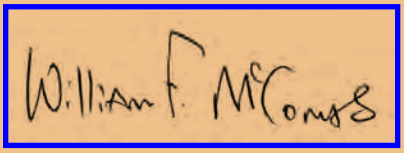
of reviewers who have been solicited by their potential for service, reappointed because of their timely and useful reviews, and acknowledged in each issue of our journal. Establishing a board of reviewers is one of the hallmarks of a mature journal. For those in higher education who might act as reviewers, the reward system makes it clear that being named for a term as reviewer is a far more compelling offer than to serve as an occasional reviewer. More involvement with article processing will encourage authorship from all such individuals.

(F) It may be worthwhile to consider how we can "translate" new discoveries in biology into articles that our members can readily access and apply in the classroom, thus making biology as current as possible. This might take the form of an "instant update" team of writers who are tasked with taking cutting-edge ideas in the life sciences and writing summaries for the readers of *ABT*. If this is of interest, please let me know.

(G) A potential weakness of *ABT* has been the lack of inclusion of much original biology education research. We can change this in at least two ways. First, we should institute a column that interprets the research in science education that is published elsewhere and makes it relevant for biology and life science educators. A "*what research says*" article could also be a worthy addition to our journal. Second, we might establish a column for the publication of original research in biology and life science teaching and solicit contributions for this feature directly.

No matter what role any editor plays in the direction of our journal, it is the members who ultimately must express their opinions and play an active role, because *ABT* serves them. Therefore, let me tell you that I look forward to hearing from readers about any of the suggestions I have offered here and encourage you to offer suggestions of your own. *The American Biology Teacher* is your journal, and I will be pleased to maintain its high standards and equally pleased to have the chance to work with the NABT Board and our members to make it even better.



William F. McComas
*Editor*

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# LETTER

## "What Is Life?" Revisited

The question "What is life?" was proposed as "An activity to convey the complexities of this simple question" by Prud'homme-Généreux (2013). As supplementary material to the activity in that *ABT* article, I suggested, in a letter to *ABT*, some examples of physical/chemical systems that appear to have some of the features of living organisms (Stansfield, 2013).

Since then, a group of scientists (Bianchini et al., 2013) report that particles of tea leaves in water from one container can move upstream against a flow of pure water from a second container. Self-propulsion in biological entities, such as certain flagellated bacteria or ciliated animal cells, requires metabolic activity, indicated by the expenditure of energy. Tea leaves were once alive, but any dried leaf cells in tea brew have no mechanism for self propulsion, especially when moving upstream like spawning salmon. So by what mechanism can the movement of tea leaf particles be explained? It is hypothesized that the "particles overcome gravity and the current thanks to a property of water called surface tension. The linkup of hydrogen atoms among water molecules tends to create an elastic, trampoline-like surface. But small particles like tea leaves disturb that network, causing the hydrogen bonds to pull apart and thrust the particles toward purer water where the surface tension is higher" (Grant, 2013).

Cessation of metabolic activity and response to environmental stimuli are usually included in the definition of organismic or cellular death. Goodspeed et al. (2013) report that a head of cabbage cropped from its stalk continues to produce anti-caterpillar glucosinolates as an adaptive response to alternating 12-hour periods of light and dark (circadian cycles). "Caterpillars on a cycle offset by 12 hours to the cabbages' (so the cabbages' dawn was the caterpillars' dusk) ate about 20 times more than did caterpillars on a schedule synchronized to their food" (Gelling, 2013). The clock-related pest resistance lasts about a week after harvesting.

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