

The Old Spy-in-the-Smithsonian-Institution Gag

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[Published in *Executive Intelligence Review*, Volume 6, Number 5, February 6, 1979. View [PDF of original](#) at the LaRouche Library.]

Science in Culture: The Early Victorian Period

by Susan Faye Cannon

New York: Science History Publications, 1978

The spy-fiction writer has contributed to exposing the use of foreign-language schools, travel bureaus and such obvious spy-covers. Perhaps not so strangely, those sorts of covers are very much in use to the present date; such arrangements have become more or less a courtesy which one nation tolerates on its premises as a gesture of hospitality to the spies of another. There is less popular awareness of a more important spookery ruse, the use of museums and similar institutions as command centers for espionage and allied networks.

The most celebrated modern case of the spy-in-the-museum gag is the British Museum, often referred to as the “Temple” by insiders to the spook trade. The Ashmolean Museum has earned a very nasty reputation along these lines. The British copied the practice from the ancient priests of Isis and Apollo, among others: the spy-in-the-museum gag is the model of reference for similar uses of universities and what are nowadays termed “think tanks.”

The same principles governing the use of the British Museum as a command center for international spookery determine British spies’ penetrations of museums, major libraries and related institutions in the United States, in particular. Exemplary is the case of the late, evil Dame Margaret Mead, clumping her preposterous witch-doctor’s staff through the corridors of New York City’s American Museum of Natural History. The case of Susan Faye Cannon at Washington’s Smithsonian Institution falls into the same spectrum.

Really sophisticated political-intelligence operations do include occasional bits of Mata Hari. Sex, bribery and blackmail, plus a sprinkling of assassinations, are the day-to-day stock in trade of most major intelligence and security agencies. The “sleeper” often does signify a person working his or her way from bed to bed within the targeted circles. Real or suspected psychological vulnerabilities are the essence of the lower aspect of spy work. Capitol Hill and other targets are crawling with persons focussed on the “sexual preferences” of congressmen, aides, and others. These—sex, bribery, blackmail, thuggery, document-theft and so forth—are the proliferating incidentals of espionage and related crafts.

Really sophisticated political-intelligence operations have a more ambitious character. Such operations are addressed to the purpose of gaining control over the minds of sections of the populations of targeted nations, or even entire populations. The way in which British intelligence established control of the major radio networks from the beginning, and continues that control of U.S. major radio and television networks, and took over and controls Hollywood, to the present day, is exemplary. Total control or major influence over press wire services, over major newspapers and wide-circulation weekly magazines are part of the same pattern. Control of the “liberal arts” departments of major universities, control of related professional associations and heavy penetration of physical science departments and professions is also part of the same pattern.

The use of those media of controlling psychological influence depends upon planning and coordination of the indoctrination campaigns funneled through those media. This planning and coordination is coordinated through network centers, centers which function as what are termed “think tanks.” These think tanks serve variously as the sources or packaging centers for the myths and fallacies of composition of fact which are distributed as the “in” topics of inquiry and discussion through the universities, public schools, periodicals and entertainment media of targeted nations.

By controlling definitions of “newsworthiness” for news media, “topicality” for entertainment media, “relevance” for educational programs, and “objectivity” and “professional credibility” for opinions and ideas generally, the public mind is subjected to an orchestrated illusion. The central theme of this illusion is the appearance of “accepted opinion,” “accepted tastes,” or, in other words, “popular opinion” and “popular tastes.”

The result of such orchestration appears to be, on the first level, the indoctrination of large sections of a targeted population in particular opinions and tastes. This is significant, but is not the essence of the matter. The essence of the matter is conditioning a population to form its opinion and shape its preferences of taste according to such influences.

