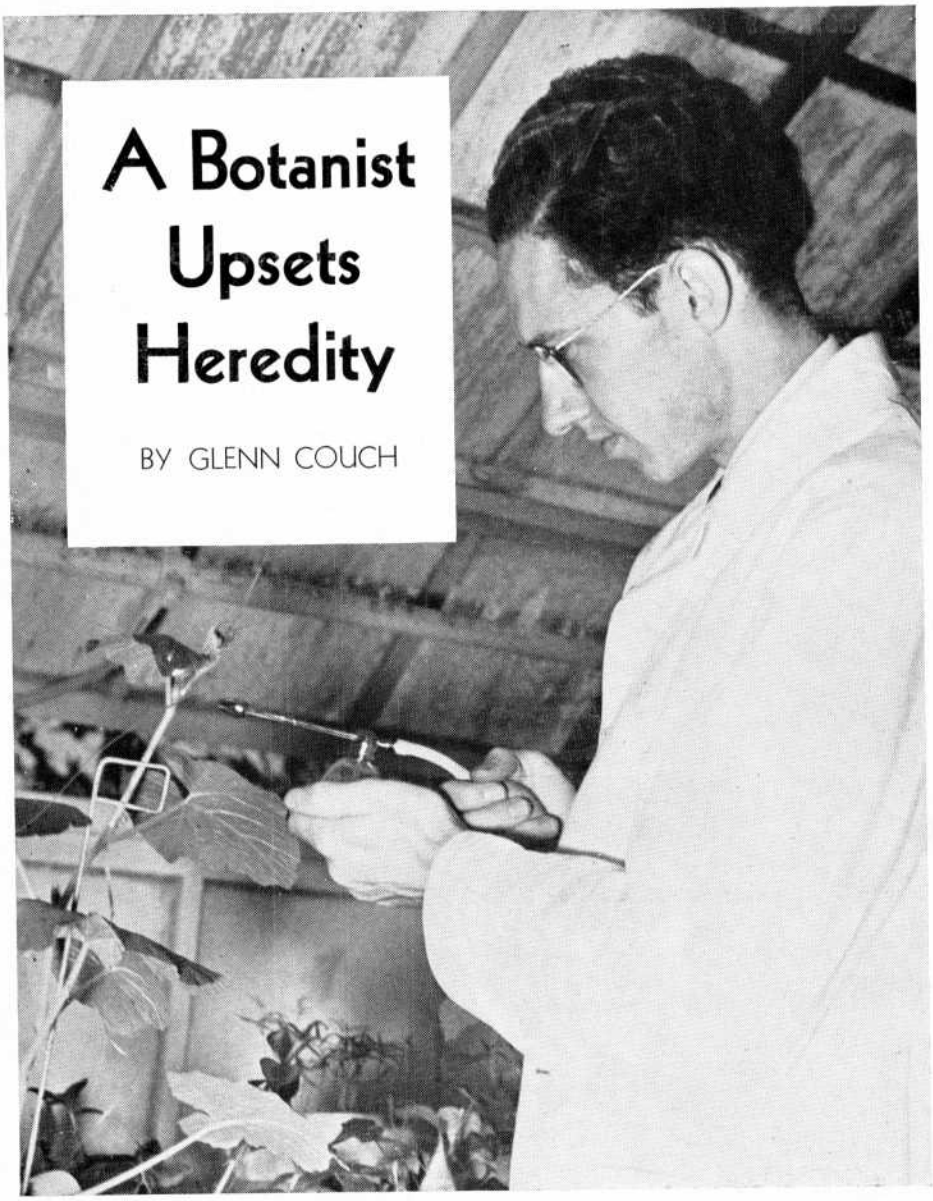
A Botanist Upsets Heredity

BY GLENN COUCH



O. J. Eigsti spraying plant buds to study effects of a mysterious drug

WE used to say that a horse, a cow, or a man had good or bad "blood," whichever the case might be. Most people know now, of course, that it really isn't "blood" at all, but is the chromosomes that are responsible for our characteristics. They account for our red hair, brown eyes, and all the other characteristics that we possess. Odd things, are these small rod-shaped structures found in every cell of a plant, a cow, a horse, or a man, and as a matter of fact, in practically every living thing. Since they are the bearers of inheritance as it were, if we change them we change the characteristics that an organism possesses.

Biologists everywhere have looked for methods of changing those minute but important little bodies which have so much to do with all living things. Dr. O. J. Eigsti (pronounced Eyeg-stee), working in his laboratory at Cold Spring Harbor in the Carnegie Institute, had an onion placed on top of a small drinking glass with its roots growing down into some water. He put a small amount of a drug called colchicine (used by medics for treating gout for years and years) in the water and in a few days he got the surprise of his life.

