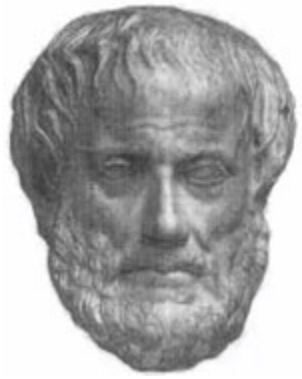
IM Community - Honorary Members *Printer-Friendly Version*

Aristotle

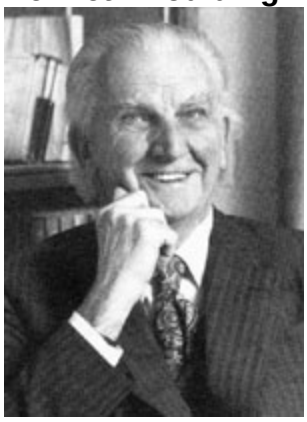


Inventor of the syllogism, conceiver of categories, and (most likely) the first to use a digraph-like diagram to portray a logic relationship, Aristotle's ideas moved forward through time and space, and animated other philosophers shown as part of this IM Community. He moved the world with his ideas and he is honored by the concept of the Aristotle Index, representing the number of syllogisms embedded in the problematique that represents some problematic situation---as derived with the use of Interactive Management. I wish I knew the history of this image of Aristotle, but I am sorry to say that I don't.

George Boole

Over two millennia elapsed between Aristotle's discovery of the syllogism and George Boole's invention of an algebra for formal logic. Boole learned from De Morgan. Boole's and De Morgan's discoveries appeared in the same year, 1847. Who celebrates the centennial and bicentennial of such great discoveries? Alas, they are treated more or less as curiosities and not given the great honor they are due. In any case, Boole's algebra (augmented by the cautious introduction of ordering of 0 and 1) along with the work of Cantor, Cayley, and De Morgan (duly leavened by Peirce's philosophy of science) give a lasting foundation to the science behind Interactive Management. And don't forget the contributions of Russell and Leibniz, as well as the old guy---Aristotle, himself!

Kenneth Boulding



The words to describe Kenneth Boulding are "beloved" and "kind." An economist by education, Boulding left England and became an American citizen. He was elected to leadership positions in several organizations. His book on *The Impact of the Social Sciences* gave me a perspective on that field that benefited me greatly. We had a brief and friendly acquaintance when he was a visiting Robinson Professor at George Mason University on two occasions. When I was Editor of Systems Research, I invited him to contribute a "System Profile", giving a brief view of his career. This photograph is taken from that article.

Georg Cantor

Interactive Management relies for its uniqueness on Interpretive Structural Modeling (ISM)---and the theory behind ISM involves heavily the theory of sets---Cantor's invention---named by one historian of mathematics as one of the three great inventions of mathematics. Moreover, Interactive Management itself relies on several processes that are founded in "thinking in sets"---from the fundamental idea that "problem definition" IS NOT the first step in systems work, but rather the DISCOVERY of the SET OF PROBLEMS is the way to go. Many operations in IM benefit from Cantor's foundational thought.

Arthur Cayley

Here is another great Englishman, inventor of matrices. What a great contribution to enable people to work with large sets, and to carry out operations on them. By linking this idea with Boolean operations on matrices, we are led to Frank Harary's wonderful theorem about what is required for a model to be consistent---(a) the Boolean matrix M showing the model relationships, when added Booleanwise to the identify matrix I, shall be the same as M, (b) the square of M is equal to M, and (c) the "relationship" (as distinct from the "relation") shall be intuitively transitive.. These ideas are the fundamentals of the ISM process. The debts seem endless, and Cayley is certainly one of the great "distant" colleagues.

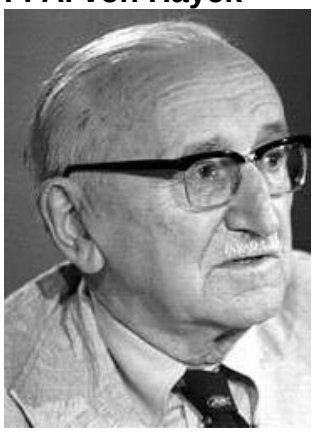
Augustus De Morgan

The first Honorary Member of the IM Community is Augustus De Morgan (1806-1871). An Honorary Member made a clear and strong contribution which is incorporated in the structure-based science of complexity (SBSOC) which underlies Interactive Management. De Morgan produced the theory of relations in 1847, and recognized the importance of transitivity to the validity of Aristotle's syllogism. De Morgan is honored by naming a metric of complexity after him; the De Morgan Index referring to the number of dyads on a problematique, divided by 10 in order to normalize it to the normal situation. A value of 1 means that the problematic situation is probably resolvable by an individual. A value exceeding 1 typically means that complexity is involved, and that specialists in interpretation are needed to clarify the results of Interactive Management Workshops. Typical values of the De Morgan Index from applications fall in the range of 20 to 50. He became head of mathematics at the Univ of London at age 22.