Examples of Indoctrination

The classic modern illustration of mass brainwashing of the U.S. population is the deployment of the radio-TV and recording industry around the “Hit Parade” gimmick of the post-war period. The most banal, unmusical refuse, called “popular music,” was sold to the U.S. public through repeated radio performances (and TV performances) of such rubbish as “this week’s hottest number” or analogous chatter. This paralleled the blatant conditioning of women and lower-key indoctrination of men in the “latest styles.” The woman adorned with the “latest style” was informed that she was “chic” and had made a narrow escape from being considered either merely “drab” or downright “ridiculous.” The man was encouraged to be

variously “sharp,” “fashionable,” and so forth. These subtle methods of psychological terror were employed to make the most intimate opinions of most of the U.S. population pretty much what British-linked networks of media-influence prescribed.

The use of published “opinion poll” results in the same manner was employed to sell candidates and legislative programs by the same methods of mass brainwashing.

The proverbial Joe and Jane Doaks are not the only victims of this sort of manipulation. The operation which the British Museum’s David Urquhart conducted against Karl Marx during the 1850s illustrates the methods used around the “think tanks,” which are the home bases for these coordinated, mass-brainwashing operations against general populations.

Politically, Karl Marx belonged to a generation behind that of the great Heinrich Heine, and two generations behind Friedrich Schiller, Beethoven, and Mozart. He was a generation behind the great German economist Friedrich List, and more than a generation behind Johann Hugo Wyttenbach, Marx’s gymnasium director at Trier. Although Marx’s father’s opinion was corrupted by softness toward Jean-Jacques Rousseau, young Marx’s outlook and secondary school education leaned strongly to the republican Neoplatonism of Franklin-admirer Wyttenbach. Marx’s 1835 essay, written for a class of school director Wyttenbach, reflects that strongly Neoplatonic outlook in the adolescent Marx.

The Neoplatonic method predominates in aspects of Marx’s 1844 “Paris Manuscripts,” and is expressed with brilliance and maturity in two of his 1845 writings, “The Theses on Feuerbach,” and the “Feuerbach” section of *The German Ideology*. Although Marx’s concluding, fragmentary section VII of *Capital*, Vol. III, especially its included treatment of “Necessity and Freedom,” exemplifies the continuation of the Neoplatonic method into Marx’s so-called “mature period,” there are major flaws in Marx’s work. Marx’s knowledge of modern European philosophical, scientific, economic and political history was substantially fraudulent.

Exemplary of Marx’s ignorance in the latter topics is his foolish deprecation of the Rothschild problem (under Engels’s conspicuously disorienting influence on this point), his refusal to face the 1847 exposure of the fraud of the European “radical” movements, as exposed by Heinrich Heine, his irresponsible attitude toward the work of Friedrich List (for similar reasons), his ignorant acceptance of the British capitalist model thesis, and his acceptance of the fraudulent “materialism superseding idealism” hoax.

These problems Marx already carried with him from the continent to London. He had been lured, together with many of his German peers, into the neo-Jacobinism of the Palmerston-coordinated “radical movements” centered around British intelligence’s Giuseppe Mazzini

project, “Young Italy.” In London, Marx was subjected to more intensive manipulation, notably with included coordination by David Urquhart of the British Museum.

Urquhart was a specialist in the Mazzini-linked “radical movements” of the European continent, movements closely linked to Britain’s own judo operation, the so-called Chartist movement. To this date, the standard sources on British intelligence control of the “radical movements” of the 1848 period cite Urquhart as a principal authority. Therefore, it is not surprising that so notable a young German “radical republican” as Marx should have received special attention from Urquhart in London.

The role of Urquhart in disorienting Marx is adequately shown in Marx’s own writings. Marx’s judgment that Palmerston was a Russian agent is explicitly shown to be a result of the influence of Urquhart. Marx’s nonsensical, but obsessive views on early United States history—his quarrel with Henry C. Carey on this matter—are also explicitly traced to Urquhart’s influence.

