THE ORGANIZATION, OPERATION AND VALUE OF A SCIENCE FAIR PROGRAM

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THE ORGANIZATION, OPERATION AND VALUE
OF A SCIENCE FAIR PROGRAM

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CHAPTER I

INTRODUCTION

There is now an acute shortage of scientists and engineers, and there will be an unfilled need in future years. The starting point for these scientists and engineers of tomorrow is in the high schools. The youngster who does a science project as a hobby, outside the school room, is often the scientist of the future. It is through the science fair that these youngsters can best express their interests and abilities.

The Problem

The purpose of this report is to present various methods of organizing and operating a science fair program, and to determine the value of such a program.

What is a Science Fair?

"A science fair is a competitive exhibition of scientific work developed and displayed by students under the direction of teachers and other interested persons."[1] A science fair provides an opportunity for students to exhibit their ideas,

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[1] A Manual For Science Fairs, Educational Section of American Museum of Atomic Energy, p. 1.

research, and handiwork in science and mathematics. It offers an excellent opportunity for acquainting the parents of the local school, as well as other people in the community, with the science work that is being done.[2]

The general aim of science fairs is to encourage interest, understanding, and appreciation in science and mathematics. The purpose of science fairs is fourfold:

1. To encourage students to take a more active interest in science and mathematics, and thus enlarge the number of scientifically and technically trained people.
2. To afford opportunities for teachers and students to exchange ideas.
3. To arouse the interest of the public in the abilities of students and teachers.
4. To provide science education for the community.[3]

History of the National Science Fair

From local fairs the best exhibits made by individual students (not groups), attending sophomore, junior, or senior classes of any secondary school, are selected for entry into the annual National Science Fair, held in a different city each year, under the auspices of Science Clubs of America and cooperating newspapers. Not more than two finalists, usually one boy and one girl, are selected and are sponsored to the

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[2]Elwood D. Heiss, Ellsworth Obourn, Charles W. Hoffman, Modern Science Teaching, New York: The MacMillan Company, 1950, p. 239.

[3]A Manual For Science Fairs, Educational Section of American Museum of Atomic Energy, p. 1.

National Science Fair by a local newspaper, which arranges to pay all expenses of the trip.

The National Science Fair had its modest beginning in 1950. This first fair was held in Philadelphia at the Franklin Institute. It attracted 30 teen-aged scientist from high schools in 13 areas of the United States.[4]

In the following years, as it swept through St. Louis and Washington, D. C., the National Science Fair grew into a ground swell. In 1953 the Fourth National Science Fair rolled into Oak Ridge, Tennessee with a crest of 70 sparkling-eyed teen-agers representing areas from California to Rhode Island.

In 1954, one hundred youthful scientist gathered at Lafayette, Indiana, to display their scientific exhibits on the Purdue University campus.

By 1954, the science fair program was becoming awesome in its power. Its influence was being felt by hundreds of thousands of children from kindergarten through high school. It was attracting like numbers of adults who turned out to see their local fair. It was this same year that the science fair program began to draw support from school teachers, civic-minded newspapers, universities, chambers of commerce, scientific societies, technical groups, medical associations, and even banks.[5]

All science students in New Mexico, Indiana, West Virginia, Delaware, and Rhode Island had a local science fair

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[4]"Science Youth and Tomorrow," Science News Letter, Volume 65, (March 20, 1954), pp. 282-283.

[5]Ibid., pp.282-283.

to enter in 1954. About two-thirds of Tennessee, North Dakota and Washington, half of Connecticut, one-third of Arizona and one-fourth of Idaho had local fairs of their own.[6]

The Sixth National Science Fair was held in Cleveland, Ohio. No sooner was this fair over than boys and girls all over the United States were making plans for the Seventh National Fair to be held in Oklahoma City, Oklahoma.

Students are now spending many hours working on their projects in hopes that they might be one of the finalist at the Eighth National Science Fair at Los Angeles, California, this year.

Originally each local fair could send four finalists to the national event. In 1953 it was decided that the fair was growing at such a rate that four finalists from each area would be too many in 1954. The number that each local fair can send was cut to two. A finalist is defined as a boy or a girl having an exhibit in the National Science Fair.

