

TWO years ago *Sooner Magazine* reported the remarkable discoveries being made by a young scientist in the botany department of the University of Oklahoma—a discovery of a way to stimulate the production of entirely new varieties of plants.

This young scientist, Dr. O. J. Eigsti, had discovered a way to change the number of chromosomes inside living plant cells, by using a drug called colchicine. This, in turn, caused the whole plant to be different. If you remember your biology, you recall that the parts of an organism that govern its heredity are those small, rod-shaped bodies inside the cell, called chromosomes. (Man, cow, periwinkle, and all other living things are alike in this respect).

Dr. Eigsti's discovery interested people all over the world—both scientists and amateur botanists. And things have been happening in the plant world ever since.

More than three hundred scientific papers have been published to report on results of experiments in which Dr. Eigsti's methods of using colchicine were employed. And while scientists were experimenting in their laboratories hundreds of amateurs have voluntarily assisted in conducting experiments, making careful observations, and reporting them to Dr. Eigsti's office which has acted as an unofficial clearing house for correspondence from all parts of the world.

Here is the way a cotton specialist down in Texas has been able to use Dr. Eigsti's discovery: Asiatic cotton has some very desirable characteristics (long, strong, fibers for example) which botanists have been trying to breed into our domestic cotton, but they have had some troubles. Asiatic cotton has only thirteen chromosomes while our cotton has twenty-six chromosomes. When the two are crossed the hybrid is sterile. Now here is the trick. When the sterile hybrid is treated with colchicine, it becomes fertile.

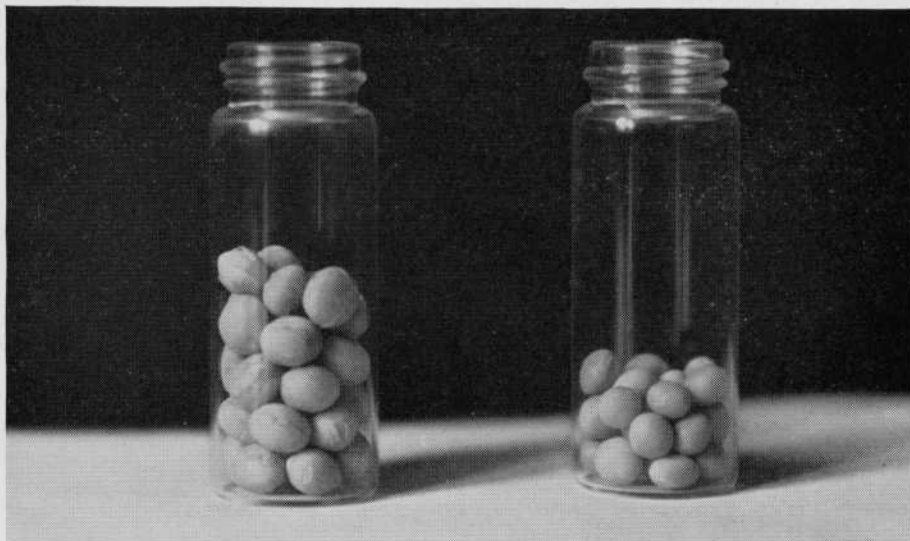
Dr. Eigsti is going at the problem still another way. He is treating the Asiatic cotton which has thirteen chromosomes with colchicine, and expects to get an offspring with twenty-six chromosomes. Then he hopes to be able to cross that offspring with our own cotton which also has twenty-six chromosomes. The results conceivably could have a vast effect on the economic life of this State.

When Dr. Eigsti discovered the potentialities of colchicine he saw right away that the thing to do was to try this magic drug on hundreds of kinds of plants. He set up a large project and through the press asked people who were interested in his work and would like to carry on some of the experiments to write to him for the drug and directions for using it.

Letters poured in by the hundreds, sometimes as many as fifteen or twenty in a single day. They came from all over the United States, from Sumatra, from

# Colchicine Magic

By GLENN COUCH



*Soybeans in the vial on the left, grown from a colchicine-treated plant, weigh almost exactly twice as much as the same number of beans from an untreated plant, shown on the right. These were grown by a Tulsa woman experimenting in co-operation with Dr. Eigsti.*

South Africa, and from many other far-away places. He didn't possess enough of the drug for all of those who offered to help, and he didn't have funds to buy more. However, he sent vials of the potent liquid to 100 interested persons throughout the United States. These amateur scientists were asked to fill out a questionnaire giving information about the kinds of plants they used, how they applied the drug, what the results were, and other bits of information that would be useful to Dr. Eigsti. The results are still coming in.

A nurse in Tulsa, Miss Eunice Moore, experimented with soy beans. A picture on this page shows some soy beans produced by plants that were treated with colchicine and some soy beans from plants that were not treated. Those treated are much larger. They actually weigh about *twice* as much.

Now don't ask me if this means that we can expect more yield per acre from soy beans, or if we can expect more soy bean oil per acre, because we haven't had time to tell. If I had to guess, I would say yes, but the only real way to know is to try.

Let's pause for a moment and see just exactly what will be necessary before such important questions can be answered. First of all, we must have enough seed from the treated plants to plant a large field. Dr. Eigsti has only a few seeds at present. They must be planted; the crop harvested, and so on until a large supply of seeds is available. All of this requires time, space, and energy.

