

A New Grand Synthesis

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Knowledge was, for long, considered a unified whole. Whatever you studied, the broader context was always present and clearly visible, either through philosophy or through religion. In its beginning, the scientific revolution was no exception to this perspective, as all subjects were tackled together. For reasons of complexity and economy, this unification quickly started to unravel; and the idea of the need for specialization took hold, never to let go. Today, specialization has crept into social sciences and humanities, as well, and lies at the heart of our society. I believe we lost the bigger picture in the process.

Specialization has brought about many benefits. The division of labor proposed by Adam Smith in 1776 in *The Wealth of Nations* is at the core of the industrial revolution.¹ The complexity and diversity of knowledge today, in any field, is such that, without specialists, we would be at a loss. On the other hand, specialization leads to monopolies, monotony, and isolation, as detailed in a 2014 paper by Casadevall and Fang.² The pros and cons of specialization, as well as a number of proposals to mitigate its cons, can be found therein, as well as in many other publications, so I will not dwell on them here.

Going beyond the practical issues of a compartmentalized knowledge, we reach its more pernicious effects in the human spirit. The removal of the notion of a bigger picture, be it God or humanity or anything else, done either by need or by design, leads to the atomization of society and to the failure of most political and economic systems, based on an intelligible “ground truth.” Alexis de Tocqueville said that democracy required a shared higher notion of humanity to ensure a common ground, without which it could turn into a vicious shouting match. The lack of transcendence—and this does not necessarily mean something metaphysical, rather a greater idea beyond oneself—chokes humility and promotes the type of self-satisfying individualism so common today, rupturing the equilibrium of the game.

By going overboard with specialization, we have turned back the clock of human progress, going back to tribalism in the name of more knowledge—not necessarily better knowledge, mind you. Even in the scientific field, which specialization served so well for so long, we are witnessing a stagnation despite an increasing output.³ We have seen no great new ideas, no groundbreaking new (testable) theories, just

optimizations and improvements on existing principles. Scientists spend more time and money than ever on research that ultimately yields lower impact. The amount of stuff being discovered, published, and patented is staggering; but does it excite anyone's imagination, apart from a few experts? I remember the excitement of my youth in the late '80s and early '90s, imagining how the world might be in the 2000s. Apart from the internet and smartphones—extremely relevant and important, no doubt—we have little to show, no cure for cancer nor even for the common cold, no antigravity cars, no space travel, no time travel, no (generalized) artificial intelligence, not even a promising clue on how to get there soon. If the technology today had been the basis of a sci-fi TV series in the '80s, it would have been canceled after airing the pilot.

The reasons for this tribalism and stagnation are manifold, of course. I am simply positing that excessive specialization, like an overfitting algorithm going awry, is part of the cause. Newton presented his “Grand Synthesis” in his *Principia* first published in 1687, demonstrating

that the laws governing celestial bodies were the same as those for earthly ones.⁴ The greatness of his genius lay in taking a leap of faith and reaching for the stars, quite literally. He went on to study alchemy and, in translating the Emerald Tablet, rediscovered the basis of his synthesis: “As above, so below.”

Much has been said about analytic knowledge versus synthetic knowledge, a dialectic battle between Mercury and Jupiter, if you are mythologically inclined. I believe that true genius lies beyond the mere analytic approach, reaching the heights of synthesis and crossing all borders of knowledge, which are ultimately artificial. All who have the privilege of being called geniuses are but at the first step in a long Jacob's ladder. At ISPE, as well as in similar societies, we have the extraordinary opportunity to take a playful approach to knowledge, taking its wholeness back and exploring it as if in Hermann Hesse's *The Glass Bead Game*,⁵ weaving a Hofstadterian *Eternal Golden Braid*.⁶ Perhaps therein we could find a new meaning and purpose, a “New Grand Synthesis” that is so badly needed.

NOTES

1. Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations* (1776), <https://archive.org/details/WealthOfNationsAdamSmith>.

2. Arturo Casadevall and Ferric C. Fang, “Specialized Science,” *Infection and Immunity* 82, no. 4 (April 2014): 1355–1360, <https://journals.asm.org/doi/10.1128/IAI.01530-13>.

3. Patrick Collison and Michael Nielson, “Science Is Getting Less Bang for Its Buck,” *The Atlantic* (November 16, 2018) <https://www.theatlantic.com/science/archive/2018/11/diminishing-returns-science/575665/>.

4. Isaac Newton, *Philosophiae Naturalis Principia Mathematica* (1687), https://archive.org/details/McGillLibrary-osl_newton-philosophiae-naturalis-principia-mathematica_N563p1687-20098.

5. Hermann Hesse, *The Glass Bead Game (Magister Ludi)*, Richard and Clara Winston, translators (Canada: Fitzhenry and Whiteside, 1990), https://archive.org/details/glassbeadgamemag0000hess_n6o5/page/n5/mode/2up.

6. Douglas Hofstadter, *Gödel, Escher, Bach: An Eternal Golden Braid* (New York, NY: Basic Books, 1979). 