Four top awards are given to two boys and two girls having the best exhibits in the physical and biological sciences. Each finalist is asked to make a "wish list", naming the scientific equipment he would like to have if he wins. If the finalist is chosen as a first-place winner, he gets $125 worth of "wished-for" equipment. Second-and third- place winners

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[6]"National Science Fair Expected to Double", Science News Letter, Volume 65, (March 20, 1954), p. 184.

distribute between the sexes amounts of $75 and $50 each in scientific "wish" equipment and literature.[7]

It can be seen that a boy or girl has an unlimited opportunity to advance from a local science fair in his or her community to the National Science Fair. In only a few short years the science fair has become a medium providing a means for recognition of individual differences and, at the same time, give training in competition.

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[7]"Science Youth and Tomorrow," Science News Letter, Volume 65, (March 20, 1954), pp. 282-283.

CHAPTER II

Methods of Organization and Operation

Every member in a community can be involved directly or indirectly in a science fair. Organizing and executing a science fair entails more than agreement; it involves much planning and work.

As there are three geographical categories of science fairs, it can readily be seen that there will be some variation in the organization and operation of the fair. The categories of science fairs are:

1. Local science fairs. Fairs held for one school or school system.
2. District, regional, and state fairs. Fairs made up of exhibits representing several schools or school systems.
3. National Science Fair. A fair organized and administered by Science Service, Washington, D. C.[1]

Since the primary principle of any science fair is the exhibit, let us first focus our attention on ways that the science teacher may motivate the student in developing an exhibit for a science fair. Encouraging students to develop an exhibit is known as project teaching. This sometimes requires the very best of the teacher. Here is a list of suggested motivation procedures:

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[1] A Manual For Science Fairs, Educational Section of American Museum of Atomic Energy, p. 1.

1. The teacher must be convinced of the worth of the project method and show considerable enthusiam about it.

2. Give the student plenty of time to work on the project to be exhibited. Acquaint students with the critical shortage of scientists and their career opportunities.

3. Allow class time periodically for 2 or 3 minute reports on progress of project. Call on students for this.

4. Keep the length of time until the Science Fair prominently visible before the class on the blackboard. Frequently call the students attention to the dates.

5. Review often the rewards open to exhibitors in the Science Fair. Emphasize the importance of contacts with scientists and chances to meet other students in the Science Fair exhibition hall.

6. Allow the students to get outside help from any source.

7. Help the students understand the criteria that will be used in evaluating their exhibits.[2]

The second step in carrying out a science fair is the actual organization of it. This phase of a science fair is a complicated, long-range project, and individuals responsible for conducting a science fair should make plans well in advance and see that they are properly executed. Some of the more important factors to be considered will vary according to the type of fair to be conducted.

Financing

It is essential that sufficient funds be forthcoming to cover adequately all expenditures that may arise. Do not try

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[2]Science Fair Handbook, Educational Section of American Museum of Atomic Energy, p. 2.

to start one until you are assured sufficient money will be available for your use. The cost of fairs vary, so do not limit yourselves by specifying a set sum. Many unexpected expenditures may arise at the time of actually staging the fair. This writer has used funds from the local school, dues from the science club, and donations from interested individuals in the community to stage a local science fair.

Sponsorship

There are many ideas on sponsorship. Jones presented the following plan for the Second St. Louis Science Fair:

1. It is recommended that your city newspaper be secured as one of the sponsoring bodies.
2. The sponsor can find no better place to display all exhibits than a college or university field house or gymnasium. This writer has used the local gymnasium with great success.
3. It is advised that there be someone to assume the responsibility for directing the tremendous amount of work necessary to stage a fair.[3]

There are many other sources from which sponsors may be obtained. Institutions of higher learning, industries, research organizations, banks, insurance, real estate companies, radio companies, television companies, telephone companies, telegraph organizations, scientific and technological organizations, civic organizations, and veterans' organizations are some of the possible sources of getting a sponsor for your science fair.

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[3]Norman R. D. Jones, "A Science Fair-Its Organization and Operation," Science Teacher, Volume 16-17, (February, 1949), pp. 26-27.

