JOURNAL OF IDEAS

Volume 1 Number 1

September 1990

published by

The Institute for Memetic Research

Journal of Ideas

The Journal of Ideas is an archival forum for discussion of existing and original ideas and concepts. Its purpose is to circulate and nurture inquiry that focuses attention on the evolution and spread of ideas, on the process of discovery as well as the creative process, and on biological and electronic implementations of idea/knowledge generation and processing.

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Welcome to the Journal of Ideas

In 1608 Hans Lippershey (aka Lippersheim) placed one spectacle lens in front of another and pointed this configuration at a distant building. To his amazement he noticed that the building top appeared much closer and larger than he could see before; furthermore, he could see the details of the building top quite clearly. On October 2, 1608 he offered this device (which he called 'looker') to the Estates of Holland for 900 florins. Lippershey's looker is known nowadays as a telescope. Through Jacques Bovedere of Paris, the telescope was made known to Galileo Galilei. Galileo, in turn, constructed his own telescope and pointed it towards the moon, Jupiter, and other celestial objects. Galileo's discoveries of the irregular surface of the moon, sunspots on the sun, moons of Jupiter, and a host of other unexpected astronomical phenomena, challenged the Ptolmeic astronomical theories and the official views of man's position in the universe. Galileo's observations ultimately led to what we now recognize as modern science while Galileo himself was subjected to continuing house arrest.

On reviewing the fascinating sequence of events leading to Galileo's discoveries, one immediately recognizes the simple two lens experiment, conducted by Lippershey, as the singular most important event for modern astronomy, and perhaps for modern science. This is so because it is *the one event* that provided a simple tool which generated uncontestable direct evidence about nature and the universe. It was the telescope that provided data supporting or refuting systems of beliefs held for many centuries.

A number of natural questions arise. Why did Lippershey place the one lens in front of the other at the time that he did? *Where did that idea come from?* If we reflect upon these questions and bring into the foreground the fact that spectacle lenses were known for over three centuries (before Lippershey) and that the magnifying effects of glass and water-filled glass spheres were known for over 1300 years, another question comes to mind. Why did it take as long as it did to think of and do Lippershey's experiment?

Events such as Lippershey's invention of the telescope, and Galileo's use of the telescope to discover craters on the moon, point to a class of underlying phenomena that we all participate in continuously, namely the awareness, development, use and propagation of ideas. Until very recently, attempts to understand the mechanics and dynamics of 'ideas' (as entities by themselves) have been limited to philosophical, sociological and perhaps psychological speculations. Almost all discussions of 'ideas' revolve about truth values (i.e. true/false) of particular ideas, their meaning and their impact (i.e., how many people subscribe to an idea or a collection of ideas and what did they do as result of believing that particular idea). To date, little discussion has taken place on objective, quantitative aspects of 'ideas' and 'idea-dynamics'.

This journal, *The Journal of Ideas*, is being launched to stimulate thinking about the very nature of 'ideas' as rigorously quantifiable objects. The *Journal* aims to provide a forum for disciplined presentation of formal results in an archival scholarly format. Basically, *it is our view that ideas are discrete objects that can combine, mutate, spread, and die, much like the many living biological entities we are familiar with.*

In this issue we have assembled a collection of invited papers by distinguished investigators. J. T. Bonner (Princeton University, author of "The Evolution of Culture in Animals") presents an analysis of cultural evolution from a biological point of view. Bonner discusses cultural evolution in terms of selection of units of behavioral information, individual memory, and collective memory of the species. He argues that cultural changes (in short time spans) rival genetically derived changes that take hundreds of millions of years. D. Brooks (University of Toronto, co-author of "Evolution as Entropy") and D. McLennan extend the unified theory of biology which is based on entropy analysis of biological systems as informational systems. Their unified theory of biological evolution argues for production of historically constrained, spontaneously stable, complex structures and hierachies. S. Salthe (Brooklyn College, author of "Evolving Hierarchical Systems" and "Complexity and Change in Biology") presents a related biological-entropy based approach to infodynamics - the study of uncertainties. Salthe's framework allows discussion of external (historical) influences on dissipative structures and prediction of the effects of stored information. H. K. Henson (first president of the L-5 society and an activist in national space policy) and A. Lucas present a discussion of evolution and creationism in the context of memes (a particular category of ideas). Their paper explores the question of why humans have beliefs at all and raises the intriguing hypothesis that there may exist physical meme receptor sites with subtantial stability. R. Wiley (author of the book "BioBalance: The Acid/Alkaline

