is encouraging as it shows that there are other fields than that of teaching which are open to women.

Nevertheless, there is no doubt that the role of a woman in chemistry is a difficult one. If one wishes to teach in a

secondary school, then there is the frequent possibility that the Board of Education prefers that the science instructor be a man in order that he can also be an athletic coach. If college or university teaching is to be considered, then one finds even more competition with the men except in the woman's colleges which at best can absorb only a few new staff members per year.

The means of entrance into the chemical industry have even greater barriers. In general, women are not excluded just because they are women but because under the present social system, women are more of a liability than men. One has to face the fact that the business men cannot offer his best positions without considering the profit and loss. If a woman is less likely to remain beyond the period when she is a liability, then a man will be appointed. There are certain positions in a commercial laboratory where a woman is an asset, for example in analytical work. One head of such a laboratory in one of the best known chemical plants in the United States has said that for such type of work, he would far rather have a woman than a man as the women are more painstaking and reliable. Even then, it is a long climb from the analytical laboratory to a more responsible position.

In spite of the difficulties in the field, there are many women who enjoy chemistry and would like to make it their life work. After due consideration there are two things to remember. First of all, it is often possible to enter some desirable place, either in the capacity of an assistant or as a laboratory technician. Then by making oneself indispensable, definite recognition follows. That sometimes seems to be a tedious road but many women

have done just that - made a place for themselves.

In the second place, it is increasingly evident that a person who is keen enough to recognize the value of some types of specialization, may become so trained that they can do what few others can. Some of the borderline fields are well worth investigation with this in mind. The outlook is better in every way than in pure chemistry. There is some evidence that in the future, Federal and State governments will be increasingly able to appropriate funds for research. As the public becomes more and more aware of this need, this will be done. Then is the time when the chemist who can work in the fields associated with various types of applied chemistry which require specialization will have their chance.

Some of the fields are already opening up problems of great interest and importance. Nutrition is one. Women have always been interested in this line. In the last few years it has not always been possible to find a biological chemist who would naturally enter nutrition who has been as well trained in physical chemistry. Many women have expressed regret that they did not have a better theoretical background. Suppose some woman undertook to relate the two fields. There is no doubt that she could bring to biological chemistry a very useful tool. Rumor comes also from the Home Economics departments that physical chemistry in greater amounts would not be amiss in some of their research.

Closely related to nutrition are dietetics and foods. In one institution, in the Home Economics faculty there is a group of women carrying on research in these related subjects, lead by

four women with the Ph.D. in chemistry. In the same department, three other women are studying for the Ph.D. with majors in three different departments of chemistry-biological, organic and analytical. Again it might be repeated, why not physical chemistry, It seems to be more likely to be unique.

Another field that appears to be filled with potential opportunity is that of textiles. In the day and age of pure silk, cotton, linen and "all wool and a yard wide" there were problems enough. At the present time, with the tremendous strides in artificial fabrics, dyes and even new chemical treatments of the real fibres by bleaching and dry cleaning, there is more work than ever to be done. In this connection, besides the interest the manufacturer has in the production and sale of his goods, there is the side of the consumer who wants reasonable return for his expenditure. The American Home Economics Association, the American Society for Testing Materials and other groups are fully aware of the situation. Here is where trained chemists can do considerable to test the servioeability of the modern textile. A specialist in colloid chemistry, X-rays or other new rapidly advancing fields will surely play a part in the progress of textile chemistry. Since women are naturally interested, perhaps they can create employment along this line.

A paper which was presented last year before the American Chemical Society by a man from one of the large New York department stores, described the laboratory maintained to protect both the store,and customer. This illustrates a type of work that is beginning to be done. For years a well known mail order house

has had a laboratory headed by a woman which like the store controlls the type of goods advertised for sale by chemical test. It seems not unlikely that other stores might undertake similar standardization.

As a greater and greater number of the industrial concerns in this country have developed a chemical laboratory, libraries have been organized to the extent where a librarian is needed. A genius may like to think that he can work at his research without being handicapped by the work of others. Yet in this period of civilization, even a genius cannot afford to waste time that might have been saved if he had not repeated work already in the literature. To find such a librarian, the company often makes a request of a library school for a woman with at least an A.B. in chemistry, who can read both French and German, can run a typewriter, and offer the requisite amount of knowledge regarding classification and cataloging of books and periodicals. It is rarely that the library school has such a person. In fact, two recent requests had to be denied because there was no science trained person in the school. It might be a good idea for a woman to take her first degree in chemistry and plan to take a year of post-graduate training in library school work.

Those whose temperament fits them for chemical work may not be able to adjust themselves to the confinements of a library. Such a choice as reference work of this nature must not be made unless the person would thoroughly enjoy it. Two women have gone into splendid library positions in connection with industrial concerns which have a world wide reputation. The literature searches can give one the feeling of being a vital part of the industry. One of the

women, made such a success of her work that she was transferred to the laboratory which is perhaps exceptional. In other words, she did make a place for herself and a very good one.

If one is interested in science library work, one recent and emphatic bit of advice given by the head of a library school is to learn Russian. This ie due to the enormous amount of work appearing in the publications of the Soviet Republic.

Recent graduates of a middle western university have entered hospitals bacteriological laboratories, water analysis laboratories, pharmaceutical houses and organized a laboratory from their own funds. One graduate proposes to equip a biochemical-bacteriological laboratory. Several doctors are glad to have some routine work done in that way. Another graduate will continue to make cosmetics from pure materials which she has done for the past three years with some success. Still another is in the laboratory of a large cheese manufacturer. Positions are possible but not easy to find.

In conclusion, women chemists do not have opportunity right outside the door. A woman should seriously consider before undertaking a chemical career whether she is willing to face the fact that she will have to be capable of particularly good work, that she will have to search for an opportunity, prepare herself by diversified training to find it and watch obscure places for it. The future possibilities are not wholly pessimistic. However In justice to the younger women who want to do chemical work, one can not give an opinion based on unqualified optimism.

Virginia Bartow

Urbana, Illinois

March 31, 1936