The Texas Academy of Science and The University of Texas Medical Branch were chosen as sponsors for District #1 Regional Science Fair at Galveston, Texas, in 1956. Many state and county medical societies undertook the sponsorship of local and regional high school science fairs in 1956, from which finalists were selected to attend the National Science Fair in Oklahoma City, Oklahoma.[4]

Committees

The number of committees is governed by the need of the particular plans for your fair. The following ones were suggested for the second science fair in St. Louis:

1. Resource Committee shall assume responsibility of making arrangements for advertising, and conducting area meetings of teachers and children to advertise and clarify the whole fair enterprise.

2. Promotion Committee shall aid in general advertising through newspapers, radios, brochures, posters, and application blanks, and will cooperate with the Resource Committee in part. If the fair is on a local scale, the Resource Committee and Promotion Committee should be combined into one group.

3. Placement Committee shall make the floor plan exhibit location, procure and arrange tables, outlets, aerials, and work out a system of coding exhibits and making record cards, and manage the dismantling of the fair.

4. Clerical Records Committee shall have charge of mailing out all registration materials, of enrolling exhibitors, and of keeping all records during judging of exhibits.

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[4]"A. M. A. to Participate in National Science Fair," Science News Letter, Volume 69, (January 14, 1956), p. 18.

5. Judging Committee shall secure the proper number, variety, and caliber of judges; assign judges to respective judging area; see that all exhibits are judged before dismissing judges; prepare and present awards, prizes, and certificates.

6. Student Aid Committee shall organize student helpers to assist in placement of exhibits, act as ushers, and do "police duty" during the fair (except during judging).

7. Awards Committee shall secure any prizes, awards, certificates, scholarships that have been requested by the central committee.

8. Program Committee shall arrange for the "Opening Night or Awards Night Program." It shall also be responsible for the public address system.

9. Supervisory Committee in cooperation with the Student Aid Committee shall formulate a schedule that provides proper supervision at all hours of public exhibition of projects.[5]

Area

The territory from which entries are accepted must be determined. This factor shall depend upon the type of fair that is being held. The area may include only the city schools, or schools of the county, or schools of surrounding counties, as well as local schools.

Date of Fair

The best time for holding the fair according to the judgment of committees of the Greater St. Louis Science Fair is late in the school year as possible.[6] This gives more time

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[5]Norman R. D. Jones, "A Science Fair-Its Organization and Operation," Science Teacher, Volume 16-17, (February, 1949), pp. 26-27.

[6]Ibid., Volume 16-17, (April, 1949), pp. 76-77.

for classes of the second semester to develop exhibits. If the fair is held too late in the year, it might cause interference with school closing activities. Easter vacation has been used with great success by many sponsors.

Publicity

An announcement must be developed so that students may be informed as to the many procedures to be followed in making and showing exhibits. Samples of the various forms can be secured from Science Service, 1719 N. Street, N. W. Washington 6, D. C.

This writer used the following announcement for students of the Bellville High School Science Fair in Bellville, Texas, in 1956:

BELLVILLE HIGH SCHOOL SCIENCE FAIR RULES

1. Exhibits on any scientific subject made by students may be entered if students are enrolled in any class from 9 through grade 12 in Bellville High School.

2. A contestant may enter only one exhibit. All work on exhibits must be done by the individual. Teachers or sponsors may advise, but must not build any part of the exhibit. An exhibit must not be an identical repetition of one shown by the same exhibitor or same group at a science fair of a previous year. Group exhibits cannot be entered in the National Science Fair.

3. Exhibits must be confined to a table or floor space three feet deep, (front to back), by four feet wide, (side to side), or smaller. Oversized exhibits cannot be entered in the National Science Fair.

4. Construction must be durable; movable parts firmly attached; safe. All switches and cords for 110-volt operation must be of approved variety. Each house current-operated exhibit

must be provided with six or more feet of cord, and the popular style of parallel plug. Battery-operated circuits need not be so treated.

5. Dangerous chemicals, open flames, explosives, poisonous reptiles, starvation experiments on animals must not be exhibited. Live animals must be fed, watered, and cages cleaned during the fair. Plants must be watered.

