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## Student Industrial Research Program (SIRP) Summer Student Science Program

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## **Student Industrial Research Program (SIRP) Summer Student Science Program**

By E. M. VAUGHAN

A report on the initiation of the SIRP—Bendix, St. Ambrose—was presented during the 1956 Iowa Academy of Science meeting. At that meeting three student reports on projects undertaken as a result of this program were presented. Two student project reports were presented at the 1957 meeting. Four student reports will be presented at our 1958 meeting. A former St. Ambrose student who reported initially at the 1956 meeting on ultrasonic plating, Mr. Roy Buckrop, will report at this meeting. Mr. Pat Short will extend his 1957 report on “Fuels for Aircraft Propulsion Systems”.

In addition reports have been made on all projects at meetings of the Iowa-Illinois Undergraduate Science Student Symposium. Several of the college undergraduates have also talked before high school science classes and science clubs.

Bendix-St. Ambrose Student Project equipment was displayed at the College “Campus and Community Days” celebration in November, 1957. Project equipment was also a part of the non-competitive exhibit at the Second Annual Quad City Science Fair in March of 1958.

Project work has stabilized as industrial and educational supervisors have become experienced. Projects are more realistic and our students working in the program have been able to coordinate their efforts in obtaining definite results. Students are working on projects in the physics, mathematics and chemistry areas of science at present. A project is being considered in the biological science area.

There have been active considerations for expanding the program. However, an expansion of the program during the school year was not attempted. Instead, in cooperation with the Placement Bureau, St. Ambrose College, a committee of St. Ambrose science faculty and industrial representatives outlined a Quint City Area Industrial Co-op Summer Science and Engineering Program. This program is to be patterned after the 1957 Engineering Department Summer Student Program at Pioneer Central Division of Bendix Aviation Corporation. Area firms will provide St. Ambrose Science and Engineering students with summer employment in their specific fields of

study. According to the plans St. Ambrose will offer each week an afternoon seminar and lecture session on problems of industrial management to complement this on-the-job training. Industrial firms cooperating will donate this three hour weekly afternoon period to the student as "Educational Assistance".

The plan further calls for regular progress reports on students from industry supervisors and a final report from the student on project and class work. Grades will be based on student reports, project results and supervisor reports.

Participating students will be required to register for the course work at the College. Those entering junior or senior level in the fall may earn two semester hours of college credit upon successful completion of the summer program. Industrial representatives will be invited to attend the seminars and actively participate in the discussions.

Committee discussions pointed out the long-range values of the plan for industries in the area, particularly since St. Ambrose now offers a four-year program in Engineering-Physics.

Practical application on the job will strengthen undergraduate preparation in these fields. Furthermore, employers will be able to evaluate student performance with a view to permanent work after graduation.

Cooperating companies will afford students the chance to gain practical knowledge of the industry well in advance of graduation and will be better assured of a steady source of trained personnel in the science and engineering fields. Eventual expansion of the program, therefore, anticipates conserving the abilities and training of local people for employment in this area.

Businessmen attending the planning sessions have commented on the advantage to local industry of encouraging such a program here. Considerable savings in recruiting and moving expense result by hiring employees who have their "roots" here.

Further, they said, employees familiar with the local area are likely to remain with the company longer. Students trained in cooperative plans can more quickly become oriented and productive on a permanent position, thus saving the employer part of the first-year training expense.

Committee members also were enthusiastic about the value of students and industrial representatives exchanging information on various projects and working together on problems in the seminar sessions. Too often, employers report, initial training of college graduates is difficult and costly because theory and practice have not been coordinated before graduation.

The program will consist of:

- A. Lectures and demonstrations by St. Ambrose faculty and industrial representatives on:
  - Engineering and Science in Industry
  - Patents and Legal Aspects
  - Sales Engineering
  - Laboratory Testing and Procedures
  - Design and Drafting
  - Technical Report Writing
  - Communications in Industry
  - Production Engineering
  - Purchasing Procedures
  - Marketing
  - Electronics in Industry
  - Personnel and Industrial Relations
- B. Student presentations and group discussions on summer projects. (Junior and seniors only will be required to review projects.)
- C. Special lectures by SUI, ISC, University of Illinois, Rock Island Arsenal and Pioneer Central consultants on:
  - Space Travel
  - Rocket and Missile Principles and Testing
  - Nuclear Power Progress
  - Computer Operation
  - Ultrasonic Applications
- D. Field trips (if they can be arranged) to:
  - Argonne Laboratory (nuclear studies)
  - Local industries

There are twenty-three Quint City firms that have shown interest in cooperating in the program. Several have expressed interest in sending permanent science and engineering employees to the weekly seminars.

In addition recommendations have been made to industries on their request, concerning the proper employment of science and engineering students for the summer. As an example, it was recommended that one industry with an active interest in airships and missiles employ sixteen summer students. These students would be divided into four groups. Each group would be assigned a primary project. The four project areas recommended were:

- a) Solar Power
- b) Strain Gauges

- c) Cosmic Radiation
- d) O<sub>2</sub>-CO<sub>2</sub> Conversion in a Closed Breathing System

A capable graduate student was recommended as the leader for each group. Two of the graduate students recommended are majoring in physics, one in mathematics, and one in chemistry. This entire activity would be controlled by a college teacher acting as a Summer Employee Training Director.

There was some concern about the possible success of such a summer program as a result of the unemployment that exists in connection with the recession. While this unemployment has influenced industrial job commitments and there is some doubt that the program can be as expansive as is desired, the cooperating industries are energetically supporting these efforts. It is a heartening indication that cooperation is possible, practical, and needed at this time between educational institutions and industrial organizations.

As a final comment it would seem advantageous for local, state and federal governments to support these educational-industrial cooperative efforts. This support could be in the form of summer industrial work scholarships given to deserving students. A scholarship would pay the student a wage compared to junior scientists or engineers working in industry, permit him to work and observe industrial practices and assist the industry in obtaining clear, fresh ideas. New concepts are needed in all industries today. These new concepts are not readily furnished by the present scientific and engineering personnel whose knowledge has been made obsolescent by our effervescent propulsion into this "Spacetomic" Age.

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