Comments on the Organization of the Biological Sciences at Cornell

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My comments are made from the perspective of a biologist who is outside the Division of Biological Sciences. I am one of approximately 400 faculty who regard themselves to be biologists (at least in part). I have not participated previously in the discussion concerning the organization of the Division. While my comments are my own, I believe them to be largely endorsed by my colleagues outside the Division.

Context: I believe it important to identify the context of this discussion. Some factors contributing to the context are these:

- *Breadth of biology at Cornell*. Biology (broadly defined to include all of life sciences) has been a strength at Cornell, and is a vast and growing enterprise. Contributors number about 500 faculty in many different units. There is major activity in the five largest colleges. This enterprise reflects the diversity of our multifaceted university. The future of biology will have significant impact on the future of Cornell. A structure that derives synergistic energy from the diversity is needed.

- *Excellence in basic biology.* Biologists (life scientists) outside the Division are committed to excellence in basic biology at Cornell. We benefit greatly if basic biology is excellent. For example, many of us now employ molecular techniques, and it is crucial to us that Cornell be excellent in the basic molecular, structural and cell biology undergirding these techniques. Excellence in basic biology aids our efforts to attract outstanding graduate students and outstanding faculty. Excellence in basic biology opens doors to us that otherwise might be closed. In no way do we view ourselves in competition with units in basic biology. I believe that excellence in applied biology requires proximity to, and excellence in basic biology.

- *Importance of Biology*. Biology has become increasingly important to humans over the past several decades, and there have been revolutions in technology, understanding and potential. Some have labeled our time as the age of biology. New technologies enable investigations and discoveries with important implications &emdash; some with economically important implications. As illustration, multi-billion dollar industries (with very applied motivations) have become "Life Sciences" companies.

- *Undergraduates.* Undergraduate education in Biology is crucially important. A large proportion of the total student population major in Biology. The eventual structure needs to facilitate our largely successful curriculum in Biology.

- *Initiatives*. Initiatives provide a model for organizing, redirecting and productively focusing resources to foster the pursuit of Big Biology projects. The Genomics Initiative appears to be providing an excellent example of how to marshal resources efficiently without any adjustment of administrative structure. Whatever future structure is endorsed for biology at Cornell, it needs the flexibility to be able to endorse appropriate initiatives.

- *Teams*. Increasingly, major advances in biology are made by investigators working in teams or at research centers supported by a strong infrastructure. The interactions among diverse colleagues devoted to a common purpose create synergisms. Such a team approach is likely to factor in Cornell's future and any structure needs to be able to accommodate the team-building model.

- *Blurred distinctions* There is considerable investigation done outside the current Division that is curiosity-driven, and that is published in leading journals like Cell, Science, PNAS. From the Gene Gun to the Genomics initiative, faculty outside of the Division (in addition to those inside the Division) have provided tools and leadership for biology at Cornell. Thus, the distinction between "applied" and "basic" biology is blurring. Industry with very applied motivation is funding "basic genomics" activities because the potential for economic payoff is readily perceived.

Evaluations and Reports:

I am aware of two evaluations of the structure of basic biology at Cornell. During 1997/1998, there was a task force (composed of Cornell faculty and administrators) reviewing the Structure of the Division of Biological Sciences. During the spring/summer of 1998 there was a review conducted by four external experts. Their report was received at the end of the Summer 1998. The two groups spent very different amounts of effort and came to very different recommendations.

Internal Task Force. In part the internal task force recommended:

- dissolution of the Division of Biological Sciences with the sections of the Division to be remolded into "departments" and to benefit from the advocacy of the appropriate dean.
- continued emphasis and support of the undergraduate biology majors.
- University-wide decisions concerning biology to be developed with the aid of an external body of consultants, and a vice provost to work with the appropriate deans to achieve the recommendations of the consultants.
- 10 new faculty be hired in the important areas of biology &emdash; without regard to academic unit.

While I agree with the rationale and most of the recommendations, I do have some concern. For example in addition to external experts participating in the panel to inform a vice provost of new hires and new directions, shouldn't Cornell experts also be consulted?

External Review. In part this team recommended:

- appointment of a vice-provost for Biological Sciences (basic biology)
- maintenance of the undergraduate biology curriculum under the new vice-provost
- appointment of an external advisory board for the new vice provost
- endorsement of genomics, structural biology, and a transgenic mouse facility.

While I also endorse some of these recommendations (particularly the last one), I am less comfortable with others.

Will the creation of a vice-provost position for basic biology facilitate the type of team-building and communication required to address the complex problems in modern biology? My interpretation is that such a position might institute arbitrary and unnecessary distinctions between "basic" and "applied"

biologists. I fear that it might become exclusionary and would result in "walls" rather than "bridges". At another level, I wonder if this position might also create resentment among the faculty in general because biologists are represented in Day Hall but other faculty are not. Finally, it seems to me that this approach unnecessarily increases the complexity of administration.

Shouldn’t any advisory board contain Cornell experts as well as external experts?

Doesn’t the creation of the vice-provost position (with budget, faculty lines and curriculum) sound very much like a new college? If so shouldn’t this action be made very carefully?

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