6. Exhibitors will bring their exhibits to Bellville High School Gymnasium on March 3, 1956, and set up before 10:00 A. M., then leave exhibit area. Exhibitors will remove exhibits on March 4, 1956, at 2:00 P.M. Any exhibit not removed may be destroyed.

7. Judges will evaluate exhibits between 10:00 A. M. and 2:00 P. M. Only Judges and Fair Committee will be permitted in the exhibit area during judging. Scoring will be on work done by exhibitors, not on value of accessory equipment either borrowed or purchased. Criteria for judgment will be based on creative ability, scientific thought, thoroughness, skill, clarity, and dramatic value. If they desire to do so, judges may interview some or all exhibitors. Decision of the judges will be final.

8. Awards will be announced on March 3, 1956, at 7:00 P. M.

9. Exhibits will be classified as follows:
   I. Biological Sciences
      A. Individual exhibits (Divisions: Junior and Senior)
   II. Physical Sciences
      A. Individual exhibits (Divisions: Junior and Senior)

   Junior (9th grade)
   Senior (10th, 11th, and 12th grade)
   * National Science Fair Finalist will be accepted from Senior division only.

10. Neither the Science Fair Committee, sponsor, nor school assume any responsibility for loss or damage to any exhibit or part thereof.

Sponsor of Science Fair

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Printed Material

There is a variety of printed material that shall be needed for the fair. Some of the most outstanding materials that shall be needed are:

1. Brochure of announcement
2. Entry blanks
3. Registration cards for checking exhibits in and out, as well as for record purposes.
4. A scoring card (at least 3 for each exhibit).
5. A judge's signature card to be placed with each exhibit to determine when three judges have scored it.
6. Exhibitor's badge for each person having an entry.
7. Blue, Red, and White ribbons
8. A certificate of award
9. Stationery, letterheads, and envelopes for correspondance, dispatching or mailing literature.
10. Important signs in the exhibition hall, such as table numbers, areas (biological area or physical area), divisions, and directions for registering entries.[7]

Figure 1 is an example of a brochure of announcement of the Science Fairs of Oklahoma. It can be seen from this figure, that the entire science fair program for the state of Oklahoma is presented in an attractive and informative manner.

Figure 2 is an example of an entry blank used by the District I Regional Science Fair in Galveston, Texas, in 1956. Sufficient information is requested by the entry blank to enable the Placement and Clerical Committees to make advanced arrangements for exhibitor.

Another type of printed material that will be needed is the judge's score card which is shown in the third figure.

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[7]Norman R.D. Jones, "A Science Fair-Its Organization and Operation," Science Teacher, Volume 16-17, (April, 1949), pp.76-77

It can be seen that organizing any type of a science fair requires a great deal of cooperation and planning. Interest, determination, and experience are three important characteristics to consider in selecting administrative personnel for the organization of a science fair.[8]

Operation of Fair

The factors involved in the operation of a science fair are setting up, judging, and dismantling the exhibits.

Setting up the exhibits is a very real and time consuming undertaking and should be planned with great care. The exhibitors should be expected to arrange the exhibits in an orderly and, as far as possible, artistic manner. Some of the exhibits of the fair will of necessity have to be planned as special exhibits to be shown at certain specified times.[9]

An adequate number of judges should be selected by the Judging Committee. Prior to the judging the judges should be briefed and given cards with descriptive criteria defined and weighed according to predetermined points. Teams of judges should be provided for each division of the fair. After the places have been determined in the divisions, all of the judges

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[8] A Manual For Science Fairs, Educational Section of American Museum of Atomic Energy, p. 4.

[9] Elwood D. Heiss, Ellsworth Obourn, Charles W. Hoffman, Modern Science Teaching, The MacMillan Company: New York, 1950, pp. 240-241.

The Science Fair Season

TIMING GOES LIKE THIS:

Now on to early February—Select and work up projects

Early March—Community Science Fairs

Late March—District Science Fairs (check District Manager if th date isn't listed)

April 11-12—The N i Statewide

May 9-11—Eighth .tion: l at Los Angeles (open only to Finalists hosen at the Districts).