This correlates significantly with the fallacy of composition in Marx’s accounted sources and assumed facts in his writings. Someone in the British Museum was certainly controlling the selection of materials made available for Marx’s studies. Marx’s selection of sources would give any thorough scholar a falsified picture of European history. The sources which would have corrected that erroneous picture existed at the British Museum—one has a glimpse into the typical manner in which librarians, as well as university professors, perform brainwashing on their students and scholarly visitors.

The role of the British Museum in Marx’s life in London is underlined by the case of Marx’s daughter. It was through operations coordinated by that institution that the scoundrel, Dr. Edward Aveling, the lover of Annie Besant, seduced the intellectually talented daughter and ultimately drove her to shame and suicide.

The quaintness, eccentricity of a Dame Margaret Mead or the seeming ineffability of a library or university liberal arts faculty should not obscure the depths of evil which often lurk behind the outer appearance of the essentially charmless, testy, slightly bent old witch. It is exactly such quaint eccentricities, modeled on the faggotry of Oxford and the séance-kookery of Cambridge, which warn one of a person estranged from reality, a person whose adult mental life is centered in the decayed fantasies of a disturbed childhood—like the late Bertrand Russell. These kooks are estranged from love for people: these kooks play out their fantasies as a wicked sort of doll-play with the opinions and circumstances of the human race. The shared, oligarchical, bucolic-biased fantasies of “our crowd” of quaint kooks become the image of “the world as it must become.” Anything which discredits the traditions of Oxford and Cambridge is to be destroyed, discredited.

Susan Faye Cannon, a British “mole” penetrating the Smithsonian Institution, is fully assimilated into the evil world-outlook she shares essentially with the late Dame Margaret Mead and the monstrous mind of Barbara W. Tuchman whose daughter shares a privileged role within the U.S. National Security Council. Cannon is dedicated in fact to destroying the technology and economy of the United States, and her book is an exertion contributed to the purpose of winning opinion-setters to arguments against scientific progress.

Cannon’s Book

Cannon’s book has two principal functions. The overall, primary objective of this fraud is to slander what she identifies, with an hysterical pitch to her voice, as the “Truth-Complex.” Listening to her written prose, one hears her thoughts shrieking in the cacophonous squawks of a Phrygian maenad against the idea of science. What fills her with obsessive hatred is the notion of science as man’s perfectible mastery of a lawful ordering of our universe. In order to develop her case, she chooses to introduce a second fraud. She attempts to talk her way around Charles Babbage’s revelation of the virtual nonexistence of scientific research and education in early nineteenth-century Britain.

We turn our attention first to the second topic.

As the influential David Brewster wrote in 1830:

During the last fourteen years of almost uninterrupted tranquility, the poorest as well as the most powerful of the European states have been ardently engaged in the prosecution of the arts of peace. The return of the sword to its scabbard seems to have been the signal for one universal effort to recruit exhausted resources, to revive industry and civilization, and to direct to their proper objects the genius and talent, which war had either exhausted in its service or repressed in its desolations. In this rivalry of skill, England alone has hesitated to take a part.... her artisans have quitted her service—her machinery has been exported to distant parts—the inventions of her philosophers, slighted at home, have been eagerly introduced abroad—her scientific institutions have been discouraged and even abolished....

Babbage, Brewster and others documented their case conclusively. Today’s reflection on that evidence allows no doubt, for reason of fact, that without measures promoted by the Edinburgh-centered circles to which Babbage was allied, Britain would have collapsed into a third-rate power during the middle of that century.

The product of this Babbage-led intervention was several-fold. New channels were developed to plagiarize the leading scientific circles of the United States, as well as the continent of Europe, for basic scientific knowledge. With aid of recruiting European specialists as well as

“continental science’s” productions, Britain underwent a limited but important industrial development during the middle of the nineteenth century. This effort was accompanied by a bitter conflict between the “fundamentalist,” cult-synthesizing Oxford Movement circles, and the Scottish-policy-influences which came to be identified with the Cambridge Society.

