Science Bulletin

Volume 3 | Number 1 Article 9

9-1930

We, the Jury

R. W. Getchell
Iowa State Teachers College

42 degrees or 48 degress up from the southern horizon.

New moon always occurs when the moon is between the earth and the sun or when the moon has moved but slightly from this position. At this time the moon is travelling on the sun's path in the sky. The new moon, which is crescent in shape will always be either in the west, north of west or south of west shortly after sun down. If you will connect the two horns of the crescent by a straight line and draw a perpendicular bisector to this line, the bisector will pass through the sun. On March 21 and September 23, the new moon should be seen directly in the west. On June 21, it will appear to the north of west, since the sun is then 23½ degrees north of the celestial equator, and on December 22, to the south of west since the sun is then 23½ degrees south of the equator. If full moon should occur at the equinoxes, it will rise directly in the east and set directly in the west since the sun and moon are then on the celestial equator. The height of the moon above the southern horizon will be determined by the time of year. When full moon occurs between March 21 and September 23, it will travel on a track in the sky just as far to the south of the celestial equator as the sun is north of it. On June 21, the full moon should rise south of east, cross the southern meridian low down in the sky, and set to the south of west. In winter time when the sun is 23½ degrees south of the celestial equator, the full moon will rise to the north of east, cross the southern meridian 23½ degrees above the celestial equator and set to the north of west. It will be seen that we have long periods of moonlight during the winter, and short periods during summer time. From this simple discussion it should be clear why the position of the moon in the sky has nothing to do with air temperatures.

E. J. Cable.

WE, THE JURY
Chemistry

Iowa high schools may justly be proud of their chemistry courses and of their chemistry teachers. The state ranks low in the number of schools offering this science but high in the quality of its teaching staff. One sure criterion of instructional efficiency is growth — a growth based upon the frank recognition of mistakes and intelligent effort to correct them. He is a blind egotist who boasts infallibility; but the true teacher is always a humble learner. The college teacher should claim no superiority over his professional colleague in the high school. Yet as he works with the product of the high school laboratory and class room he is privileged to view in perspective both the virtues and the faults of high school chemistry teachers. With a view to offering constructive criticism may we, then, place upon the witness stand a composite product from our secondary schools and examine his adverse testimony?

Interrogator. You have had a year's course in chemistry in the high school?

Witness. I have.

Int. What major benefits have you derived from it?

Wit. I have gained a greater appreciation of the experiences of daily life and am better qualified to enter college.

Int. Are you satisfied with the chemistry instruction you received?

Wit. I certainly am.

Int. Do you not regret having elected chemistry?

Wit. Positively, no!

Int. What criticisms have you to offer?

Wit. Compared with the desirable results the faults are very few.

Int. I grant that. But if you will cite some instructional errors, I would like to comment on them for the benfit of the jury, which is drawn from high school chemistry teachers.

Wit. The work was not organized, but

seemed to be planned only from day to day.

Int. It is easy to divide a 450 page book by 90 school days and assign 5 pages a day, but the results are disastrous. At the beginning of a semester the different topics to be studied should be weighted, perhaps on a percentage basis, and each topic assigned the right proportion of available time. Each week can then be allotted certain subject matter and this assignment should be religiously adhered to. It will mean that the book cannot be swallowed "hook, bait and all" and that the essential material must be selected to the exclusion of less important matter. Topics, rather than textbook paragraphs, should be the study units. It is even admissible to dismember an entire chapter and distribute the fractions where they will best fit pedagogically. Many of our best teachers can exhibit at the outset, a complete "lay-out" of the semester's or year's work.

This failure to plan shows also in the lack of correlation between class room and laboratory. It is not always essential that the text and manual should come from the same author; but it is important that they should be so balanced and related that the pupil is dealing with the same topics in both theoretical and experimental assignments. It should be emphasized also that the high school pupil should have some knowledge of a subject or substance before attacking it in the laboratory.

Wit. The teacher did too much of the talking in the class room.

Int. It is sometimes said of the teacher that he enjoys the sound of his own voice. If such be true, he should temper his joy with mercy—for the pupil. The lecture type of teaching has no place in the high school chemistry class room. Motivation must be provided through recitations and other types of activity. The reasons for such are understood by every well-trained teacher. Explanations and supplementary material must be presented from the desk but, even then, let the pedagog hold a stop-watch on himself.

