

The Weak Sister

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Joe Bronzino used to argue that the name “biomedical engineering” was all-inclusive, because it included both “bio” and “medical.” Thus, he used to say biomedical engineers were those who deal with either/or both medical or non-medical biological applications. In those days I thought that names were important, so my report to him was that, practically speaking, whenever people said “biomedical engineering,” they meant medical applications.

When AIMBE was still in the process of development, we had a number of workshops wherein we invited a number of leaders in the field to discuss how a new organization could be formed to bring everyone together despite the Balkinization that was occurring. One of the most divisive issues we discussed was what this new organization would be called. Of course, one of the favorites included the term “biomedical engineering.” Another favorite was “bioengineering.” The discussions were heated, animated, and repetitive, as one can imagine. Every argument and counterargument was articulated at least three or four times. After a good long while it was suggested that we use as a model the International Federation for Medical and Biological Engineering. What better way to include everyone?

As with all good compromises, nobody liked this one. And so it was, when we broke for lunch.

I was not there when it happened, but, somehow during that break, a number of people got together and decided that “medical and biological engineering” was about as good as it was going to get. So, shortly after lunch the “American Institute for Medical and Biological Engineering” was agreed upon. Al Potvin was assigned the duty to design the logo (which was changed in 2005), and the conversation turned to mission and mechanics. As chair of the bylaws committee, I was to capture the essences of comments made about mission and reduce them to reasonable form.

Nowhere in AIMBE foundational documents will you find the term “biomedical engineering.” Everywhere you will find “medical and biological engineering.” The intention was to bring groups with similar interests together, and similar interests meant a substantial and continuing interest in medical and biological engineering (MBE); no more, no less.

In the first few years of AIMBE operation, the concern was inclusion of medical doctors (MDs), and we struggled with Fellow nominations to fulfill our goals. After a few years, concern shifted to industry representation, and since then we have tried to establish means to augment the number of industry Fellows.

I think our efforts should now turn to biological engineers. This group is seriously underrepresented in AIMBE (especially considering that biological engineering is linked equally with medical engineering in the AIMBE name and foundational documents). We have relatively few biological engineering Fellows, AIMBE meeting topics are all slated to medical engineering, and the term “biomedical engineering” creeps into AIMBE literature more than it should.

Just as a reminder about who we are talking about, biological engineers are those who engineer with living things that are not likely to have a direct link to medicine. They are biochemical engineers, environmental engineers, agricultural engineers, metabolic engineers, human factors engineers, and food engineers, just to name a few. They contribute to the nation's health and safety by assuring safe food, clean air and water, proper sanitation, alternative fuels, and environmentally-sustainable industrial products produced from living things. They keep people out of hospitals rather than treat those who are unfortunately in hospitals. They prevent diseases and accidents, and contribute in untold ways to the health of our surroundings as well as to the health of each human being. They develop new technologies and test ones that can't be used on humans until proven safe and effective. They deal with animals, plants, microbes, and derivatives. They have a lot to say to us, and we have a lot to tell them. We need each other.

As the field of biology continues to permeate more and more of our lives, the economics of biological engineering grows rapidly. At some point there will be a biological engineering industry with a net worth greater than medical engineering.

AIMBE needs more biological engineering involvement. AIMBE needs to be a catalyst to promote discussion and cooperation among medical engineers and biological engineers. AIMBE needs to be involved in regulating and public policy discourse related to biological engineering. It needs more biological engineering Fellows and biological engineering industry representatives. It also needs to seek out more professional societies representing biological engineering.

Enzymes act to bring biochemical components together so that they can react and be joined. AIMBE should be the enzyme for medical and biological engineering. That's the way we thought it should be.