7 June 1963, Volume 140, Number 3571 **SCIENCE**

Science Fairs

It is good experience for a student to formulate a problem, design his approach, make the necessary observations, and then attempt to draw the conclusions that are justified by his work. Putting a number of such projects on display recognizes intellectual achievement and gives parents and other visitors an appreciation of the nature of scientific work. And so we have science fairs.

But, the judges report, this is not the whole story. Sponsors—and not all fairs are sponsored by educational organizations—sometimes have a keener eye for publicity than they do for science. Some teachers make participation mandatory instead of voluntary. Children who are too young are encouraged to enter. A high grade in class may depend upon participation or be given as a reward for a winning entry. From these situations other faults flow. Gadgetry gets overemphasized, and showmanship replaces scientific interest in the selection of projects. We have heard more than one student say, "I'm really interested in ——, but this makes a better exhibit." Emphasis on competition fosters a kind of intellectual dishonesty, the custom of having exhibits built by a parent or a scientist friend instead of by the student. A few years ago a Washington, D.C., newspaper quoted a junior high school teacher as telling a student, "You must go there and watch it being made; last semester some of the children didn't even get to see their projects until the week they were due." Perhaps the teacher was not quoted with perfect accuracy, but science fairs do sometimes invite sponging on scientists. One scientist recently sent us a mimeographed letter he uses to avoid writing individual replies to the requests he receives from students, in particularly large numbers at science-fair time. In brief it says, "No, I can't tell you all I know about marine biology; go to the library. No, I can't send you a collection of books and pamphlets or any specimens. No, I can't tell you how to design a project; that is up to you."

Last month the Southwestern and Rocky Mountain Division of the AAAS adopted a resolution criticizing the less desirable aspects of science fairs and calling for reform. Perhaps this action seemed slightly ungracious when Albuquerque, the site of the meeting, was preparing to entertain the International Science Fair sponsored by the Association's good friend and associate, Science Service. But the action may serve as a starting point for an attempt to rescue science fairs from some of their faults.

We have a few suggestions. Participation should be voluntary. Course grades should be divorced from competitive participation and prize winning. Individual projects, not to be entered in a fair, may be valuable in the earlier grades, but school, city, and state competition should be limited to more advanced students. (We learned something about sonnets from being required to write one in the 10th grade, but only a patient teacher had to read the distressing product.) Greater emphasis upon science instead of gadgetry and showmanship is clearly desirable, but largely dependent upon the wisdom and knowledge of the science teacher. Children are plastic and quite responsive to the rewards offered them; let us therefore give careful attention to the prizes, the release from other activities, the laudatory attention, and the other rewards involved. Rewards can be used to encourage attainment of the excellent objectives of science fairs and to discourage the objectionable features.—D.W.