


3-1929

The Open Season for Teachers: An Editorial

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Recommended Citation

(1929) "The Open Season for Teachers: An Editorial," *Science Bulletin*: Vol. 1: No. 5, Article 6.

Available at: https://scholarworks.uni.edu/science_bulletin/vol1/iss5/6

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SCIENCE BULLETIN

Issued monthly. Entered as second class mail matter at the post-office, Cedar Falls, Iowa, under the act of August 24, 1912.

THE OPEN SEASON FOR TEACHERS

An Editorial

The next three months are anxious ones among our teachers. Some are seeking advancement; others are hoping for re-election; and many are looking for their first school. Chance will play an important part in many cases. The "influential third party" will land positions for some. But for most applicants desirable qualifications will be the largest factor.

In this friendly editorial chat let us survey some of the points touched upon in appointment blanks and personal interviews. We will select at random.

Neatness in person, dress and work makes a favorable impression. Neatly combed hair, careful manicuring, polished shoes, clean linen, well cared for teeth, clothing that is spotless, pressed and becoming, and a well arranged desk and classroom, —all are noted by the prospective employer. There is no excuse for affecting careless or old-fashioned style in dress, neither are daringly ultra-modern styles an asset.

The teacher should be able to meet people well—to be a good mixer. He should cultivate the ability to feel at ease under all social conditions and to make friends in the community. Moreover, he is a public servant, an example to those who are forming habits and character and as such he is under obligation to see that his social practices and private life conform (at least upward) to the standards and practices of his constituency.

Initiative, self reliance and ability for leadership are always expected of a teacher. Pupils and patrons cannot find inspiration in the teacher who is diffident, who is always among the "also present," and whose very bearing is a constant apology for being alive.

That scholarship and professional alertness are essential qualities may seem a trite statement. Yet scores

of present and prospective teachers seem to ignore this truism. They wish merely to "get by"; they teach only for the monthly pay check; they consider the class-room hours but an intruding and annoying incident in their jazz-ordered, joy-seeking life. Small wonder that they play one-year stands.

"Does he take suggestions kindly?" is asked by nearly every employer of teachers. If the teacher appears to dislike or resent or find offense in requests and criticisms from his superior, the easiest remedy for the administrator is not to recommend re-election.

The "suit-case teacher" is usually not welcome. To be sure, it is pleasant if he can go home every Friday afternoon and return Monday morning, but home for the teacher should have the same town address as his pupils and patrons during the school year. It should represent no hardship to him that he is expected to enter into the week-end social and athletic life of the school and to do his part in the public work of the community, including the church. The pupils need to know and appreciate him in other roles than that of instructor and disciplinarian. The editor anticipates that some may, as per earlier suggestion, rather forcibly "tune out" at this point.

Discipline is necessary for long tenure of position but good discipline is comparable to the well-lubricated, completely enclosed six cylinder auto engine. Most cases of poor discipline can be traced either to the too obvious and noisy machinery for its enforcement or to such poor instructional methods as fail to interest and employ the time of the pupils. With few exceptions, the cause for serious disciplinary troubles can be found in the methods or personality of the teacher.

Now, my good friend, of course this little monologue does not apply to you in the remotest degree; otherwise this salutation might be a misnomer. Yet it is well for us occasionally to pause and take stock of ourselves and our professional associates. Yesterday we wrote six recommendations. Not all of them, unfortunately, will assist the candidate to a position because some could not qualify for the standards above sug-

gested and the truth must be told. We hope that all of Iowa's science teachers, at least, will always have a record which they can submit with pride to superintendents and school boards.

THE MOLECULAR KINETIC THEORY

(Continued from page 35)

sure is a measure of the molecular bombardment on the enclosing surfaces. If the volume of an enclosed gas is reduced one-half, its density is doubled. This in turn would increase the molecular bombardment two fold, with a consequent doubling of pressure. From this graphic illustration we see clearly the reason for "Boyle's Law"—that bugbear to the average pupil in physics.

Let us consider the phenomenon of diffusion as illustrated in the following experiment. Place in the bottom of a wide mouthed bottle (or a chemical flask) some fragments of lime rock. Cover the rock with water and then add a spoonful of commercial hydrochloric acid. Close the bottle with a one-hole stopper carrying a delivery tube, the other end of which is thrust to the bottom of a second bottle. The carbon dioxide gas generated by the acid and lime rock will soon fill the second bottle, displacing the air which it originally contained. When the bottle is full of carbon dioxide gas a lighted match held at its mouth will be instantly extinguished. Now invert over the bottle full of carbon dioxide gas a third open-mouthed bottle full of air. After five or ten minutes, slip a piece of cardboard between the mouths of the bottles and turn the inverted bottle upright. Finally pour a small amount of clear lime water into this bottle and shake. The lime water will turn milky white showing the presence of carbon dioxide gas. Lime water is easily made by shaking together a lump of lime and clear water and letting it stand over night. Siphon off the clear upper layer, for use. This experiment demonstrates that carbon dioxide gas, although one and one-half times as heavy as air, will diffuse upwards in spite of the force of gravity; while the lighter air in the upper bottle moves down into the bottle originally filled with the heavier gas. This phenomenon of diffu-

sion of gases one would naturally expect, if the molecules are really executing swift vibratory movements.

There are many other phenomena for the explanation of which the molecular kinetic theory is indispensable. Among these is the diffusion of liquids, osmosis, solutions of solids and of liquids in liquids, and the evaporation of liquids from their exposed surfaces.

L. BEGEMAN

MISCONCEPTIONS CONCERNING RESPIRATION

Botany

The respiration of plants is misunderstood by a large majority of the students who enter our general botany classes in college. This misunderstanding is about as common among students who have had biological training in high school as among those who have not. I am also convinced that a very large majority of people, in general, not excluding college graduates, have the wrong conception of plant respiration. It seems that there must be something wrong with the teaching of this subject in our schools.

Plant respiration and animal respiration are to most people fundamentally different; in fact, they think of them as being processes that are exact opposites. The usual statement that is given is as follows: "Plants in their respiration take in carbon dioxide and release oxygen, while animals take in oxygen and release carbon dioxide." There can be no greater fundamental error concerning respiration than this. What are the facts?

In the first place, respiration is not mere breathing. Respiration is one of the fundamental metabolic processes of all living cells, both plant and animal, whereby food, and perhaps protoplasm itself in some cases, is broken down for the release of the energy necessary for activity. In aerobic respiration, oxygen is taken in and the waste products are carbon dioxide and water, but in anaerobic respiration, carried on by yeasts and some bacteria, no oxygen is taken in and the waste products are carbon dioxide and organic compounds.

In the second place, photosynthesis is not understood and often is not even considered. Photosynthesis is