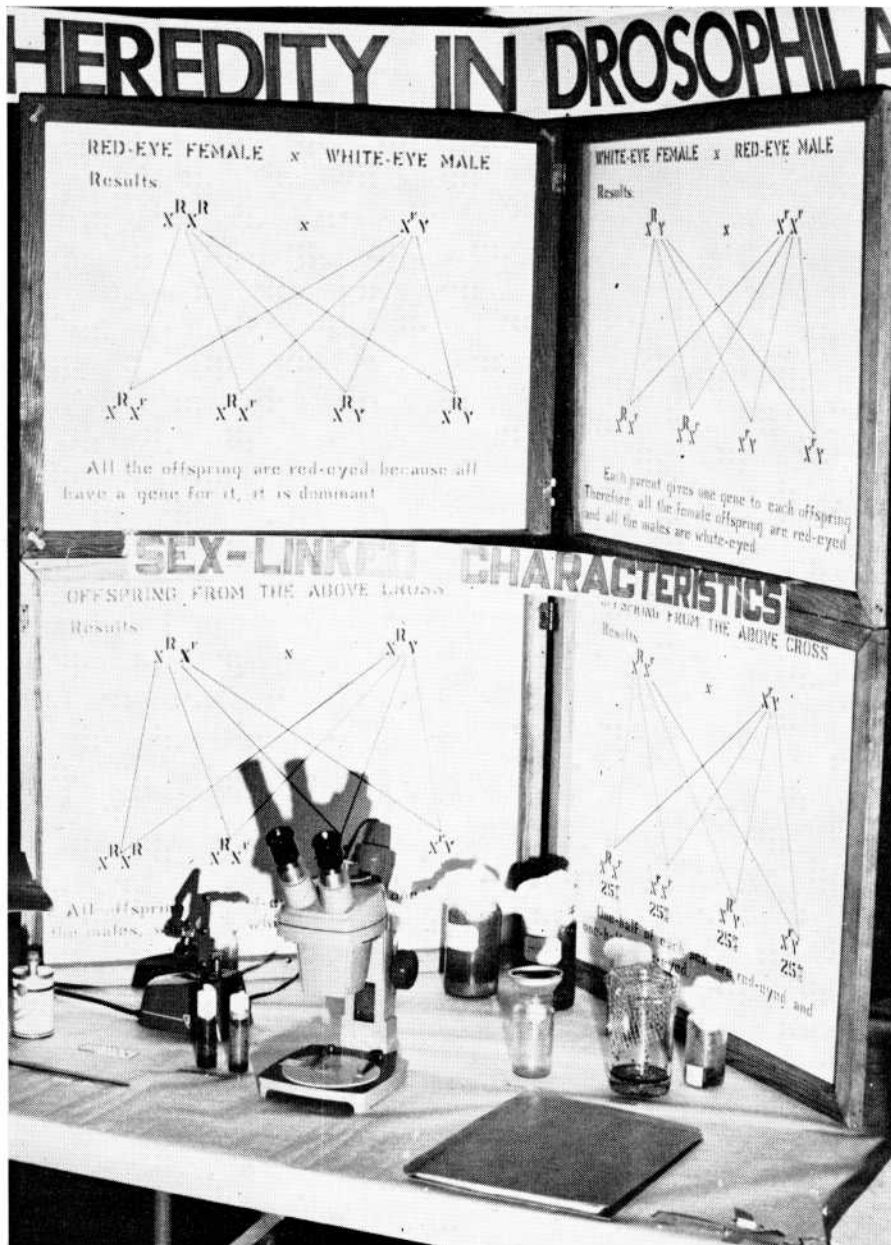


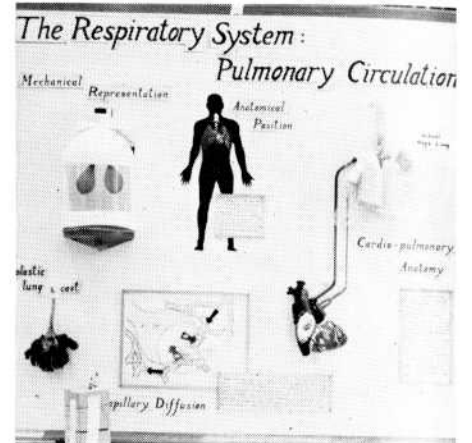
The Science Fair

Spring's Reward for a Long

By JOE DAVIS



The fair has had many exhibits involving mutations and inheritance of characteristics of the fast-reproducing *Drosophila* (the fruit fly). Susan Buford, Lindsay Junior High, received an excellent rating for the initiative and resourcefulness displayed in setting up and maintaining her project. She graphically illustrated the results of her experiment, such as the eye color of different generations.



