

Some Sayings of Agassiz

Natural History

David Starr Jordan in his personal recollection of "Louis Agassiz, Teacher" in *The Scientific Monthly*, Nov., 1923, quotes from his notebooks of the outdoor teaching at Penikese what Agassiz said of his method of nature study:

Never be afraid to say "I do not know."

Strive to interpret what really exists.

I feel more vexed at impropriety in a scientific laboratory than in a church. The study of nature is intercourse with the Highest Mind. You should never trifle with Nature. At the lowest, her works are the works of the highest powers, the highest something in the universe in whatever way we look at it.

I have been criticised in Europe as one who derives his scientific ideas from the church. I have been regarded in America as an infidel, because I will not be dictated to. I will not suffer my church-going friends to pat me on the head.

Have with traditional belief and dogmatic science nothing to do. Scrape it off. If we are weak let us humbly fall back for support on tradition and belief. If we are strong let us see what there is outside of these.

Never try to teach what you yourself do not know, and know well. If your school board insists on your teaching anything and everything, decline firmly to do it. It is an imposition alike on pupils and teacher to teach that which he does not know. Those teachers who are strong enough should squarely refuse to do such work. The much-needed reform is already beginning in our colleges, and I hope it will continue. It is a relic of medieval times, this idea of "professing" everything. When teachers begin to decline work which they cannot do well, improvements begin to come in. If one will be a successful teacher, he must firmly refuse work which he cannot do successfully.

It is a false idea to suppose that everybody is competent to learn or to teach everything. Would our great artists have succeeded equally well in Greek or calculus? A smattering of everything is worth little. It is a fallacy to suppose that an encyclopedic knowledge is desirable. The mind is made strong, not through much learning, but by the thorough possession of something.

Lay aside all conceit. Learn to read the book of nature for yourself. Those who have succeeded best have followed for years some slim thread which has once in a while broadened out and disclosed some treasure worth a lifelong search.

A man cannot be a professor of zoology on one day, and of chemistry on the next, and do good work in both. As in a concert all are musicians—one plays one instrument, and one another, but none all in perfection.

You cannot do without one specialty; you must have one base-line to measure the work and attainments of others. For a general view of the subject, study the history of the sciences. Broad knowledge of all nature has been the possession of no naturalist except Humboldt, and general relations constituted his specialty.

Select such subjects that your pupils cannot walk without seeing them. Train your pupils to be observers, and have them provided with the specimens about which you speak. If you can find nothing better, take a housefly or a cricket, and let each hold a specimen and examine it as you talk.

In 1847 I gave an address at Newton, Massachusetts, before a Teachers' Institute conducted by Horace Mann. My subject was grasshoppers. I passed around a large jar of these insects, and made every teacher take one and hold it while I was speaking. If anyone dropped the insect I stopped till he picked it up. This was at that time a great innovation and excited much laughter and derision. There can be no true progress in the teaching of natural science until such methods become general.

There is no part of the country where, in the summer, you cannot get a sufficient supply of the best specimens. Take your text from the brooks, not from the book-sellers. It is better to have a few forms well known than to teach a little about many hundred species. Better a dozen specimens thoroughly studied as the result of the first year's work than to have two thousand dollars' worth of shells and corals bought from a curiosity shop. The dozen animals would be your own.

Teach your pupils to bring in their specimens themselves, and above all teach them how to handle them. The earlier this training is begun the better. There is not one person in fifty

who knows how to handle a valuable specimen without injuring it, and not one in ten who will submit to being taught.

Talk about your specimens and try to make the pupils observe the most striking and telling features. When you collect a specimen, be sure and find out what it is, or if you have not the means at hand, take such notes as will help you to find its name when you have opportunity. Better let a specimen go without a name than to give it a wrong one.

There should be a little museum in every school room; a half dozen Radiates, a few shells, a hundred insects and a few fish, reptiles, birds and mammals would be sufficient to teach well. De Candolle, the great botanist, once said that he could teach all he knew about botany with a dozen plants.

If you study nature in books, when you go out-of-doors you can not find her.

The book of nature is always open. All that I can write or say shall be to make them study that book and not pin their faith to any other.

This is the charm of study from Nature herself; she brings us back to absolute truth whenever we wander.

Science News-Letter, May 12, 1928

Our Savage Nature

Psychology

JOHN B. WATSON, in *Harper's Magazine*:

So far, counting the millions of years society has been shaping human lives, a pretty poor job has been done. We are still very close to the savage; strip off a little of the verbal veneer and polite behavior of the hands, feet, and trunk, and the raw, primitive stuff shows through.

The savage was all right for his time. Our argument is that you can't fit a savage to live in New York by teaching him only English and how to behave with his hands. It is essential to train his gut as well. This is one reason why human beings are so restless—they have the speech and manners of a Chesterfield and the gut behavior of an "Emperor Jones."

Science News-Letter, May 12, 1928

Two plant explorers from the U. S. Department of Agriculture have returned from Africa with seeds of more than 160 different grasses and forage plants.