

Response to the Task Force Report on the
Division of Biological Sciences Structural Review

2 March 1998

Summary

This document was prepared in response to the report of the Task Force. Although we are grateful to our colleagues on the Task Force for their enormous effort and for the historical perspective on the Division of Biological Sciences that their report provides, we believe that the remedy they suggest would be deleterious to biology at Cornell. There is general agreement that the Division of Biological Sciences has not been functioning well in recent years and that change must be effected. In this report we argue that to dissolve the Division would be a step backward in that it would exacerbate the very conditions that have generated concern. Insularity of biologists at Cornell would increase and this would gradually lead to a decrease in research productivity and quality. We believe that a stronger Division of Biological Sciences would be the best way to get biology back on track. We propose that greater strength be achieved by making the Directorship a full-time position with the incumbent serving as an Associate Dean in all the colleges that the Division spans (CALS, A&S, and Vet.) and also reporting directly to the Provost. The Directorship is an extremely difficult administrative post, requiring vision, strength, flexibility, and diplomacy in unusual measure. Nonetheless a Division of Biological Sciences with a strong Director is the best way to achieve a "connectedness" among biologists at Cornell that will promote synergy in research efforts and ensure the continued excellence of the undergraduate biology major. This document details some of the logic that led us to reject the recommendation of the Task Force and to recommend a strengthened Division. Those who signed this document all disagree with the recommendation to dissolve the Division and urge strongly that it be retained and strengthened!

Introduction

The Draft Task Force Report on the Division of Biological Sciences Structural Review dated February 6, 1998, was delivered to the Division faculty on that date, and two Division-wide meetings were scheduled for Tuesday and Wednesday evenings on the following week. Some members of the Division attended at least one of those meetings and a few attended both. In those meetings, the report was discussed by the faculty, and to some extent explained and defended by the Task Force members. On Tuesday night the attendees roundly criticized the Report, and applauded when it was suggested by the moderator that the Task Force might as well turn in the Morison Report again. On Wednesday night the audience appeared to be more evenly divided between pro and con factions.

This response to the Report, which was made in the light of those discussions, was formulated by a number of persons both within and outside of the Division, in the two weeks following those meetings, and endorsed in general terms by those faculty members of the Division whose names are given below.

In formulating this response, we are cognizant of the very great effort which went into the original report and the sacrifice made by our colleagues in giving their time and thought to it. We wish we had a comparable amount of time to discuss the issues and formulate the arguments embodied in this response, but we did not. The process which was followed was to post an initial draft of this response on a website and invite comments from all of the Division faculty. Subsequently, the draft was revised several times in the light of those comments, and a meeting was held on Tuesday February 24th of persons who had contributed suggested changes to finalize the response. Despite the short time available for the preparation of this response, we hope and believe that the Provost will consider not just the time and effort of the Report and

this response to it, but also the validity of the data and logic of the arguments brought to interpret that data.

The plan of the response is to: 1) identify the main problems which the Task Force Report addresses, 2) discuss the causes the Report assigns to them, and, where different, the causes we see as responsible for them, 3) evaluate the conclusions and recommendations of the Report based on these problems and their interpretation, and 4) formulate our own conclusions and recommendations.

The Problems

This report identifies and documents four major problems faced by the Division of Biological Sciences. In order of historical appearance:

1. The need to foster basic research in the biological sciences. This was one of the prime reasons for creating the Division in the first place (Page 33 of the Task Force Report). The report documents past (Page 8) and current (Page 14, 19) faculty anxieties about the environment that is hostile to basic research in the College of Agriculture. Further it acknowledges that (Page 17) "... it is essential that Cornell maintain strong basic biology units that are not constrained by the 'applied' missions of the College of Agriculture and Life Sciences and the College of Veterinary Medicine".

2. The crisis in leadership or failure of structure. The report documents a long litany of complaints about the Division, many of which emerged during the last two directorships (Pages 17-19). However, the assignment of cause for these complaints is never explicitly discussed, and the Report, in making recommendations, treats them as if they were due solely to structural problems.

3. A lack of distinction as indicated by the National Research Council's rating of research doctorate programs in biology. The NRC rated only one of six areas (or groupings of fields) highly. That was Ecology, Evolution and Behavior, Plant Biology and Zoology in 4th place; all others were ranked below 21st place (Pages 14 and 15). The Task Force Report makes no attempt to analyze these results and seems to accept them as an indication of failure of the Division.