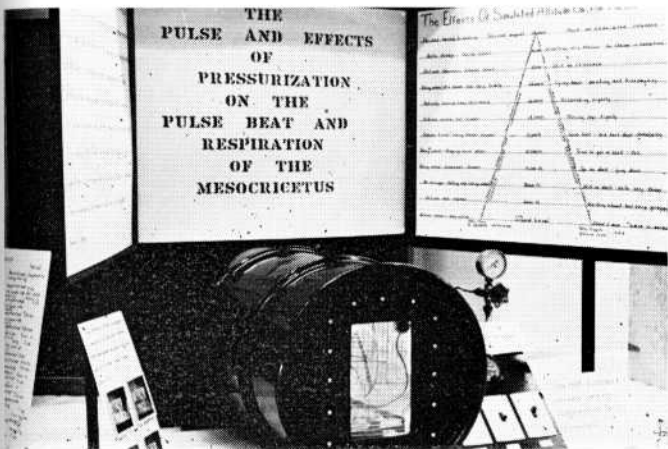
Mark Hinshaw, Norman junior, used a dog's lung operated by mechanical means to illustrate the workings of the respiratory system. The glass tubing shows the circulation of the blood leading to and from the lung; the bell jar at left explains the function of the diaphragm.

For two days out of each spring, the ballroom of the Oklahoma Memorial Union becomes a showcase for the ingenuity and skill of young high school and junior high school scientists from all over the state. The occasion is the Oklahoma Science Fair held at O.U. each year since 1949 to enable these students to share ideas and gain new knowledge and most importantly to exhibit the scientific projects which have kept them busy all winter.

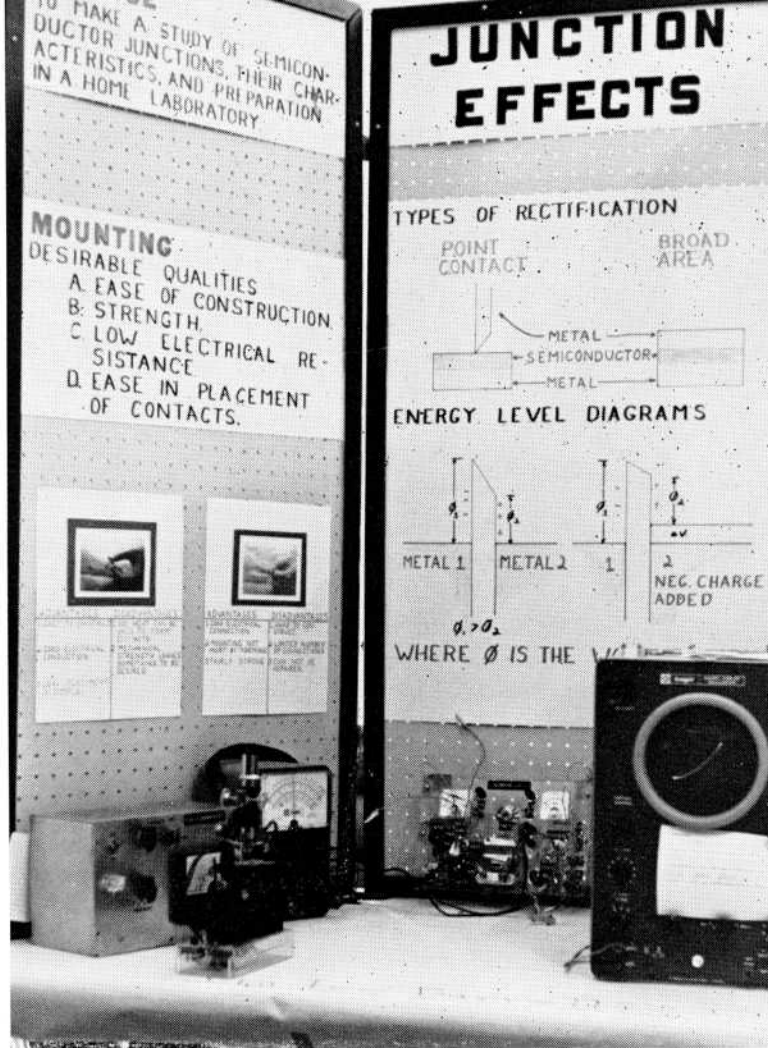
Some of the projects seek to answer questions, such as, *In what stage in the chick embryo development does the heart begin to function?* or *In what way do impurities diffuse through a crystal?* Others only illustrate well-known scientific principles, such as those involved in the production of penicillin or the operation of a cloud chamber.

