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Chemistry in the Junior and Senior College

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The College of St. Catherine

A report of the meeting of the Minnesota College Chemistry Teachers' Section, May 2, 1964, at the Meetings of the Minnesota Academy of Science. Sister Marie James is the Chairman of the College Chemistry Teachers' Section.

If the march of education would just halt we might be able to look forward and backward and integrate our courses so as to give the student a truly systematic development. But if education were not dynamic, it would be dead. This dynamism in education makes it urgent that teachers get together to relate their courses so as to give Minnesota's youth the best possible chance to solve the problems of tomorrow. Some states have set up excellent boards that coordinate objectives and course outlines of high school, junior college, senior college and university, but no state has yet achieved what is an ideal *grand design*. Minnesota is studying its situation. In the meantime, since it is the teachers who implement the proposed plans, these same teachers might well initiate them.

At the 1964 Spring Meeting of the Minnesota Academy of Science, the College Chemistry Teachers Section met to discuss the integration between junior and senior college chemistry. Sixteen colleges were represented: four junior, four state, six private liberal arts, and two branches of the University of Minnesota. According to a recent survey most junior college students in the state transfer to the state colleges while few, so far, transfer to the liberal arts colleges or the universities. Dr. Richard Werth of Concordia College said that their college had not yet had anyone. With four new junior colleges now in the planning stage by the State, however, the transfer of students from the junior to senior college may well raise a problem for faculties of chemistry departments in the near future, unless we have a smooth working plan ready for operation.

The discussion turned constantly to curriculum which is not surprising because a systematic program of education is structured by a well ordered curriculum. However, names of courses often bear little relation to the content offered in them from college to college. At the present time the content of General Chemistry varies greatly and often has scarcely any resemblance to its content five years ago. This is a result, in part, of the new approach in high schools where students are learning theory once taught only to college freshmen or sophomores. Indeed, some parts of former senior college courses now find themselves between the pages of the high school text. All of this can make the chemistry course in the first year of college a headache. If there were a single goal for all students in the junior college the course content might not be too difficult to organize.

* See News and Notes

But the student who wishes to transfer to a senior college may have one of several goals. Dr. Francis B. Moore of Duluth pointed out that the student in senior college usually has one of three goals: a professional major, a teaching major or a minor. There are transfer students who will stop with the B.A. degrees and some who will want to do graduate work. These may not be many now but in a few years the number may be significant. There was a time when few students from undergraduate colleges went on to graduate school but with the need for better educated chemists, the substitution of machines for analysts, and the excellent opportunities for graduate fellowships in chemistry, the number entering graduate school is swelling. All of this makes it desirable, if not necessary, that chemistry teachers plan for some description of an adequate number of concepts that a student should have at particular levels in his educational life.

A great many questions emerged from the discussion held by the Chemistry Teachers Section. Suppose the Chem Study or the Chemical Bond Approach is set as a standard for high schools: who will teach these courses until teachers are properly prepared by the colleges? is a curriculum planned for teachers adequate and proper for the professional chemist? how much is a junior college instructor able to teach? Leroy Johnson from Virginia remarked that the junior college often has been an extension of the high school and the teacher in the college is expected to carry the same load as the high school teacher. It is true, according to the State Department of Education, that the most common type of administration in Minnesota up to 1958 was the local district or extension of the high school district. Minnesota plans to change this and, hopefully, the junior college instructor will be recognized as a college instructor rather than a high school teacher. Should all students who transfer from junior college be admitted to senior college? Until an integrated program can be worked out it was suggested that some form of admissions test be used for students transferring from junior to senior college. Tests, of course, often measure only facts or memorized data. Dr. Schoffman of St. John's University expressed the mind of most professors present when he said that principles are of highest importance. John Hughes added that the name *Qualitative Analysis* need not indicate a course in cook book chemistry but rather a study of equilibrium. William Britton of Bemidji State College cited his use of the student planned experiment to teach principles, rather than laboratory directions. If tests are

used for entry into senior college there is always the possibility of failure for the student. Dr. Arthur Nelson from St. Cloud State College asked what was so sacred about "four years in college?" If five years are necessary for a student to get what he needs, why not encourage him to take more time? Counselling is one of the principal occupations of an instructor in a community college. John Almquist from Willmar Community College explained that a chief purpose of a community college is to help the community, and a significant part of that help is the guiding of students into whatever they can do best so as to be successful adults. It may be that one should be directed to woodworking and shop while another be counselled to take mathematics and chemistry.

In the short time of the meeting no one expected to

solve the state's problems but there developed better understanding, a respect for the problems of others, and the good will to work further together, as well as some practical suggestions. First, there was the suggestion that good tests be used to introduce the junior college student to senior college. Secondly, it was discovered that courses are now being taught in junior colleges into which students may be advised. Students who wish to pursue chemistry as a major sequence, whether for industry, medicine, teaching, graduate research or other application, might well be directed to take two years of mathematics, two years of physics and two years of chemistry, including quantitative analysis. Adequately taught, these students should have a minimum of adjustment into senior college.

A Quick Method of Correcting Examination Papers

SISTER MARIE RICHARD¹

St. Joseph's Academy, St. Paul

The following method of correcting examination papers has proved to be time saving and very satisfactory to me and some of my colleagues for both commercial and teacher-produced tests.

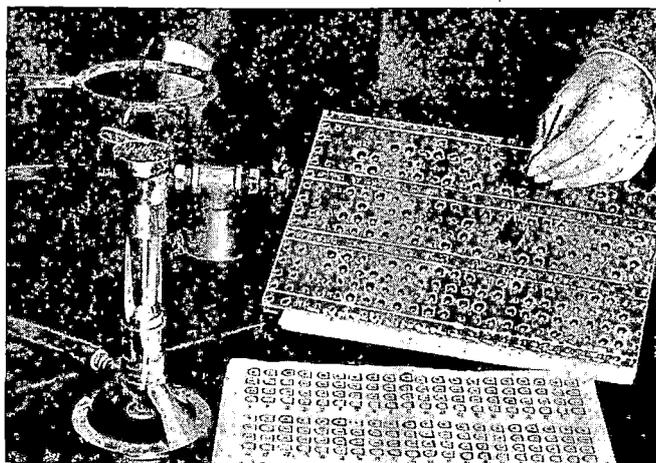
Duplicated answer sheets are numbered to coincide with the holes on two identical one quarter inch peg boards, which can be numbered permanently in enamel, for as many as 60 multiple choice or true and false answers. Holes **MUST** be synchronized.

Just before the peg board is used, the correct answer holes should be circled in chalk. Then staple as many as 30 answer sheets together and fasten them between the two peg boards with a C-clamp.

Heat two steel knitting needles to a red hot glow over a Fisher or Bunsen burner and simply burn a hole through all the correct answers. Since the holes are smaller than the circles made around the numbers by the students, counting the number of correct answers is easily done.

The corrected tests may be returned to pupils during the test hours, if so desired, to permit them to check their errors immediately.

¹M.S., University of Minnesota. For over 10 years, teacher of chemistry or physics at Academy of Holy Angels.



If this device can be used in your program, please feel free to make use of it.

(A similar description of this method for correcting papers appeared in *The Physics Teacher*, May, 1964, vol. 2, no. 5.)

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