4. An insularity and rigidity of the Division. This problem is not so much documented as asserted in both the Executive Summary (Pages 5 and 6: "Whereas fragmentation and lack of structure posed the greatest problems thirty years ago, insularity, dilution of intellectual vigor and quality, and entrenchment and stagnation may represent the challenges we have to address today at a structural level."), and in the Analysis of Alternative Structures (Page 21: "Second the Division creates an artificial barrier around basic biologists within the Division.").

The Task Force's Interpretation and Arguments for Proposed Solutions

1. Fostering basic research. The report, while documenting this as the *raison d'etre* of the Division and a continuing anxiety of the faculty, does not address this problem. Indeed, the report states (Page 6): "We also wish to promote healthy competition among strong departments in basic biology as well as between those basic biology units and other departments in the colleges". The fact that the college in which most members of the Division reside, namely the College of Agriculture and Life Sciences, has an applied mission is seldom mentioned and nowhere appreciated in the Report. We believe that the failure of the Report to address this problem is one of its major omissions.

2. The crisis in leadership or failure of structure. Many of the complaints about the Division on pages 17-18 reflect, we believe, an erosion of the Directorship's powers over the last 15 years. Whatever the cause, it is

commonly admitted that when Section Chairmen perceived that the Director did not represent the interests of the Sections to the Deans, they went directly to the Deans themselves. Such procedures were never envisioned in the charter of the Division, nor did they occur in the early Directorships. Whether the devolution of executive power from the Director to the Section Chairs was due to a lack of leadership or a gradual "mission creep" in the Office of the Director may remain an open question. It is perhaps worth noting that, originally the Directorship was a full-time appointment, and became a half-time position under Director O'Brien. Further, Director Morison was an associate dean in both the College of Arts and Sciences and the College of Agriculture.

Be that as it may, the Report interprets the present difficulties of the Division as a structural failing which must be corrected by a change in structure, namely the abandonment of the Division and the metamorphoses of sections into departments. It has been argued that the present Section Chairs would never retreat from acting like Department Chairs or Heads and give up their access to the Deans. However this is untested, and in any event, persons are not chairs forever.

As will be seen below, we argue that the solution is a return to the ideals of the Division with a strengthened, full-time directorship and a director who is an associate dean in all of the colleges that the Division spans.

3. A lack of distinction as indicated by the National Research Council's rating of research doctorate programs in biology. These ratings are stated but not analyzed. The question of whether Cornell has improved or declined in these ratings (or comparable ratings) since the foundation of the Division is not addressed. Whether the ratings reflect faculty quality or resources is not further analyzed. However these questions are clearly given great weight in the Task Force Report, and a cause is assigned without analysis. The Report's interpretation of the root causes of this problem are (Page 5): "dilution of intellectual vigor and quality, and entrenchment and stagnation"... "uneven quality among its faculty [and] insularity--at a time when basic biology has opened up onto a range of related disciplinary fields".

It is clear that, assuming this interpretation to be correct, strengthening the Division could be viewed as simply reinforcing a bastion of mediocrity.

On the other hand, if this interpretation is incorrect, as we believe, and the true causes of our poor ratings lie in a constriction of resources, the absence of a medical school, and a failure of public relations, then the strengthening of the Division affords a logical remedy.

4. An insularity and rigidity of the Division. The difficulty we have in addressing this problem is that it is not well documented in the Report. Mention is made of the fact that there are many basic biologists outside of the Division. However, this is to be expected in strong applied departments. Liberty Hyde Bailey wrote, "... I have no patience with the spirit that considers a piece of work to be legitimate only as it has direct bearing on the arts and affairs of men.", and to the extent that this sentiment has survived his enlightened administration, basic scientists will be found in his College's applied departments. In a like manner, we find physicists in the Engineering College and chemists in the College of Agriculture and Life Sciences, the College of Human Ecology and in Toxicology.

On the other hand, we are aware that many faculty outside of the Division find it demeaning to have to obtain a Division sponsor in order to guide a biology student's research, and others question why they cannot have a larger role in the teaching of biology majors. We believe these complaints have merit, and indicate a perception of elitism on the part of the Division which can and should be remedied.

