

The scientific process works because all its output is empirically constrained. As such, the reporting of scientific knowledge can be dry and unemotional. R. M. Pirsig writes in his novel from 1974 [1] that the purpose of science is ‘*not to inspire emotionally, but to bring order out of chaos and make the unknown known*’, underscoring the fact that clear communication is paramount. This is because ‘*order out of chaos*’ rarely arises from a single observation or theory but from many small incremental steps, and, as such, it is important to clearly communicate the minutiae, not only the grand discoveries, to improve the chances of scientists to successfully connect ideas.

This deep requirement for clarity and specificity means that both written and visual style must be ‘*straightforward, unadorned, unemotional, economical and carefully proportioned*’ [1] because ‘*rich, ornate prose is hard to digest, generally unwholesome, and sometimes nauseating*’ [2]. It is ‘*not an esthetically free and natural style. It is esthetically restrained. Everything is under control*’ and the quality of communication ‘*is measured in terms of the skill with which this control is maintained*’ [1]. When information is hastily arranged or tinted with arbitrary personal taste, its impact and fidelity can easily be diluted.

The primary payload of scientific communication is its information content. The form of the communication must therefore always be subordinate to it. Form must not only respect content but also elevate it, clarify it, and untangle its complexity. Anytime it overwhelms content, we are likely to find signs of bad design choices and possibly lack of respect for information. The footprint of design should therefore be subtle, despite the fact that the product may hastily be perceived as possessing ‘*surface ugliness*’ [1] because it lacks the loud and tawdry design tropes used to please the eye and disengage critical thinking made familiar by marketing and advertising.

—Martin Krzywinski

*Scientific data visualization: Aesthetic for diagrammatic clarity.*

Chapter 3 in *The Aesthetics of Scientific Data Representation. More than Pretty Pictures.*

[1] Pirsig, R. M. 1974. *Zen and the Art of Motorcycle Maintenance*. New York: Harpertext.

[2] Strunk Jr., W. 1920. *The Elements of Style*. Ithaca: Priv. print.