The ends of those roots, right where they were growing, looked decidedly different. They were much larger than they normally were! What had happened? When he examined them under the microscope he found that the chromosome number was different. There were twice as many chromosomes as a normal onion root has. He knew that he had found a way to change the number of the chromosomes. Officials of the institute published scientific papers, giving the details on the process. Workers everywhere began to treat plants. They found that marigold seedlings treated with colchicine had twice the regular number of chromosomes and as a result, the flowers were twice as large as normal. That interested florists!

Just about the time all of that happened, a vacancy occurred in the Botany Department at the University of Oklahoma. Dr. G. L. Cross, head of the Botany Department, was faced with the problem of finding a new man. He wanted a real scientist —someone who was making a definite contribution to the field of Botany. Eigsti was the man, if he could just get him. A few telegrams and letters and a trip east got results, and now this scientist lives in Norman and teaches students in the University of Oklahoma. He is still working with his discovery, however.

Since marigold flowers are larger when treated with colchicine, he wants to know whether pecan flowers and nuts can be made larger, whether cotton fibers can be made to grow longer, and how big a watermelon can we cultivate? To do these things requires space and help. Providing the needed space and help was a problem that the Botany Department faced. A small story was given the news agencies, which told of Dr. Eigsti's work. A picture showed him at work in the crowded quarters of a small greenhouse on the campus. Letters poured in. A prominent lawyer in Oklahoma City said that his farm could be used. A pecan grower wants to experiment with his pecan trees. A science teacher in a large state high school wants to help. Loyal Sooners have solved the problems of space and help. The question, "Can we raise larger plants of economic importance?" will some day be answered.

When spring rolls around, the pecan trees are going to be treated with this mystifying drug. Young cotton plants that have been treated will be placed in the field. The summer will seem long for Dr. Eigsti, because he will have to wait until Fall to find out what has happened. If longer fibers are produced and larger pecans are developed, then the real job begins. The cotton seeds with long fibers will have to be planted to see if they will produce plants which in turn produce long fibers. Imagine his long wait for a second generation of pecans! In the meantime he will be treating and testing hundreds of other plants, and so he will find plenty to do.

If you have ever done any gardening, you might have an urge to try your own hand at changing chromosomes. There is no secret about it. Like every real scientist, Dr. Eigsti has made the results of his research available for everyone.

In contrast to many scientific experiments, this one is easy to perform. Here is the way to try it in your own back yard. Remember now, that you are an experimenter too. Perhaps the seeds with which you are going to work have never been tried. It is very likely that you will have to try several different methods before you succeed.

Ask your local druggist to give you exactly one-half gram of *colchicine*. Dissolve the entire amount in a pint of water. This will be your master solution. Place one teaspoonful of the master solution in ten teaspoonfuls of water. Place the seeds to be

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planted in this solution. After twelve hours remove some of the seeds and plant them in the usual manner. After twenty-four hours plant some more of the seeds. Try some seeds in the same manner in the master solution. Dilute the master solution several different times. Try all dilutions.

If you have shrubs or trees that produce flowers, you should try the following method: Mix the dilutions with fish oil, and spray the buds.

Remember that you are dealing with a drug! Don't drink it! Wash your hands carefully after handling it, because at the present time no one is interested in seeing human beings who have had too much colchicine. If you find you have some odd looking plants in your garden, and there is very little doubt but that you will, be sure to save the seeds. Plant them next year, and then you will know if you have contributed to discoveries in this great new field.

It has been said that "there is nothing new under the sun," but this discovery has all the symptoms of being something new and important. When you visit the University from time to time, drop into the Botany Department offices and find out how the work is progressing, and see some of these odd plants that are being developed.

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Campus Review

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States Geological Survey, who has made his headquarters at the University.

. . . Oklahoma DeMolay youths, who met on the campus December 4 for a conference on athletics, may make the conference an annual event, officers said following the meeting. . . . A design of a boating pavilion and dock brought Harold Scruggs, Hollis, sophomore student in the school of architecture, a first honorable mention in a design contest conducted last month by the Beaux Arts Institute of Design, New York.

. . . The University chapter of the League of Young Democrats has elected Kenneth Schwoerke, junior law student from Oklahoma City, to succeed Glen Johnson, Paden, as president of the organization. Johnson resigned recently. . . . Four new courses in library science will be offered in the College of Education during the 1939 summer session, J. L. Rader, University librarian, announced last month.

. . . Six hundred persons crowded into the Union Ballroom December 7 to honor the Sooner coaching staff and the all-victorious team of 1938. The Victory Party was sponsored by the Norman Chamber of Commerce, and the program was devoted entirely to entertainment, speeches being barred. Autographed pictures of the coaching staff were presented to each player on the team, and special gifts were made to members of the coaching staff.