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The Case for Chemistry

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A home economics department head who has seen and heard students' "chemistry situations" presents . . .

The Case for Chemistry

by Dr. Ercel S. Eppright
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IF YOU'RE considering a change in major because of the "chemistry situation," take a little time out to think. Quit worrying for the moment about the details of the halide family or balancing that last equation. Think of chemistry as a whole and what it means to your every day living, to your career and to progress in general.

Also think of the kind of education you want and see whether or not chemistry isn't after all an important link. If you really face these questions squarely you will probably see the need for more, rather than less, training in chemistry.

Chemistry will help you to gain a better understanding of the world about you, to do things better, and finally to have a better understanding of life itself. You study chemistry for much the same reason as English. In each you learn a language. With English 26 letters are the basic units; chemistry begins with approximately 90 elements. These can be put together in as many ways as there are words in the English language. Nature does it in millions of ways, and the mind of man has conceived many more.

As with English, when some of the simple rules are learned you can "read and write" in chemistry, and can use your knowledge greatly to enrich your lives.

Time, Effort Needed

One reason for your failure to enjoy chemistry may be your unwillingness to spend enough time and effort to learn it. Take English again. You study it all the way through elementary and high school. It becomes second nature with you. You can scarcely expect 2 years of college chemistry to give you more than a casual introduction; you need more to appreciate and enjoy it, and to use it most effectively.

There is no easy and quick way to even a functional education in chemistry. It takes time and study to learn this field, just as it takes time and study to arrive at the place where one can read and enjoy the world's best literature.

Some people say that they have never used their chemistry since they left college. The answer is that they use it constantly, but take it so much for granted that they are unaware of its role. Others say they wish to know the applications—the practical side—and that the theory is a waste of time for them. Most of the courses here at Iowa State follow the idea that application without theory is a "dead end" type of education. You can easily learn a recipe for fudge and become an expert at making that candy. Isn't it much more useful to learn the principles underlying the control of the size of sugar crystals? Then you can make fudge, fondant, taffy, divinity and caramels. You can develop new and varied kinds of candies and confections. You can become an expert in sugar cookery, not just a maker of fudge.

Background Important

It is more far-reaching to learn about leavening agents than merely to make biscuits; to learn about emulsions than merely to make mayonnaise; to learn about foams than to make angel cakes. Knowledge about solvents and their abilities to remove spots of various kinds is more useful than the study of specific cleaners currently on the market. The effect of heat on fibers is more valuable information than how to press a certain dress.

The way of thinking you may acquire through chemistry can help in the world today. In the chemical laboratory you can learn to draw conclusions after making systematic observations. This is a concrete example of the "fact finding" technique. This method of thinking, this approach to problems leaves little room for prejudice and hate. Alertness, openmindedness, an interest in learning how to do things a better way are attitudes fostered by all science, and by chemistry in particular.

Chemistry is so much a part of our every day world that we take it for granted. Just suppose that you were suddenly deprived of all the personal things you enjoy because of chemistry. Cosmetics, toothpaste, soap, perfume, your nylon hose, the beautiful colors you enjoy in your varied wardrobe, in fact all modern clothing, as well as housing, transportation, and much of the food as it appears on your table today would be taken away.

Convenience, comfort, health are all made possible through chemistry. You can have these things with little, or no, knowledge of how you got them, but isn't it better to be able to appreciate the materials and processes involved in their making? How can you

(Continued on page 14)
The Case for Chemistry

(Continued from page 3)

encourage people to conserve resources if you know nothing of the value, purpose or need of the material? Fats, for example, are needed not only for food, but for soap, cosmetics, textiles, paints, varnishes, lacquers, linoleum, printer's ink, lubricants, synthetic rubber and munitions. Consumer education without chemistry is inconceivable.

Chemistry Affects Health

But chemistry is not confined to the material things. The famous scientist Lavoisier, said, "Life is a chemical function." Your 6 or 8 pounds at birth are increased to the adult weight by a continuous process of chemical transformations. You influence them largely by the food you eat and the conditions in which you live. Needless to say, the better you understand these processes the greater are your chances to keep them running smoothly.

The chemistry of life is not confined to the physical side alone. Your ability to taste, smell and see depends on chemical reactions at the site of the sense organs. The nervous impulse is transmitted by chemical means. Its message to the muscle is relayed by a chemical substance. Your mental state reflects the mixture of chemical materials provided the cells of the body. Lack of some chemical substances and the accumulation of others lead to mental depression, irritability, loss of self-confidence, unrest and even crime.

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