On the research side, the case of insularity would appear much more difficult to document. We know of

numerous research affiliations across the bounds of the Sections and the Division. Generally, the inter-departmental and inter-sectional composition of graduate student special committees, unique to Cornell, goes a long way towards integrating the Division with the rest of biology on campus.

The Solutions Proposed by the Task Force

Briefly, the Task Force makes three recommendations: 1) the elimination of the Division and the creation of individual departments, 2) the creation of a structure to replace the Division's advising and curriculum committee, and 3) the establishment of an Institute for Research in Biological Sciences.

Here we comment on the probability that these recommendations will solve the several problems enumerated in the Report.

1. Elimination of the Division. This is no solution to the problem of fostering the basic biological sciences. Indeed, it is an abandonment of them to the conditions which existed before the Division and which the Morison and Corson Committee Reports attempted to solve by the creation of the Division. It is only a solution to the crisis in leadership or structure in that there is no more structure to lead. (In mathematics one would call this a "degenerate solution".) It is in no way clear that making sections into conventional departments will solve the complaints on pages 17-19 of the Report. For example we do not think that the metamorphoses of sections into departments will improve the Report's following points (from page 17): 2) help define research futures, 3) increase interaction, 5) alter the fact that departments think primarily in terms of the good of individual units, 6) increase the fluidity of the units, 7) increase the discussion of the future of research in biology as a whole, 8) increase cooperation among basic biologists, 9) provide basic biologists with a strong advocate who will represent their needs to the Development office, or (from page 19): 1) provide protection from the pressures exerted on them to make their work relevant to applied missions, 2) improve the investment on the part of the College of Arts and Sciences in the future of biological research, 5) improve the support for basic research, or 7) cure the concerns about how faculty input is solicited and treated.

Again, we believe that a return to the strong Directorship envisioned by the original Morison Report will correct many of the weaknesses outlined in the complaints, and we make the argument for this case below.

2. Creation of a structure to replace the Division's advising and Curriculum Committee. The Report found that (Page 5) "the Division works well for the organization of undergraduate teaching", and it is logical to try to preserve this. However, without the authority of the Division behind it, and with a curriculum committee composed of not only members of the former sections, but also of (Page 25) representatives from "departments in the College of Agriculture and Life Sciences, the College of Arts and Sciences, the College of Engineering, and the College of Veterinary Medicine with significant interests in and concerns about the intersections of basic biology with other areas", we think it unlikely that a coherent curriculum will long survive without an intact Division to guide it. The pressures to construct optimal curricula for each new department, we believe, will be irresistible.

Some have argued that the conservative nature of the college curriculum committees, together with the authority of the proposed Director of Undergraduate Biology, will be sufficient to keep the biological sciences curriculum from fragmenting into a number of departmental majors. However, it should be remembered that Cornell is a research university and that the department chairs will be able to speak with far more authority on the educational needs of modern biologists in their areas than will the proposed Director of Undergraduate Biology. We believe that such secular pressures will slowly but surely fragment the biological sciences curriculum.

3.) Establishment of an Institute for Research in Biological Sciences. This is a proposal that could work much good or much harm. On the one hand, it is very attractive in that it envisions an input of funds into basic research and a way of striking out in new directions. However, in the form suggested by the Task Force Report, it seems elitist, one of the factors we think contributed to the perception of the Division as insular. Moreover, the proposal as it stands goes against one of Cornell's strongest traditions, namely that all professors will teach and conduct research. We fear that establishing a small, elite research institute, where researchers are relieved of teaching depending upon the grant funds they bring in, may alienate the rest of the biologists on the Cornell campus who do not and could not belong to the institute. The creation of such a small elite automatically makes the rest of the faculty in biology second class citizens, and the likely result is that they will migrate to universities where they can be first class citizens again.

Added to these considerations, we believe that the present Division can be effective in fundraising because it embraces at least 100 faculty and their research and teaching. An institute with a much smaller client base will find it much harder to raise endowment funds.

Below we suggest that a modification of the Research Institute plan may enhance the Division's flexibility and its ability to strike out in new directions while eliminating the elitism and insularity of the Task Force's proposal.

The possibility of attracting post-doctoral fellows into a Society of Fellows where they can conduct research without the burden of teaching duties seems an attractive way of infusing new blood and new knowledge into the sections of the Division, and below we elaborate on this idea, which originated in the Task Force Report.

Our Recommendations

Our basic recommendation is to return to a Division with a strong, full-time director who is an associate dean in all of the Colleges that the Division of Biological Sciences spans and who reports directly to the Provost.