Michel Foucault

Three people were especially important to me in focusing me on the importance of history and the evolution of thought, with special emphasis on the philosophy of science. These were CS Peirce, Michel Foucault, and Friedrich A. von Hayek. Foucault emphasized the criticality of power, as well as the importance of trying to sustain high quality as ideas evolved from the originator. He convinced me that there is high opportunity to warp and pollute great ideas. And what a magnificent writer. Even the English translations of his prose are superb. Recently I am inspired by two of his ideas: "founder of discursivity" and the psychology of the "leader" who risks countless lives, who destroys countless others", and yet is accepted by his underlings. What leads to the self-image of these people?

F. A. von Hayek



Yes, Hayek is known as a member of the Austrian School of Economics, and as a Nobel prize winner for his economic thought, like *The Road to Serfdom*. Buy Jim Finkelstein introduced me to THE COUNTER-REVOLUTION OF SCIENCE: STUDIES IN THE ABUSE OF REASON, and this masterpiece gave me the strength to try to insist on allegiance to the highest aspirations of great scientists. Hayek's careful tracing of how the thought of great physical scientists was warped and converted into the philosophy known as positivism, and how the French philosopher Auguste Comte laid his theoretical basis for authoritarian government (both Communist and Fascist) opened my eyes to the evil that can be done by adherents of "scientism"--i.e., give allegiance only to those things that can be enumerated. Worship the Great God "Number". Now I want numbers to appear in my work only after all of the logic underbrush has been cleared away. And Hayek gives me the courage to insist on this, even if I lose friends in the process.

David Hilbert

David Hilbert is named as an Honorary Member. He recognized the distinction to be made between a natural language and a designed, or object language. This meant that two different prose modes of communication could be chosen to complement one another--a designed or object language, tied to mathematical formalities---and a natural language which could be used to describe the nature and purpose of the object language. By identifying mathematics with language, Hilbert contributed to the integration of logic with ordinary prose, and thus helped lay the basis for introducing De Morgan's theory of relations into group processes, with the aid of Interpretive Structural Modeling software.

Antoine Lavoisier

Lavoisier set a standard for later scientists to follow in painstakingly revising the language of chemistry in order to make the subject coherent. Inspired by his success, I resolved to try to do the same for the subject of complexity. At the beginning of my work, the language of complexity was not linguistically polluted. Since then, however, it has been worked over by the word bandits who have formed a theme cartel around the theme of "complexity". This has made my job a lot harder, but even more challenging.

Gottfried Leibniz

Educated as a lawyer, career as librarian, inventor of calculus, he restored logic to its state before the Dark Ages, and then added to its history. In one of his research notebooks, he showed the use of circles to represent set intersection, etc., even before sets were invented and long before Venn. Many of his works weren't published until long after Newton, but he is seen at least as on a par with Newton in terms of the invention of calculus. The use of structure to portray relationships before any of the others listed here (except Aristotle) brings him to honorary membership in the IM Community.

C. S. Peirce

Karl-Otto Apel described Peirce as "America's greatest thinker". Popper described him as one of the greatest philosophers who ever lived. Peirce's insights provided the philosophical basis for the developments of the science of generic design and the structure-based science of complexity. Peirce met De Morgan and later lauded his work with great praise---something that Peirce was not in the habit of doing. Who else has read the works of all the great philosophers of his day and discovered where they were wrong--then integrated their best thinking into his "archetectonic"? Many scholars are now publishing edited versions of parts of his work, and Indiana University is carrying on the "Peirce Edition Project". It is not possible to credit this man enough for giving life to Interactive Management, but at least he can be given the title of HONORARY MEMBER of this IM Community.

Alexander Pope

In his poem AN ESSAY ON CRITICISM, Pope displayed a systems perspective that is rare today, even when several systems societies are active. Handicapped from early youth, Pope translated Homer, gained insights into the classics, and spoke to those who want to share the wisdom of their elders.

Bertrand Russell

For many years I wondered who had invented the digraph (the directed graph). Who first used one to portray a structural relationship? I was virtually certain that the first one to use a graphic to explain something was Aristotle, since one of the Aristotelian scholars offered this point of view. I was also virtually certain that the first one to use Venn diagrams was Leibniz (about two centuries before Venn) because Bochenski illustrated this in his History of Formal Logic. But I could find nothing about the digraph until one day I discovered one----the only figure in an entire book---Russell's *Introduction to Mathematical Philosophy*. Even so this leaves a gap between his digraph and Harary's work several decades later. But the digraph is critical to Interactive Management, so Russell is an HONORARY MEMBER, whether he likes it or not!!!!