SIXTH SCIENCE ACHIEVEMENTS PROGRAM of the FUTURE SCIENTISTS OF AMERICA FOUNDATION

Closing date: March 15, 1957

While this is not a part of Science Fairs (which must have a location), FSAF is also based on Science Projects. A Project used for Fairs can often be submitted to FSAF. Entering both programs gives a well rounded experience that includes good reporting.

Details available from Oklahoma Science Service, Norman.

SCIENCE FAIRS OF OKLAHOMA

Fall Announcements October, 1956

ESTABLISHED DATES FOR DISTRICTS

State Colleges

Central, March 21-22
East Central, March 28-29
Northeastern, March 22
Northwestern, March 21-22
Southeastern, March 00
Southwestern, March 28-29

Oklahoma City Schools, March 00
Tulsa Schools, March 00
Ninth Statewide, Norman, April 11-12

SCIENCE FAIRS
SFO
OF OKLAHOMA

Consult NEWSLETTER CALENDAR: SCIENCE EVENTS FOR OKLAHOMA SCHOOLS, for timing throughout season and for District Fair Manager names.

Please Send a Separate Blank for Each Exhibit

ENTRY BLANK

DISTRICT I, SCIENCE FAIR

March 16, 1956

Exhibition Hall
Pleasure Pier
Galveston, Texas

Exhibitor_____Address_____

Check One: Individual Exhibit____Group Exhibit_____

School_____County_____

Teacher or Adviser_____

Address_____Telephone Number_____

Classification of Entry (Jr. High or Sr. High)_____

Field of Science (Biology, Chemistry, Engineering, etc.)____

Title of Exhibit_____

Dimensions of Space Required for Exhibit: Width___Length___

Requirements for Exhibit (electricity, gas, water, etc.)____

_____

I certify that this exhibit was produced by the exhibitor or exhibitors herein mentioned.

_____
(Teacher's or Adviser's Signature)

- -

(EXHIBITOR SHOULD NOT WRITE IN THIS SPACE)

EXHIBIT NUMBER_____SPACE ASSIGNMENT_____

Fig. 2. Entry Blank

_____ SCIENCE FAIR

Judge's Score Card

Exhibit classification _____

Exhibit title or number _____

Criteria:

1. Scientific Thought (___ points)
How does the exhibit illustrate one or more of the following: completeness of observation, controlled experimentation, theories, analysis, synthesis, cause and effect reasoning, making comparisons by showing likenesses and differences?

Score: _____

2. Creative Ability (___ points)
Does the exhibit show originality in plan and execution? Does it demonstrate new or improved ways of expressing or communicating scientific ideas?

Score: _____

3. Thoroughness (___ points)
Does the exhibit tell a complete and concise story about the project? Is the proper emphasis given to important items?

Score: _____

4. Clarity and Dramatic Value (___ points)
Does the exhibit catch and focus the attention of visitors? Are the labels large, neat, and easy to read and understand? Does the exhibit contribute to the understanding of both laymen and scientists?

Score: _____

5. Technical Skill (___ points)
Is the exhibit sound and durably constructed? Is good craftsmanship shown? Will it stand wear and tear of transportation and demonstration?

Score: _____

TOTAL SCORE: _____
(100 points possible per judge. Exhibit's final score is the total of all judges' ratings)

_____
Judge

Fig. 3. Judge's Score Card

can get together and determine the grand winner. Judging should be done before the fair is opened to the public.[10]

MacCurdy and Bagshaw state that, "Trained and experienced judges are not available in sufficient quantities, for the fairs have grown in large numbers recently. As a result of the increasing demand, the supply has come from inexperienced but willing science teachers whose judgments may not be as reliable as may be desired."[11]

An examination of the current and generally accepted score card (Fig. 3, page 17) for judging was performed by MacCurdy and Bagshaw to see if there were weaknesses in it which would result in unreliable and invalid judgments. It was found by the examiners that the standards of the current score card were not rigid and definite, and that large score units were assigned to each item that was judged.[12]

A new score card was built by MacCurdy and Bragshaw which had all the basic features of the old card, but those factors which had caused wide variation in judging had been removed or revised. This new score card was tried on many projects in many fairs and has proved to be useful, practical, and rapid.

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[10] A Manual For Science Fairs, Education Section of American Museum of Atomic Energy, p. 10.

