

## Interconnectedness of Anatomy

Around 1960, when I was looking to see what type of graduate program would best prepare me for a career in regeneration research, I settled on anatomy. One of the deciding arguments was my impression that the variety of techniques and approaches that were used in the anatomy departments with which I was familiar was considerably broader than that in many other basic science disciplines. Although I saw many anatomists who employed principally morphological techniques, I also encountered other anatomists whose research was highly biochemically or physiologically oriented and still others whose research was focused principally on endocrinology, immunology, or experimental surgery. Although I subsequently encountered anatomy departments that were much narrower in their outlook, the really vital departments were those which embraced and interacted with other disciplines.

With the passing of time and the maturation of basic biomedical research, the lines between many disciplines have become highly blurred. Interdisciplinarity in research is almost demanded by the granting agencies. Increasingly, hot junior faculty candidates are being recruited by several departments in the same institution.

Contemporary anatomy is closely tied to many disciplines. Molecular biology is an integral component of much exciting anatomical research, but the value added is that the molecules are often studied in the context of morphology. Increasingly, when and

where molecules are expressed is proving to be as important as how their expression is regulated. Anatomy as a discipline has been very quick to embrace the rapidly emerging field of imaging, and the opportunities provided by imaging modalities at all levels is mind-boggling. Gross anatomy teaching will be revolutionized not only by the integration of some of the standard medical imaging techniques but by the availability of enormous digital anatomical databases that can be utilized in the creation of both educational materials and training applications. With virtual reality on the practical horizon, a totally new dimension will soon be added to the pedagogical repertoire of the modern gross anatomist. The integration of genetic approaches into anatomical research is also an important part of the research portfolio of many anatomy departments. In our department at Michigan, researchers are now using more of the various types of transgenic animals or *Drosophila* than the standard laboratory rats and mice that were the staple a few years ago.

All of this external interconnectedness, however, provides another challenge to anatomy, and that is how to connect the individual members of our own discipline. Anatomy as a field is so broad that it is hard to find common denominators with which our own faculty and students can identify. What are the natural linkages that tie together a gross anatomy teacher, a cellular neurobiologist, a molecular embryologist, and a computer-oriented imager within the same department? At a broader level, how does the

American Association of Anatomists satisfy all these constituencies within a single society? Diversity and interconnectedness represent real strengths, but problems arise when diversity leads to disconnectedness.

American society in general is experiencing these same tensions. Just look at the magazine racks in your airport. Gone are the days when most magazines had generic titles like "Sport." Many were replaced by discipline-oriented periodicals. A magazine for runners appeared, soon to be followed by journals catering to the long-distance runner, leaving the other runners to their own devices. We see the same trend in our scientific journals. Main-line denominational churches and many professional organizations are also experiencing similar types of fragmentation of their membership according to specific interests and orientations.

One option for increasing connectedness within a department or an organization while maintaining connectivity with the outside is to increase the breadth of focus of its individual members. An important topic of future discussion for anatomists is how to facilitate intellectual cohesion within the discipline while still promoting the diversity for which most academics strive.

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