1. Fostering of basic biology We believe, as did the authors of the Morison and Corson Reports, that a divisional structure with a strong director is the best way to foster basic biology at Cornell. We find nothing in the Task Force Report that will prevent a departmental model of biology returning to the ante-Division situation where (page 33) "Different elements of the biological sciences were controlled by individual departments, 'none of which had the strengthening or integrity of basic biology as a strong goal'."

2. Leadership or structural problems of the Division We believe that a full-time director, who is an associate dean in the several colleges spanned by the Division and who reports directly to the Provost, would be in a far better position to represent the interests of biological sciences than the section chairs, who, under the Task Force plan, would be scattered as Department chairs in several colleges.

We have heard an argument stated in discussion that is not given in the Report, namely that the Division could not really be strengthened because no dean would ever give up faculty lines to the Division Director. However, we note that it has also been stated publicly that the College of Agriculture and Life Sciences, while it underwent a 25% shrinkage of its faculty, took no positions away from the Division of Biological Sciences. Regardless of the causes of this remarkable fact, it demonstrates that the actual ownership of faculty lines is not the important factor in the strength of the Division, but rather the quality and quantity of its teaching, the excellence of its research and the overhead it generates.

We have also heard it stated that the section chairs would never give up the power to go directly to deans

themselves. We believe this is simply a reflection of the current breakdown of the Division structure that is easily remedied by forging a new understanding in a strengthened Division between a new director, the several deans, and the (perhaps new) section chairs. A chain of command is one of the easiest parts of an administrative structure to enforce, and we believe that a strong director who holds associate deanships in the several colleges and has a direct line to the Provost can easily do this.

3. A lack of distinction as indicated by the National Research Council's rating of research doctorate programs in biology We believe that a strengthened Division has the greatest chance of improving biology at Cornell and hence improving our national ratings. To do this, we believe we must first understand what the ratings really mean and why our scores did not live up to our, and the University's, expectations. The interpretation of the Task Force Report is that the ratings truly reflect the overall mediocre quality of biology at Cornell. Others have argued that the ratings are highly weighted towards molecular biology and hence undervalue Cornell's great strengths in classical biology. Still others point out that we rate highest in those areas requiring the least funding, and that, given our relatively small endowment compared to other universities that fared better, the results are not surprising. Furthermore, the fact that Cornell's medical school was not rated and that most of our higher ranked competitors have medical schools on their campuses is taken by some as the root cause of our poor showing.

Mediocrity is a difficult charge to defend against, and in this situation, fortunately, the Division is slated for an external review. We believe that the external reviews of the sections will go far towards delineating the strengths and weaknesses of the Division, and ***we believe it would be very imprudent to abandon the Division or undertake any major revisions of its structure before those reviews are received and analyzed.***

If, as we believe, funding constraints have played a strong role in depressing the Division's national ratings, then we think it imperative that the Division Director have the mandate to raise funding for the Division as well as the access to donors and the support that the Development Office can provide.

If, as we believe, the absence of a medical school in the National Research Council's report has adversely affected Cornell's ratings in the biological sciences, then a major effort should be made by the administration to unify the outside world's perception of biology and medicine at Cornell. At the same time, all possible avenues of collaboration in teaching and research between the medical school and the Division faculty should be encouraged in order to forge links between the two campuses.

4. Insularity and rigidity of the Division We believe this is a very difficult problem to document, but certainly one that can be addressed by a strengthened Division. We treat this topic under several headings below:

Curriculum. There is no question we have offended our colleagues by requiring Division co-sponsors for BS499 research (though this was instituted to protect biology majors from inadequate research supervision). Further, there is general agreement that the desires of non-Division biologists to participate in the training of biology students should be recognized. And here, the suggestion of the Task Force to open the Division Curriculum Committee to non-voting members of departments of the College of Agriculture and Life Sciences seems an appropriate solution. We would also go further, along with the thrust of the Task Force's recommendations, and invite representatives of departments in other colleges (who wish to offer reciprocity on their curriculum committees to the Division) to join our curriculum committee, again as non-voting members.

