

EDITORS' CHOICE

Death of the “ologies”

It is my sad duty to report on the death of one of academics' most cherished institutions—the “ologies”. Way back before we knew so much and understood so little, Universities compartmentalized knowledge by the addition of the Greek *logos*, meaning the ‘study of’, ‘specialty in’ or ‘art of’ a given field to the end of the word. I did a Google search on “ologies” and the winner (<http://phrontistery.info/sciences.html>) had 633 different fields with this suffix. There is also an entire book on this subject called “Ologies and Isms: A Dictionary of Word Beginnings and Endings” by Michael Quinion for those who want to delve further. The purist should note that the “o” is superfluous, with the true suffix being “logy”, which had led to a few “ologies” as pretenders to the “logy” throne.

This compartmentalization was quite successful and led to the creation of many departments of “-ologies”, each with a separate supposed set of goals that survive to this day in all major centers of higher learning. It also led to the creation of innumerable tenure-level jobs for Chairs, Directors, Deans and the like, each with their own fiefdom of administrators and budgets and also a few researchers or professors.

Generalizations and attacks on the status quo are dangerous and lead to shrill counter attacks by those affected, but I feel it is clear that the growth of modern science has led to the death of this venerable institution. Let me illustrate this in the field I am familiar with—modern biological research. Yes there are still Departments of Biology, Physiology and even Botany, Zoology and Protistology, but everyone in these Departments is doing the same thing and this has nothing to do with the “ology” that pays their salary. They are studying interesting problems from every point of view at every possible level. The Protistologist, say, is interested in the motility of a particular protist. He or she however is interested in not only the molecular mechanisms involved down to the level of the molecules and energetics, but also the comparative aspects of motility in other related protists and even metazoans, the evolution and

origin of this mechanism (and the cell itself), the morphological aspects, the natural history of this phenomenon, and even the role of this phenomenon in eco-communities of cells, and from a selfish anthropomorphic point of view, the possible biomedical significance, including the immunological aspect and interaction with the host if they are parasites. Each aspect of this study could be called by a different “ology” and therefore the existing nomenclature fails to communicate the existing reality.

One sign of the death throes of the “ologies” is the desire of almost all University Departments in the Life Sciences to include the word, Molecular, in their title. At my University, UCLA, it began with the creation of an interdepartmental Institute of Molecular Biology almost 42 years ago. Then the powerful techniques of molecular biology diffused to the existing “ology” Departments and there was a recurring scramble to rename the existing Departments and to wage the turf battles with the Institute that resulted. Even clinical Departments in the UCLA School of Medicine began hiring basic researchers who used recombinant DNA techniques and the great name change race was on. The final result as of today is that the venerable Molecular Biology Institute is a place where one eats a free lunch on Tuesdays while listening to seminars, and every Department is the same with a heterogeneous group of people all using every possible research technique ranging from molecular to organismal to ecological to study basic problems in the life sciences and biomedicine. But they still advertise themselves as different, claim to have specific goals and still teach courses with different names, but this is like whistling into the winds of change.

Another sign of the death throes is the emergence of entirely new fields derived from amalgamation of existing fields and exhibiting new “emerging properties”, such as, for example, Systems Biology or Astrobiology and the Search for Extraterrestrial Life. I myself find that I utilize examples in my courses of, for example, the discovery of dark matter and dark energy in the

Universe from Astronomy as metaphors for the discovery of the World of Small RNAs in Biology.

I make no value judgment on this paradigm—changing change in academic organization, except to say that it makes life much more interesting but at the same time more confusing. Politicians, universities, students and even faculty like compartments and get disoriented when faced with the chaos of real life. But perhaps the death of the “ologies” may lead to a deeper appreciation of the true goals of modern science and academics—an answer to the

really big questions of what life is, where it came from and how it works, who we are and where we came from, and what is existence and the nature of things.

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