The complication of this Oxford-Cambridge feuding, which spilled over into the present century, is that the fundamental agreement between the two institutions was overriding of the differences. Unless the whole issue is taken into account as a whole, one might emphasize either the agreement or the subsumed differences, degrading the importance of the latter for the former, or exaggerating the latter to the point of ignoring the common philosophical setting. Or, as Cannon does, one may perform this following sort of sleight of hand. One may represent the Cambridge faction as dedicated to the fostering of scientific knowledge in the sense of “continental science,” on the one hand, and then subordinate this fraudulently argued commitment to the Oxford point of view.

For reasons we shall review here, Cambridge was as hideously antagonistic to “continental science’s” world-outlook as Oxford. As Babbage *et al.* emphasized, the issue was pragmatic, not philosophical. Britain was in the process of sliding into third-rate power status, and only a promotion of technology to a degree essential to prevent this was a sensible way for muddling through the nineteenth century. Although Lord Milner’s group did adopt a policy of “Hamiltonian dirigism” at the onset of this present century, that was done tongue-in-cheek, and purely as a matter of preparing for World War I. It is exemplary that as the British succeeded in placing Andrew Jackson into the U.S. Presidency in 1829, Jackson refused to allow the Smithsonian Institution to proceed, sabotaged U.S. national credit, pioneered James R. Schlesinger’s efforts to wreck fostering of technological progress, and sought to destroy U.S. industrial development generally. The British leading circles were all anti-science. The Scottish promotion of technology was a matter of expedience, a matter of securing Britain’s relative power at the expense of other nations.

Cannon is quite informed of these matters. She alludes to features of the Oxford-Cambridge debate extensively—and, predominantly, fraudulently. It is this evidence of her own book’s references which proves her not merely mistaken, but a liar.

The function to which Cannon puts her lying on the Babbage issue is that of attempting to make a stronger case than nineteenth-century Cambridge attempted to make against the principles of “continental science.” Her argument is that there was no break in British scientific activity. In her account, there was an unbroken development, albeit through successive, autochthonous phases of transformation, from Newton through Bertrand Russell. This fraud aids her in insisting that “continental science” was merely a parallel development, primarily a heritage of Newton, and that the “hydrodynamicist” standpoint of Leibniz,

Descartes *et al.* never represented a necessary or even particularly fruitful alternative approach.

Otherwise, she adheres to the Cambridge Society outlook, or, rather the Bertrand Russell variation of it, with a vengeance.

Then, by showing, as is easily done, that there has been no moral content to the main currents of British science since the 1660 Stuart Restoration—she passes over Priestly *et al.*—she demonstrates that after the turn of this century British science has abandoned all interest in the truth. Hence, the gist of her argument runs, there is no principle of truth in scientific method. Rather, “modern knowledge” is compartmentalized into “*n*” mutually exclusive branches of opinion and inquiry.

Perhaps the most concentrated summary of Cannon’s views on the point is given by the following excerpt:

Our Truth-Complex ... specifically excludes one element. One may read about nature, but one must not believe in her. The idea of Nature as a real entity is a pre-Christian and, what is more, a prescientific belief. One should not even speak of the “laws of Nature”: they are God’s laws for the world, or they are theories in science. One must not see in the world a self-organizing principle, or in dead corpuscles a plastic power or inherent virtue. To do this is to be a confused thinker. One must not postulate a quite unobservable formative power in organic matter,... God as a scientist with a bit of buffoonery and magic thrown in: this may have suited the 14th-century Catholic imagination, but it could only play a carefully limited role in 18th-century Anglican natural theology.

There are people who commit these fallacies. of course. From the 17th through the 19th century, this scientific heresy, this superstition of Nature keeps popping up, under different names and based on different overt philosophies; and each time it is put firmly in its place by the “proper” scientists. It is denounced as Platonism, as pantheism, as mysticism, as Romanticism, as idealism, as vitalism....

The gist of her outlook is clear enough, as well as her hysterical refusal to once define the adversary against which she vomits her maenad’s acerbities.