[11] R. D. MacCurdy and Thomas L. Bagshaw, "Are Science Fair Judges Fair?", Science Teacher, Volume 38, (August, 1955), pp. 224-231.

[12] Ibid., pp. 224-231.

Revised Science Fair Score Card

Project Title: Project #____

Items for Scoring: All scores are all or none items

A.	Scientific Methods Used in Solving the Problem	30
1.	Evidence that problem evolved naturally from life	2
2.	Evidence that a hypothesis was developed	4
3.	Evidence that search for related facts was made	3
4.	Evidence that controlled observations were made	5
5.	Evidence that findings were tested for accuracy	6
6.	Evidence that conclusions were limited to data	5
7.	Evidence that credit was recognized in bibliography	3
8.	Evidence that plans exist to share the truth	2
B.	Advancement in Science for the Contestant	20
1.	Evidence that there is a new interest in Science	4
2.	Evidence that there is a new scientific knowledge	4
3.	Evidence that there is an understanding of the Scientific Method	3
4.	Evidence that there is a new respect for scientist	3
5.	Evidence that there is a scientific attitude	3
6.	Evidence that this study is of a school year duration	3
C.	Ingenuity of Construction, Technical Skill, Workmanship	20
1.	Evidence of all possible use of everyday materials	3
2.	Evidence of precision, order, care, skill in building	5
3.	Evidence of durability, portability and safety features	5
4.	Evidence of no professional assistance	4
5.	Evidence of creative imagination in design	3
D.	Thoroughness	10
1.	Evidence that project carries out its purpose	2
2.	Evidence that observations were accurately made	3
3.	Evidence that labeling is clear	1
4.	Evidence of graphic or pictoral illustrations	1
5.	Evidence that it works	3
E.	Originality of Concept	10
1.	Evidence of an original idea	2
2.	Evidence of new method used	2
3.	Evidence of any new appartus developed	2
4.	Evidence of any new materials used	2
5.	Evidence of any new conclusions reached	2
F.	Social Implications	5
1.	Evidence that contestant sees its use today for man	3
2.	Evidence that contestant sees its use tomorrow for man	2

G.	Dramatic Value	5
1.	Evidence that it attracts people to look closer	2
2.	Evidence that it is self-evident in explanation	3
	Total Score	100

Judge's Name_____

To score a Senior High School Research Project do all items.
To score a Senior High School Exhibit (applied) and
To score a Junior High School Project omit A 1, 2, 5, 7, 8.
To score a Junior High Exhibit or an Elementary School Fair, a popular vote for best 10% of all exhibits by all judges is recommended.[13]

The remaining procedure in the operation of the science fair is that of letting the public view the exhibits and distributing the awards. The Program and Awards Committees shall have charge of this phase of the fair.

The dismantling of the exhibits should be described to the exhibitors. A definite date and time for removal of exhibits should be designated. It shall be the duty of the Placement Committee to see that this procedure is followed.

Conclusion

It is evident from the preceeding material that the organization and operation of a science fair is a tremendous undertaking.

The organization of a science fair is concerned with the following topics:

1. Financing
2. Sponsorship
3. Planning Committees
4. Area of Fair

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[13]R. D. MacCurdy and Thomas L. Bagshaw, "Are Science Fair Judges Fair?," Science Teacher, Volume 38, (August, 1955), pp. 224-231.

5. Date of Fair
6. Publicity
7. Printed Material

The operation of a fair is concerned with the following factors:

