

Introductory Biology and Life Appreciation Courses

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Biology is the fifth and the second last of the six sciences covering all that is, according to the influential philosopher of science Auguste Comte. He listed them in the order of increasing complexity: mathematics, astronomy, physics, chemistry, biology, and sociology. Biology was conceived as a science of organisms. A main problem for Comte was whether, like chemistry, biology's "laws" could be derived from those of physics. In any case, Comte had the influential idea that there is no place for metaphysics, and especially no place for a study of understanding of value (other than the purely instrumental values) in his classification of science.

Today, biology is more often defined as the study of living beings than as the study of organisms, but courses in biology, and the range of biology as conceived as part of an encyclopedia, is still centred around the anatomy and physiology of kinds of organisms with a sprinkling of evolutionary terms. These areas are often thought to furnish the hard core and conceptual basis of the life sciences, the science of living beings. The study of ecology, the study of the various contemporary conceptions of life, and the conditions of life on Earth, are not conceived to be basic studies of life. There is much that can be said for such a conception of what is the most basic. But it should be remembered that the conception is itself derived from valuation, not from facts alone.

When students are introduced to biology as the study of living beings or of the organisms, they are today often deeply dissatisfied with the

narrowness of perspective of most courses in most countries. When they complain, the answers they get tend to be unsatisfactory. If they say that basics must be learned first, the students may justly feel that most of what they learn in the introductory courses is not basic. What factual basis have conclusions about basicness? Which valuations are tacitly assumed to be valid, or at least uncontroversial?

Until recently, chemistry was primarily a study of chemicals. Now it astonishes old chemists how few chemicals are studied. Students must know a lot about chemicals, as astronomers about stars, but introductory courses do not take the study of a set of chemicals or of stars as basic. An analogous change of biology may be warranted today, but only analogous, not similar.

Considering the crisis of life conditions on Earth, and the influx of biology students motivated by their awareness (however fragmentary or misguided) of a crisis, basic courses must relate to this phenomenon. Factual knowledge must get a priority in part in relation to the motivation of the student. This is mostly not realized, and we have here one of the roots of dissatisfaction.

Earlier, the terms *analogous* and *not similar* were used because the richness and diversity of species of chemical compositions have only a remote relation to that of living beings. As experienced by a now, old-fashioned “stuff-chemist” chemicals certainly have or had a sort of life-quality, at least a sort of identity and independent (fascinating) character similar to that of species of animals or plants to a naturalist. So there have been and still are chemist-naturalists.

The reality of chemicals for chemist-naturalists is in part a realm of chemicals as *gestalts*: the *gestalt-ontology* approach.

The specimens of species, genera, and families of living organisms make up a reality with intrinsic value, subjects of care for their own sake, subjects of respect, subjects of identification in a pronounced way mostly absent in the case of chemicals.

There is, however, a strong reason for not having to learn much about the individual species, genera, families, and so on, but rather to understand, especially in the sense of Spinoza's *amor intellectualis*. This implies excursions of very special kinds, living at least for some time in mixed communities. It implies the ability to verbalize experiences so that the student can communicate to others what “nature tells them.” Through proper selection of places, the student gets in

touch with living beings of highly different genera, families, and so on. It will be the responsibility of the teacher to estimate what the student has gained of experience, ability to articulate, and proper conception of the limitedness of his or her knowledge.

Note on Biology Education

In 1939 the University of California campus at Berkeley included a music building. It was a delight to pass that building since music came out of the windows and made us feel well. The courses there centred around music appreciation: the endeavour to deepen and intensify the musical experience. There were many technical things to learn on the way to the exams, but it was my great joy to see how highly the musical imagination and creative listening was estimated as a genuine part of the education. “How do you feel and conceive *this*? What do you experience?” The teachers, perhaps not all, had the courage to deeply influence the students, their personalities, from the very start of their studies.

Musicology is the science of MUSIC, Biology the science of LIFE. Why is there such a fundamental difference between introductory courses in musicology and introductory courses in biology? I do not see why biology education, starting with introductory courses, could not to a large extent resemble those of musicological courses. Life appreciation, for example, appreciation of the evolutionary miracles. Acquaintance, and understanding (*amor intellectualis*) of living beings, like acquaintance and understanding of forms of music. Musicology courses furnish the student with examples. Music is played, appreciated. “What did you experience when you listened to this?” “Listen to *this*, how it seems to announce a new style?” and so on. Why should the education of biology teachers be so different from teachers of music? There are innumerable facts in musicology, and a confusing wealth of theories. The notation and classification show variation. Introductions to musicology could be without any trace of appeal to spontaneous experience, emotion, quest for a life with music. There must be some difference of style, but why so much, and in such a wrong direction?