This hysterical outburst of hers would not endure the light of nineteenth-century British reality.

The American scientist, Joseph Henry, was lured to Britain for a period of months. This occurred because British circles had noticed Henry among the invitations to an impending international scientific conference on the continent. The picking of Henry’s brains

contributed importantly to providing elements which later turned up as the work of Michael Faraday and others. French sources looted were, like Henry, treated most ungratefully by the British plagiarists.

The British are not to be blamed for appropriating the work of American and continental scientists. They are to be blamed for being the most shameless sort of plagiarists, who not only steal a man's work without honoring that indebtedness, but who compound the plagiarism by organizing hideous libels and slanders and evil personal harassment against those from whom they have appropriated what they represent as their own original accomplishments.

In this latter vein, during the period in question, the British escalated the libels and slanders they had already launched throughout the European continent against Franklin during the 1780s and 1790s. Although Franklin was in fact, in concert with Priestly, a seminal scientific influence in electricity and in fostering the developing of chemistry, the British expended great effort in the United States as well as elsewhere to represent Franklin as a mere tinkerer.

The Newcomen case is parallel. First, the British established the fraudulent claim that Newcomen had invented a workable steam engine. Next, they fostered the spreading of "Newcomen societies" in the United States itself. The purpose of the "Newcomen societies" was to propagate the view that the acquisition of scientific excellence was unnecessary, mere tinkering, like that of Newcomen, would be adequate.

In fact, the British had no modern scientific knowledge or practice during the period identified by Babbage, Peacock and Brewster. They were obliged to assemble the rudiments of scientific knowledge for themselves by scraping up the productions of such continental-science centers as the heritage of the Ecole Polytechnique and Göttingen. So, the admittedly gifted James Clerk Maxwell pieced together his "Treatise"... So, Maxwell, like the rest of the Britain crowd, requited continental science by the worst species of plagiaristic practices, by seeking to discredit and personally harm those from whom they appropriated scientific knowledge. So, the Riemann on whose work Maxwell depended so much was only indirectly mentioned by Maxwell, in a sneering allusion to thinkers associated with "other geometries." So, Bertrand Russell made an immortal ass of himself in his attempted slander of not only Riemann, but of the Helmholtz from whom Kelvin appropriated most of the key ingredients of his own reputation.

It is instructive to note the manner in which Cannon treats this aspect of the matter. She professes herself to be a representative of that dismal profession known as the "history of science," and professes, that as editor of a scientific journal, she has had a behind-the-scenes hand in frustrating various scientific careers. Hence, she has adopted a responsibility for

knowing the ABCs of her topic: who, at what point, is associated with crucial developments in the advancement of the so-called physical sciences. Since she lies so freely, it is unnecessary to consider how much of her atrocity in the book is to be laid also to the fraudulent character of her professional claims. She appears to be acquainted with much of the relevant literature, and it is sufficiently demonstrated on that account that she is a liar.

Purporting to adduce a case from the principal work of 19th-century science and its predecessors, she makes either no mention or no more than mere mention of the most crucial personalities in the actual course of scientific progress. Riemann's name appears only once, and then as merely an apposited mention of his name in one sentence. Such crucial figures as Cantor, Weierstrass, Cauchy, Felix Klein receive no mention at all in the text, although their influences were crucial for British 19th-century knowledge as a whole. The name Carnot is mentioned twice, once without specific or even circumstantial indication whether Cannon means Lazare or his son Sadi.

It was from the continental, "hydrodynamicist" faction of science, from the heirs of Cusa, Kepler, Descartes, the English Gilbert, Leibniz, and from the continental collaborators of Franklin, as well as Priestley, that the 19th-century notion of physical function was imported into Britain. It was British ignorance of such work in physics, as well as in chemistry, to which Babbage and his collaborators made detailed reference.