Division flexibility This is in part a problem of real estate and money, and the proposed solutions must take these constraints into account. The Division never had a flexible physical architecture. All but two of the sections are housed in separate buildings, and physical separation is one of the strictest enforcers of rigidity. The Division could easily reconfigure itself periodically if we had compelling reasons for doing so,

along with extra teaching and laboratory space, money for renovations and moving and new equipment which would make such reconfigurations attractive. One of the duties of the Director should be to solicit objective, authoritative, external advice on the future directions the Division should pursue, and seek funds that could be applied to solve the problems of flexibility. However, to the extent that these resources are lacking, we must resort to other strategies to realign our teaching and research to keep up with the changing demands of modern biology.

Adjunct and joint appointments. One way to bring new blood to the Division is by offering adjunct and joint appointments. This mechanism has existed in the past but not been often used. We recommend establishing procedures whereby faculty members outside of the Division can apply or be invited to apply for adjunct or joint appointments in the Division. Such adjunct or joint members would be expected to affiliate themselves with a section or sections and to participate in the teaching and graduate research of those units.

Research Institute. We believe that the establishment of a Research Institute as proposed by the Task Force, where a small, elite group of scientists of professorial stature are relieved of teaching if they find grant funds, is contrary to the spirit of the University. We appreciate the thrust of the proposal to allow biology at Cornell to strike out in new directions, and we do see the possibility of modifying this idea to open it to scientists inside and outside of the Division for collaborative research. We disagree with the concept that new research directions should be dictated solely from the top down, because we think the university faculty is in a strong position to determine the promising lines of research. We believe that the detailed plans for a research institute within the Division require considerable deliberation by the faculty of the Division, and that the model for the institute will depend on the size of its endowment.

Initially, the position of Director of the Research Institute could be filled by the Director of the Division, and as the Institute grows and a separate institute director is needed, he or she should be appointed by the Director of the Division of Biological Sciences with the consultation of the members of the Institute.

We also see advantages for a mechanism which attracts post-doctoral students at the Division level, perhaps in a Junior Fellow arrangement. We note that our graduate and post-doctoral students have the greatest freedom in the research university, and that, if a Junior Fellow program could promote interaction among laboratories within and outside of the Division, it would be a valuable agent for increasing the Division's flexibility.

Many of the suggestions made by the Task Force regarding the organization of the Research Institute seem to us more appropriate for the constitution of the Division itself. We find the provision of an external oversight committee and an internal advisory committee valuable suggestions for the structure of the Division. Likewise, section 9 (page 27) of the Report on funding opportunities seems to apply well to the Director of the Division.

5. Emerging research directions. We find many interesting suggestions regarding future profitable lines of research in biology in Section VI of the Report, but we do not believe that the identification of these falls within the mission of the Task Force. We look to the external reviews of the Sections and the Division as well as to the faculty itself, to provide more objective guidance in this area.

Conclusions

We see the problems faced by the Division of Biological Sciences today as not being inherent in its original structure, but rather arising due to a gradual departure from that original plan. We believe a return to that plan, with certain additional modifications designed to combat insularity and to improve flexibility, affords

the correct solution for leading the biological sciences into the next century.

The following persons endorsed this "Response to the Task Force Report on the Division of Biological Sciences Structural Review" by sending this e-mail message to Professor Howard Howland (who has them all on file): "The undersigned agrees with the major points of this report, i.e. the retention and strengthening of the Division of Biological Sciences."

Howard C. Howland, Joanne Fortune, Randy Wayne, Roger M. Spanswick, Karl J. Niklas, Andre Dhondt, Robert Turgeon, David McCobb, Brian F. Chabot, Kevin C. Nixon, Hudson Kern Reeve, Robert A. Corradino, Jon C. Glase, Michael Kazarinoff, Carolyn Eberhard, Noa Noy, Carl D. Hopkins, Dick Ecklund, June Fessenden MacDonald, Kenneth J. Kempfues, Mandayam V. Parthasarathy, Kraig Adler, Lindsay Goodloe, Jerrold Davis, Klaus W. Beyenbach, Mikhail Nasrallah, Laurel Southard, Paul Feeny, Ellis R. Loew, Jim Morin, Sue Merkel, Patrick J. Stover, Tom Silva, Allen D. MacNeill, Melissa Luckow, Stanley A. Zahler, David Robertshaw, Andre T. Jagendorf, Kenneth A. R. Kennedy, John Helmann, Bruce Johnson, Wendell Roelofs, Richard T. Houpt, Bruce Halpern, Jeff J. Doyle