This year more than 200 exhibits were selected for the Norman show from 1,500 to 2,000 entries in 12 earlier regional con-

Winter's Work



John Riding, a freshman at Miami Central, used an oil drum to make this compression chamber to study the effect of high altitude and slow decompressionization on a hamster. Riding used recording devices to determine the hamster's pulse and respiration. After a maximum of pressure had been reached, the chamber simulated conditions of a slow loss of altitude. The hamster's breathing was amplified and recorded.



John Lee Barrett, Muskogee Central High School senior, based his exhibit on a study of semiconductor junctions, their characteristics and preparation in a home laboratory. He used the oscilloscope in the foreground to measure electrical potential and graphically illustrated the results of his study. His exhibit was one of the two selected to represent Oklahoma at the 1963 National Science Fair at Albuquerque.

tests. Two of these 200 qualified to represent Oklahoma at the National Science Fair, scheduled later this year in Albuquerque, New Mexico.

The regional districts, which are also directly affiliated with the national organization, also select two finalists each for the national competition. In the National Science Fair, based on total points compiled by past entries, Oklahoma ranks sixth among the 50 states.

Dr. James G. Harlow, dean of the O.U. College of Education and executive vice president of the Frontiers of Science Foundation of Oklahoma, organized the first statewide science fair at O.U. in 1949. The fair was open to all high school students who desired to participate. From this beginning, different levels of competition have developed.

On the local level the student must find a sponsor, usually his high school science

teacher. (All sponsors work on a volunteer basis.) For the most part, the student uses the equipment to be found in his school laboratory. In fact the student is encouraged to relate his project to his classroom work.

The colleges came into the organization in 1955 and the junior colleges joined in 1961. Now 10 of the 12 science fair districts are sponsored by state schools. The other two are the Ardmore Southeastern Oklahoma District, sponsored by the Humble Oil and Refining Company, Ardmore, and the Bartlesville Science Fair sponsored by the Technical Career Advisory Committee.

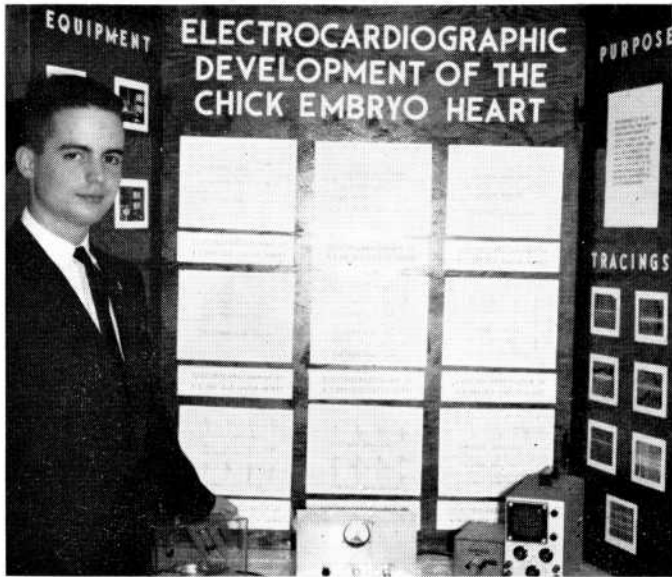
The other regional fairs are the East Central, Ada; the Northeastern Oklahoma, Tahlequah; the Northwestern Oklahoma, Alva; and Oklahoma City Science Fair; the Central Oklahoma, Edmond; the Lawton District; the Miami District; the Panhandle District, Goodwell, and the Tulsa

County Science Fair, Tulsa, Oklahoma.

"There are many benefits for the student participating in the fairs," said Dr. Horace Bliss, associate professor of chemistry and director of this year's O.U. fair. "It gives him an opportunity to test his ability. The student can also better determine from his participation whether he should pursue a scientific career and it gives those that do an early start."

The science fairs also have served to educate the public and give it a yard stick by which to gauge the development of the young would-be scientist. It also gives the student a chance to apply what he has learned in books.

