From the Editor

Translocation of Terminology across Boundaries

Have you ever wondered how terms and phrases that we use in one context of our everyday living (*e.g.*, science and technology) wind up in another (say, business)? For example, I am using a term in the title — "translocation" — which really has its roots in genetics. Translocation there is defined as "the breakage and removal of a large segment of DNA from one chromosome, followed by the segment's attachment to a different chromosome." (Incidentally, I found this definition in the *Talking Glossary of Genetic Terms* created by the National Human Genome Research Institute to help people without scientific backgrounds understand the terms and concepts used in genetic research.) Obviously, this term is used here in a much looser sense to describe the movement of terms across the boundaries of our life experiences. One can also envision the *diffusion* (a term familiar to chemists and especially electrochemists.) of ideas across seemingly disparate disciplines, as we shall see later. Other examples of this translocation phenomenon come to mind; here are just two: "…in the *DNA* of Company X…" and "This idea *resonates* with me." In these two examples, words were borrowed from biology and physics respectively and used in an entirely different context. Perhaps this practice is actually a good thing in making science and technology more accessible and user-friendly to the public.

The opposite flow of "terminology traffic" can also occur; and no better example of this can be found than in one of the themes of this particular issue of *Interface*: buckminsterfullerene. The C_{60} carbon molecule was named thus after Buckminster Fuller, considered by many to be a quintessential Renaissance man and a genius of the 20th century. In 1987, Harold Kroto and Richard Smalley (who, along with Robert Curl, shared the Nobel Prize for proving the existence of C_{60}) discussed Fuller's most famous architectural masterpiece, namely a 250-foot diameter, bubble-shaped, transparent geodesic dome and its uncanny resemblance to their chemical discovery. The rest as they say is history.

There is perhaps a deeper significance to Fuller's view of the world that has implications in chemistry and biology. Fuller viewed the tetrahedron, octahedron, and icosahedron to be the most important building blocks of nature. We now know from X-ray crystallography and solid-state chemistry that polyhedra constitute the building blocks of many materials, *e.g.*, oxides. For example, titania or titanium (IV) oxide is made up of corner- and face- shared octahedra containing Ti atoms in the center and oxygen at the peripheral sites. There have been reports that viruses, enzymes, and DNA have structural aspects that are similar to the domes of Buckminster Fuller. These parallels suggest that *concepts* rather than mere *terms* can traverse (or translocate across) the boundaries between variant disciplines, in this particular instance: chemistry, biology, and architecture. It would perhaps be safe to predict that many of the more significant discoveries of the future will occur at the boundaries of traditional disciplines: chemistry/physics/biology, biology/computational science, psychology/biology/physics and the like. Buckminster Fuller could surely have seen that coming! Stay tuned.

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