Cannon's Point of View

Cannon's point of view is predominantly that associated with Bertrand Russell. She differs from Russell in detail, but concurs in the central practical implications of her argument, and in the proclivity for compulsive, chameleon-like lying for which Russell was so notorious.

Insofar as she accepts an internal ordering for theoretical scientific knowledge, she identifies that with the standpoint of "applied mathematics." Then having so misrepresented science, she focuses on the inconsistencies between "applied mathematics" and reality, concluding that "pluralist irrationalism" is the desirable policy.

It is this perversity that marks her moral resemblance to Russell.

A systematic comprehension of the perverted twists and turns of her argument requires knowledge of the pathologies intrinsic to the notion of "pure mathematics," the standpoint which defines "applied mathematics" from the standpoint of "pure mathematics," and then substitutes such a notion of "applied mathematics" for "physics." It is the irreconcilability of the British doctrine of "applied mathematics" to the notion of "physics" underlying the achievements of "continental science" which is crucial here.

The key to the British methodological point of view is that both Oxford and Cambridge are Aristotelian institutions. (There are no Cambridge Platonists; there are only mystical Aristotelians who specialize in frauds against Plato in the name of conducting Platonist studies.)

The essential difference in the conception of physics between Plato and Aristotle is that Platonist physics is based on locating the principle of efficient causality within actions, whereas there is no efficient causality within the form of logic associated with Aristotle.

Logic is a derivative, directly of the varieties of sophistry and rhetoric (a codified sophistry) coordinated by the cult of Apollo at Delphi during the period following the Babylonian conquest of Tyre. In logic, the mere names given to the objects and processes take the place of real objects and processes. For any ostensible consequence of an interval of action, the name of the consequence is placed in conjunction with the names of those objects and processes which are noticed as antecedents and simultaneities of the noted consequences. The notion that one static configuration habitually flows from the preceding appearance of a configuration of antecedents is the basic principle of such a formal logic.

Aristotle, a bitter political adversary of Plato, was significantly indebted to the Academy at Athens. Aristotle adopted the formal ordering of hierarchies of cause-and-effect elaborated by the Academy, and used this information to construct a nominalist model based on hierarchies of fixed categories.

Aristotle eliminated the content of Platonism, and constructed a syncretic nominalist logic and metaphysics by fusing the names of borrowed elements of Platonism with nominalist sophistries. This is massively demonstrated by examining Aristotle's treatment of Platonic works, his extensive "commentaries" on Plato.

There is no *necessary* connection within the Aristotelian system. There is, in fact, only a probabilistic correlation of antecedents, simultaneities and consequences. One must vary the emphasis within the Aristotelian system either by stating that a probabilistic correlation must be a necessary correlation, or one may omit that latter assumption as an alleged extravagance.

The reason for this lies in the nominalist character of a formal logic. In such a logic, one has substituted the relationship among the names of objects and processes for study of the actual, efficient connection in reality. Since a language is a determined collection of objects, with no independently inherent properties as a language, there can be no notion of cause in a formal logic.

When mathematics is considered as a formal logic, the same result develops. Considered from a formal-logical, nominalist standpoint, no mathematical formulation contains a direct

reflection of causality. Mathematics is merely a special language, determined by the practice of physics. Divorce mathematics from the physicists practicing physics, and mathematics becomes a form of Aristotelian schizophrenia.

Two successive pathologies develop from the Aristotelian misinterpretation of mathematical physics.

In the extreme case, as in Aristotle, the categories of “pure mathematics” are taken to be *a priori*, created all at once with the “Big Bang” of First Cause. In the extremely pathological case, we have positivist radicalism of the Viennese varieties. In this obsessive view of the matter, since mathematical logic can be shown to require no notions of causality, “pure mathematics” or radical-positivist varieties of “mathematical logic” “demonstrate” that the notion of causality must be an arbitrary philosophical “extravagance.”

In the less extreme case, it is assumed that the question of First Cause can be agnostically avoided, and that the connections of logic can be reduced to matters of probabilistic correlations, with a more or less large margin for sheer, improbable irrationalism.