"As a rule, the younger the student, the more enthusiastic he is," Dr. Bliss contends. "The same is usually true of his parents. This points up a need to cultivate more opportunities on the elementary grade school level." (continued)



The highest rating possible at the State Science Fair went to this project which will represent Oklahoma in national competition. Judges felt that Jerry Server's approach to the study of the development of the heart was both unique and sophisticated. A junior at Oklahoma City Harding, Jerry displayed his interest in medical research and study of the heart by using an electrocardiograph to determine the stages of heart development in the 21-day chick embryo.

the fair's competition is keen, but no matter who wins, there are no real losers

Competition is open to students from the seventh to the twelfth grades. Entries are broken down into five categories—the biological science-related exhibits in both junior and senior divisions and the physical science-related exhibits in both junior and senior divisions. Group exhibits are restricted to the junior high school level.

In each division, the individual entries are judged on creativity, scientific thought, thoroughness, technical skill, clarity and dramatic value. But no matter what the results of the judging, there aren't any losers at the fair.

Although there are few monetary rewards, each student has an opportunity to gain recognition and develop a degree of confidence in his scientific competence while he is in high school. There are few such opportunities on a college level.

Some of the projects in the past fairs have actually made a direct contribution to science. One student, who was the Oklahoma representative to the National Fair in 1956, received a commercial contract for his process involving the recovery of skeletons for scientific uses.

But not all meet with such success. Many of the exhibits involve test animals who have diseases and deficiencies as a result of the experiments. The students directing such projects are always in danger of losing their animals before the fair ever begins. The students experience some difficulty setting up their exhibits in the ballroom. All gas, electricity and water have to be

temporarily piped in, and maintaining ideal conditions for test animals always presents problems.

Besides the expense-paid trip to the National Science Fair for two students, there are scholarships and other awards to exhibitors made by the Grolier Society, the Air Force and Oklahoma Society Professional

Engineers and the United States Navy.

The two-day fair at O.U. stresses a well-rounded learning program for the participants. This year Dr. Carlton W. Berenda, professor of philosophy, and Dr. David B. Kitts, associate professor of geology, conducted a symposium on the philosophical attitude toward scientific achievement.

Hypervitaminosis

THIS PROJECT HAS BEEN DONE ON HYPERVITAMINOSIS (OVERDOSE OF VITAMINS). THIS HAS BEEN DONE ON VITAMINS A, B₁₂, AND B₆. VITAMIN A HAS BEEN INJECTED INTO RATS GGG AND HHH. THIS CAUSED BLOODY NOSES, DIARRHEA, AND SWELLING OF JOINTS AND MUSCLES. WE OPERATED AND FOUND THAT THE DIGESTIVE ORGANS WERE SWOLLEN; THE APPENDIX WAS SWOLLEN GREATLY. VITAMIN B₆ HAS BEEN INJECTED INTO RATS EEE AND FFF. THESE RATS DIED IN TWO DAYS AFTER GIVING THE INJECTIONS BECAUSE THE INJECTIONS WERE A DOUBLE LETHAL DOSE. VITAMIN B₁₂ WAS INJECTED INTO RATS CCC AND DDD. THIS CAUSED BLOODY NOSES, DIARRHEA, AND SLUGISHNESS. THE LIVER WAS DARKER AND THE INTESTINE WAS ENLARGED. WE INJECTED VITAMIN B₆ INTO RATS AAA AND BBB. THIS CAUSED BLOODY NOSES, DIARRHEA COMBINED WITH BLOOD AND SLUGISHNESS; THEIR ORGANS WERE ENLARGED. RAT III WAS THE NORMAL RAT. ON RAT HHH WE TRIED AND SUCCEEDED IN TAKING THE BRAIN OUT.

RAT AAA Vit B₁₂ RAT BBB Vit B₁₂
 RAT CCC Vit B₁₂ RAT DDD Vit B₁₂
 RAT GGG Vit A RAT HHH Vit A
 NORMAL RAT
 CAGES VITAMINS
 INJECTING VITAMINS

This exhibit by Harold Wright, Richard Miller and Jim Lee of Weatherford, tested the effects of vitamin overdosage. The three began last February by injecting daily overdoses of vitamin A and three of the B group into white rats, maintaining one test animal. The results were death in extreme cases, deformed organs and various forms of nausea. The exhibit received an excellent in group competition.