Wit. Correction of papers and notebooks showed carelessness and procrastination.

Int. If the teacher could realize the effort, anxiety and interest wrapped up in many a paper and notebook (I do not say all), he would need no urging to correct them carefully, note corrections helpfully and return them promptly. Not to return quiz papers at all is to reduce their teaching value greatly and encourage pupils in the belief that they find the waste basket without even being corrected. Furthermore a notebook correction system should be followed which will insure their being kept up to date.

Wit. Lecture experiments either were missing or misfired.

Int. Knowing the laborious work attendant upon the preparation of lecture demonstrations, I would be the last to berate the offending, but over-worked teacher. Yet in most cases it is possible to select simple and certain experiments which will illustrate laws, preparations, properties or uses not brought out in laboratory experiments. A little time and thought spent on such experiments will add variety as well as value to the class hour.

Wit. The confusion of articles in the laboratory is bewildering and depressing.

Int. Many chemistry teachers sign a teaching contract only to find that they are part time janitors. Each teacher must solve this problem for himself. But the test of an efficient solution is invariably evidenced in a neat, orderly, scientific looking room, as it meets the gaze of an incoming class.

Wit. Laboratory apparatus is never ready when the class starts.

Int. In this criticism we find evidence of poor or of good management. I have often known teachers to return to the building in the eveing in order that all special apparatus and chemicals might

reach the class like clock-work on the following day. Incidentally, it means one less harassed teacher.

Wit. I have spoken the truth and nothing but the truth. May I now testify favorably to the chemistry teacher?

Int. The weight of evidence in his behalf is so heavy that the records could scarce contain it. We will rest the case with the jury—the reader. May we have your verdict?

R. W. Getchell.

NATURAL SCIENCE

Seed Corn

Again we come to the annual problem of seed corn and show corn. In the first place good seed corn is important to all of us because missing hills and barren stalks mean wasted labor, wasted time, and wasted land. Since human labor and time are our most valuable assets why waste them through useless endeavor by planting corn which will not grow nor yield?

At once the question arises, "What is good seed corn?" This may be answered in many ways, but perhaps no better answer can be found than the following: Good seed corn when planted and tilled properly produces large yields per acre.

What are the observable characteristics of such corn? First, such corn has a strong vitality. Second, such corn is mature. Third, such corn is pure for its variety. Fourth, such corn has an inherent power to yield above the average.

How may a farmer reasonably assure himself such seed corn? This may be accomplished by field selection, proper storage, and testing.

There are many reasons for field selection. Two will be given. First field selection enables the farmer to determine parentage. This is very important; for parentage in corn, as in animals, is a big factor in the determination of the character of the offspring.

If corn is selected from the field before the killing frost the maturity of the seed corn can be known. In every field of corn there are many ears becoming ripe daily after September 1st to the 10th. This early maturity may be due to inherent weakness or to inherent strength. If to the former, there are indications of disease or lack of constitution, i. e. the stalks and leaves will be light in build and weight and lack in proportion. The ears will be light and chaffy and poorly filled out. On the other hand, if the early maturity is due to inherent vigor there will be no indication of disease; the stalks and leaves will be stocky and in good proportion. The ears will be heavy like lead, firm kernels will carry a large amount of horny starch and a fairly smooth dent.

Another advantage of a study of the parentage, though less important than the advantage just given, is that it enables the farmer to select and establish ears the height of which is most desirable at husking time. Whether the husking is to be by hand or machinery, the ears should be located reasonably low on the stalk. Such a location makes hand husking easy, reduces the damage by wind, and insures maximum efficiency by husking machines.

Second, field selection enables the farmer to study the environment of the prospective seed corn. It is a well known fact that corn is cross pollenated. Now corn selected from hills which have barren stalks or which are surrounded by barren stalks may have been fertilized by the pollen from these barren stalks. Consequently the seed corn thus selected would be low in productivity.

Diseases of Seed Corn

These diseases are Scutellumrot, Fusarium, and Diplodia. These diseases are caused by fungi and are the cause of large losses annually. A complete discussion of these diseases is impossible in this article. However, those who are in-