Cannon advocates the irrationalist view:

True science still recognizes, I believe, the Fourth Law of Thermodynamics, the law of perversity of inanimate objects. Stated in terms of probability theory, this law says you will probably be wrong more often than the laws of probability admit.

No self-respecting mathematician would say such gobbledegook sober. Cannon’s is what used to be termed a “Sunday Supplement” sort of gossip about scientific matters. The “Stated in terms of probability theory” grates against the sensibilities of any disciplined mind. Even so, in her own ignorant manner, the gist of her argument is, by intent, in the direction of the sort of radical, irrationalist form of empiricism to which we just previously referred.

The notion of substituting “applied mathematics” for “physics” assumes that “pure mathematics” is the optimal model of rational knowledge. The axiomatic structure of a given sort of mathematics is traced through theorems, in the way exemplified in the extreme by the Russell-Whitehead *Principia Mathematica*. The theorems elaborated as a lattice structure in this manner are then assumed to include, implicitly, all of the formulations which might be required to formulate a physical process. A “super-computer,” based on a system such as Russell’s and Whitehead’s, should react rather promptly to any set of physical data fed into it with an act of “*déjà vu!*”—“I have found the mathematical construction which fits that one.”

The customer said to the storekeeper, “Give me two and a half pounds.”

The storekeeper replied, “Two and a half pounds of what?”

“Just two and a half pounds,” the customer rejoined.

The storekeeper brightened: “You must be the new mathematician the university just hired.”

The customer nodded.

“Applied mathematics” is demonstrated by the case of the “pure mathematician” wandering through New York City’s 42nd Street pornography center. He is selecting an X-rated film to match one of his sexual fantasies, a prostitute to aid him in acting out a delusion.

Mathematical instructions are like cookbook recipes. On condition that the cook knows his way around a kitchen, and that the recipe is competently stated, the cook will reproduce a worse or better replication of what the recipe prescribes. (A “pure mathematician,” were he consistent, would not follow the recipe, but would eat the cookbook.) Mathematical instructions are a form of communication. As such, they reflect an organized practice, but they are not that organized practice.

The standpoint of irrationalist empiricism takes advantage of the absurdities of “applied mathematics,” and joins Cannon in insisting on the probable irrationality of the universe. See, she sneers, “The Truth-Complex is absurd superstition.”

By ignoring actual scientific progress, and by limiting the name of rational science to British traditions, Cannon “proves” that British science is filled with irrationalities, and that, “therefore,” science in general is inadequate in that way.

The opposite view of physics as physics shows that mathematics is an outgrowth of language, which has been shaped by physics and related aspects of human advancements in practice.

If Riemannian physics is properly comprehended, from the vantage-point of the habilitation paper on fundamental hypothesis, the whole matter becomes clear. The axiomatic correlatives of “fundamental particles” and linearized space, mass, time, vanish. What remains, as mathematics, is phase-space descriptions of real physical processes. Among the various domains defined in this way, cause persists as the efficient connection among these domains, but the mathematical-deterministic schema appropriate to one domain do not pass over efficiently to the other. The same point is made from the standpoint of geometry and number (e.g., from the standpoint of point-sets) by Cantor’s notion of the ordering of transfinite. All that is required, from a formal standpoint, to develop a new mathematics around this is the abandonment of the scalar notions of measure of mass, space, time, in favor of a world-line principle of *negentropy as reflecting* the causality which bridges the distinct domains. The “self-organizing principle,” which the ignorant Cannon brushes out of hand, is the formal reflection of causality we presently require—at this present level of the development of physical-scientific and related knowledge.

With the explosion of the H-bomb, the fact to which I have just referred was heavily underscored, if in a perverse way. It is the Riemannian standpoint which, and uniquely so, makes the workings of such infernal machines comprehensible for human practice. One may say that Cannon's argument was blown to dust at Bikini atoll.