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Solution To The Food-Mood-Health Puzzle") presents a rigorous theory for the metabolic roots of consciousness that tracks metabolic inputs leading to correlations with metabolic and cognitive functions and dysfunctions. An interesting, and potentially highly significant aspect of R. Wiley's theory is the use of the relative acidity/alkalinity of venous plasma pH as the synoptic indicator of metabolic health and consequently mental/functional health. General metabolite reaction-diffusion equations, specializing to hermitian interactions are presented. E. Moritz introduces a rigorous foundation for memetic science. Moritz's paper provides a review of the major historical theories of ideas with attention to contemporary work of quantitative culture theorists of the past two decades. In addition to a wealth of key references, Moritz establishes a firm basis for a calculational science of ideas based on intrinsic and extrinsic properties of memes.

The papers collected in this issue, while initially appearing as a diverse ensemble, in fact touch on various aspects that we hope to bring together in the *Journal*. Ideas and language appear to be present in a developed form only in humans. They are phenotypic artifacts of the state of cognitive abilities achieved by humans as a result of a biologically and culturally adaptive evolution. We hope these papers serve as a basis for and stimulate principled discussion for a comprehensive science that includes these diverse aspects.

Since the topic of a *science of ideas* (as differentiated from philosophy) is new and uncharted, we expect that a variety of points of view and approaches will be taken. We anticipate that some topics and papers will generate heated discussions, as well as provide substantive advances in areas such as cognitive sciences, psychology, biology, sociology, artificial intelligence, artificial life, economics, computational linguistics, knowledge engineering, and a host of existing and new interdisciplinary fields.

We stress that the *Journal* and its publisher will maintain the principle of scientific objectivity regarding publications. Accordingly, all views expressed in the *Journal* are solely those of the author(s) of individual papers. Correspondence pertaining to individual author's positions should be addressed to the relevant author.

We encourage individuals who have interests in the topic of the science of ideas to submit papers for publication in this journal; while no standards can be set on a new science, it is expected that papers published in *JoI* will be of high professional quality. Papers submitted will be reviewed for content, technical accuracy, and novelty. We encourage readers to let their acquaintances know about the *Journal* as both a source of new information and a forum for discussion.

Judging from correspondence received, and the great interest expressed, we are confident that many new and useful ideas will be presented here, and that *JoI* will act as a catalyst for discovering how ideas interact with other ideas and how the process of creativity can be made more fruitful and accessible. In particular, we see an emerging impact of this area on disciplines that require understanding of knowledge representation and dynamics, and on electronic based memes (such as electronic viruses, bacteria and worms), artificial intelligence, and genetic algorithms. We also see the distinct potential for memetic science (the science of ideas) to shed light on neural structures and to call attention to manditory architectures in the human brain (which would be required to support idea-processing and dynamics). It is distinctly possible that results obtained here will shed light on mental functions and dysfunctions such as schizophrenia.

Ultimately, we look forward to being able to explain in detail why it took 300 years to go from a single spectacle lens to the two lens telescope, and to use the science of ideas, memetic science, the same way molecular biologists are able to piece together DNA and RNA molecules to create new structures. We hope that in the process, we will learn how to look at ideas that already exist and to piece them together effectively, so that what would otherwise take centuries, will be accomplished in years.