1. Setting up exhibits
2. Judging exhibits
3. Dismantling exhibits

Fig. 4. Junior Girls Physical Science Division Exhibit

Fig. 5. Junior Boys Physical Science Division Exhibit

Fig. 6. Senior Girls Biological Science Division Exhibit

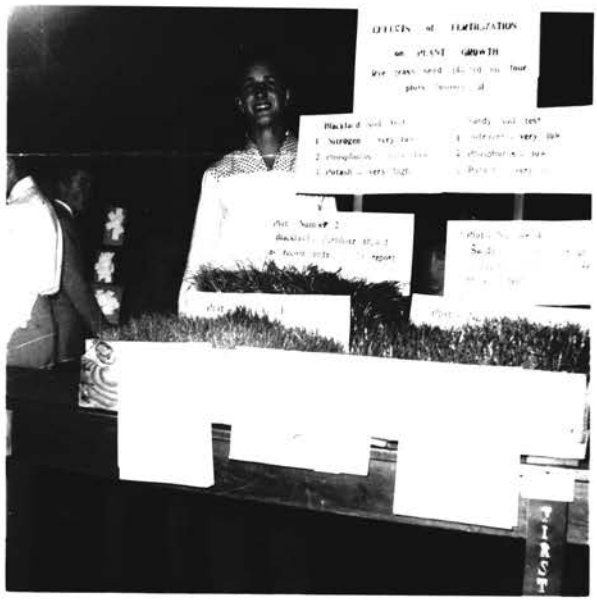

Fig. 7. Senior Boys Biological Science Division Exhibit

CHAPTER III

Value of Science Fair

The operation of a science fair in the secondary school science program has a place, if the fair has a definite value. The fair should never be thought of as an end within itself. It should be thought of as a means of motivating young people to express their interests and abilities. This chapter will be concerned with the value of science fairs to various individuals and groups.

Watson Davis, director of Science Service, told the American Society for Engineering Education meeting in University Park, Pennsylvania, in 1955, "By arousing the interest and ability of students still in high school, America can recapture from Soviet Russia leadership in production of scientific and technological manpower."[1] It is through the science fair in the high school that this objective can be accomplished.

A personal opinion on the value of science fairs was made by Julius Summer Miller, a science fair judge, when he stated, "On Friday, April 17, I had the very great honor of judging the Science Fair at the Los Angeles County Museum. Over 200 exhibits were on display, demonstrating facts and theories and phenomena in a wide range of science. These young kids who

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[1]"Science Youth Movement," Science News Letter, Volume 68, (July 2, 1955), p. 13.

show such promise should be provided with special instruction and their imagination should be given freer rein. Everyone of these youngsters who put his stuff on display is gifted. Out of a school population of hundreds of thousands a brave 200 or so demonstrated the temper and the imagination that set aside the thinker and doer. We are missing the boat unless we attend to these."[2]

Many organizations throughout the country have realized the great importance that science fairs play in our secondary school science program. The American Medical Association is one such organization, for in January of 1956, the association announced that it would present a special citation and an invitation to exhibit at its annual meeting to the boy or girl exhibiting the best display on medical research, general health, or physical fitness, at the Seventh National Science Fair, May 10-12, in Oklahoma City, Oklahoma.[3] There are many other examples of industries and institutions of higher learning taking an active interest in the science fair program.

Jane Blankenship, Finalist at the Fourth National Science Fair, states, concerning the value of science fairs, "The earlier in life a student develops an interest in something, the more enthusiastic he is; science fairs encourage such enthusiasm. More students put in the time and effort towards

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[2]Julius Summer Miller, "Reflection on Judging a Science Fair," School Science and Mathematics, (November, 1953), p. 634.

[3]"A. M. A. to Participate in National Science Fair," Science News Letter, Volume 69, (January, 1956), p. 18.

a science project when there is an added incentive such as a science fair. I am extremely grateful to those who made Science Fairs and the benefits resulting from them available to me. My aspiration is that I may apply what I have gained through Science Fairs toward making this world an even richer place for all. I hope that many other possible future scientists will be offered some of the opportunities that I had."[4] Jane Blankenship's enthusiasm toward science fairs is but one example out of thousands who share this same feeling. This writer has observed this enthusiastic feeling, described by Jane, in his students participating in a local science fair.

Conclusion

It is evident from the previous information in this report that the organization and operation of a science fair has a vital function in the science program. Science fairs provide a medium through which a young person may express his talents. This factor makes the use of science fairs a valuable tool with great possibilities. It is the responsibility of science and mathematics teachers over the United States to become better acquainted with this new tool. Through a better understanding of this program, science teachers over the nation can offer their students an experience that shall not soon be forgotten.

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[4]Jane Blankenship, "A Salute to Science Fairs," Unpublished paper written for Educational Branch of American Museum of Atomic Energy.

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Seminar Report: THE ORGANIZATION, OPERATION AND VALUE OF A SCIENCE FAIR PROGRAM

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