That is just one of the problems. A druggist from Texas sent Dr. Eigsti some castor bean seed from treated and untreated plants. The seed from treated plants is different. What does this mean in regard to production? Again, we are faced with the same problems: time, space, and energy.

Dr. Eigsti's own experiments with periwinkles, in collaboration with Leona Schnell, M. S., '40, now of Weatherford, has interested florists, landscape artists, and scientists. The flowers from treated plants are much larger than those from an untreated plant.

Here is a typical letter from a florist:

"I wrote you in July in regard to the vials of colchicine you were offering at that time. I wish to say I have at least a year's supply, and I am making tests both with the salve and spray on carnations, snaps, stocks, narcissus, geraniums, loquats, and poinsettias. The results after two weeks have begun to show very decidedly.

"This I thought you might be interested in if you are not trying the same plants. If I can be of any service to you in this locale, will be only too glad to help."

This is literally making new varieties. Of course it is important! Of course it is urgent that the work be pushed, and of course, Dr. Eigsti is determined to do it as far as is physically possible. However, we have to be realists. Dr. Eigsti has to carry a regular teaching load (the average at O. U. is much heavier than national standards call for), and little time is left

(PLEASE TURN TO PAGE 29)

## Grand Old Man

(CONTINUED FROM PAGE 12)

of the community programs. Along with the singing, lectures were given. These programs not only promoted better relationships in the community but injected education and culture into the community's heart as well. These community institutes were the basis of unity and cooperation of many Oklahoma communities and the real inception of their forward progress. The programs became so popular that for a time the Extension Division couldn't meet the demands.

For thirteen years Dr. Scroggs served as head of the University Extension Division and made it grow. To him the boundaries of the campus were the geographic boundaries of the state. He intended to resign as extension director for three years before he finally did. He passed the University's age limit of seventy when he had been director for only ten years.

But it was hard for University officials to replace this man, who at that time was regarded as one of extension work's "four horsemen" in the nation. Only last year he was voted honorary president of the National University Extension Association.

So for three years he continued his work before a successor could be obtained. The year that Dr. Scroggs finally resigned as director was the year in which I started to work in the extension division. I can remember how physically active the great educator was in his closing years of active service on the campus.

He had a bicycle with a wire frame on the handlebars to carry his books, and he could be seen pedaling around the campus in any kind of weather. Later, he bought a car and drove it himself, up until three years ago.

Although he was considered too old to work on the faculty, he was just as active at the time of his resignation as almost any faculty member.

His bicycle riding was only one example of his physical activity. He was a golfer and a good pool player. His golf game wasn't too good, but he enjoyed the exercise. There weren't any pool halls in Norman when he headed the Extension Division, but Dr. Scroggs saw no harm in a good game of snooker and he often dropped into a fraternity house to play with the boys.

Piano playing was about the only one of his musical talents that he had kept up at the time of his retirement as extension director. He had been an accomplished musician. He had taught piano, organ, violin, clarinet and trombone; and composed some hymns, as well as some folk dance tunes.

In the last three years of Dr. Scrogg's life, during which time I visited his home more frequently than he was able to come to the Extension Division offices, it was

easy to see that age was rapidly getting the better of the "grand old man."

Never could you get him to admit it, however. He kept one of the rooms in his house furnished as an office and his giant roller-top desk had drawers systematically marked so that he could find what he was looking for, when he wanted it.

It was in recent years that he perfected a garage door opener in his workshop. This invention caused the garage door to open automatically when the car approached it on the driveway.

Our visual education department filmed movies of Dr. Scroggs before he died without his knowing anything about it.

On the very day that we filmed him in action, which was, I believe, his last visit to the O. U. campus, he talked about extension work and about taking education to the people.

He was still thinking about the thing to which he had devoted his life.

He had worked all of his life and worked hard so that other people might live better than they had been living. Oklahoma communities are better places in which to live, and Oklahoma people are living happier, fuller lives because of Dr. Scroggs' long, tireless, effective work.

Dr. Scroggs was a living example of his own motto: "Learn all you can and do all you can."

## Colchicine Magic

(CONTINUED FROM PAGE 13)

for research. Too, if he experiments with plants, there are certain pieces of equipment he must have. An obvious one is a greenhouse. Colchicine does magic things, but it won't put a fur coat on plants: they still will freeze when the weather is cold. It is true that people everywhere can help in his work, but that isn't the point. Dr. Eigsti is chuck-full of ideas—ideas that involve technical training. These ideas must be tried by a trained technician under carefully controlled conditions.

That sort of work is the kind every university hopes to do. The reason I enjoy writing about Dr. Eigsti is because I think his work well illustrates the possibilities that lie ahead in the field of research. There are numerous men at the University of Oklahoma who have great ideas. They are loaded down with teaching and handicapped by lack of equipment. Only recently I heard a Texas newspaper official who is intensely interested in chemurgy say, "What we need is research and lots of it. Why don't these scientists in universities do more?" He had just realized what scientists have known for a long time—that research will pay good dividends. When he was asked how university scientists could do more research under present conditions, he shook his head and said, "Too bad, something ought to be done about it."

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