Elan Moritz, Editor
Patricia S. Smith, Managing Editor

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Instructions for Contributors

The key to our era, the Information Age, is knowledge generation and manipulation. A fundamental aspect of knowledge generation is the creation and combination of new ideas. In December 1989, The Institute for Memetic Research Inc. was formed to pursue the study of and dissemination of knowledge in the area of idea formation and spread. This journal, the *Journal of Ideas,* was established for archiving and disseminating research and knowledge in this area. You and your organization are invited to participate as authors, readers, referees and subscribers in this enterprise.

Prospective contributors are urged to read the introductory discussion of memes in the article "Memetic Science: I - General Introduction," [J. of Ideas, Volume 1, pp. 3-23, 1990] wherein one can find the basic concepts and references that provide a starting context for research in the science of ideas, and the editorial "Welcome to the Journal of Ideas," [J. of Ideas, Volume 1, pp 1-2, 1990].

Purpose

It is an intention of the IMR and the Journal to provide a forum for advancing novel, speculative and perhaps controversial ideas with care to avoid excessive peer restrictions. Attention to quality, however, will be given through careful review of technical accuracy, novelty, and content. This approach intends to stimulate generation and archival of 'low probability of occurrence' ideas that otherwise might not be expressed in a public forum. While some may regard this as a means for 'thumb-printing' or establishing precedence to new ideas, the IMR will strongly encourage relevant papers to be submitted in order that the *Journal* constitute a literal 'laboratory for meme evolution'. While this policy allows for substantial freedoms, prospective authors must keep in mind that as an archival journal, the *Journal of Ideas* can serve to record errors as well as genuine advances.

The target audience of this journal is intended to be as wide as possible within the lay and scholarly communities and will clearly be of a multi-disciplinary nature. With this audience in mind, authors are encouraged to use terminology that is easily accessible, to define specialized jargon carefully, and to avoid complicated mathematical derivations.

Length and Charges

Typically, a contributed paper should not exceed eight journal pages. Invited papers are targeted to be sixteen pages or less. In special cases discussion to support papers may require a significant amount of space. In this case, authors are requested to correspond with the Institute concerning space availability, and publication of a special issue. To defray costs of publication, payment of $125 per page is required for contributed papers prior to publication. Payment of page charges entitles authors to 100 free reprints of their article. Page charges will be waived for invited papers. Invited authors will receive 25 reprints gratis. To estimate length, use the figure of 6000 characters (including spaces) per journal page.

Manuscript Preparation

The Journal of Ideas will be published with a nominal page size of 8 1/2 " x 11". Manuscripts may be submitted in one of the following modes:

1. Via e-mail sent to one of the following addresses, INTERNET: 71620.3203@compuserve.com , or moritz@well.sf.ca.us , or via BITNET (moritz@well.sf.ca.us.bitnet).

2. Via regular mail. If possible, include a copy of the text in ASCII format on MS-DOS IBM Compatible 360K, 5 1/4" or 1.44M , 3 1/2" diskettes.

In all cases, please send two paper copies to Patricia S. Smith, Managing Editor, Journal of Ideas, The Institute for Memetic Research, P.O. Box 16327, Panama City, Florida 32406-1327. Submitted manuscripts should be neatly typed on 8 1/2 x 11 paper using double spacing. All unusual symbols should be carefully defined.

References or bibliographies should be prepared and used in a consistent manner throughout the manuscript. Footnotes will be treated as references. Authors are encouraged to use standard formats such as the Chicago Manual of Style, or guidelines of professional society journals such as those issued by the ACM, the IEEE, the American Mathematical Society, or the American Institute of Physics.

Figures will be scanned in using an optical scanner, they should be prepared using high quality, high contrast ink and should not exceed 3 inches in width and 4 inches in height.

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VOLUME 1, NUMBER 1 SEPTEMBER 1990

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ISSN 1049-6335,