

第一部:自然の宗教哲学の構築を目指して第一章:自然の宗教哲学の構想とティリッヒの次元論**第二章:宗教言語と科学言語**2 - 1:問題状況2 - 2:隠喩論から見た科学と宗教2 - 3:レトリックから見た科学と宗教

1. レトリック論再考 2. 科学的知とレトリック 3. 宗教的知とレトリック

2. 科学的知とレトリック

バーク:知識の二重の運動

科学的知

日常的知

(1) 日常から科学へ

1. Albert Einstein

Physics and Reality(1936), in:Albert Einstein, *Out of my later years*, The Citadel press
1956

The whole of science is nothing more than a refinement of every day thinking. It is for this reason that the critical thinking of the physicist cannot be restricted to the examination of concepts of his own specific field. He cannot proceed without considering critically a much more difficult problem, the problem of analyzing the nature of everyday thinking.

(59)

stratification of the scientific system

the primary concepts, i.e. concepts directly connected with sense experiences,
and theorems connecting them, ... first layer

lacking in logical unity

The new "secondary system" pays for its higher logical unity by having, as its own elementary concepts (concepts of second layer), only those which are no longer directly connected with complexes of sense experiences.

Thus story goes until we have arrived at a system of the greatest conceivable unity, and of the greatest poverty of concepts of the logical foundations, which are still compatible with the observation made by our senses. (63)

cf. Burke: title of titles

The Fundamentals of Theoretical Physics(1940), *ibid.*

Science is the attempt to make the chaotic diversity of our sense-experience correspond to a logically uniform system of thought.

Chaos / Unity

The scientific way of forming concepts differs from that which we use in our daily life, not basically, but merely in the more precise definition of concepts and conclusions; more painstaking and systematic choice of experimental material: and the greater logical economy. By this last we mean the effort to reduce all concepts and correlations to as few as possible logically independent basic concepts and axioms. (98)

2 . 科学言語・科学的知の構造:

マクロ - ミクロ (古典物理学と量子力学・素粒子 観測問題)

実験言語 - 理論言語 (言語の諸階層、解釈学的循環 + 実在との接続)

知の形成: 草稿・ノート / 報告 / レフェリー・論文 / 出版

自己説得

他者説得

3 . Alan G. Gross, *The Rhetoric of Science*, 1990

Rhetorically, the creation of knowledge is a task beginning with self-persuasion and ending with the persuasion of others. (3)

1. Analogy in Science:

Despite his best efforts, the seventeenth-century Swiss mathematician Jacques Bernoulli was unable to find the sum of the infinite series of the squares:

$$1 + 1/4 + 1/9 + 1/16 + 1/25 + 1/36 + 1/49 + \dots = ?$$

Leonhard Euler,

Euler, also a Swiss, made a daring leap by means of analogy: he used algebra, designed for finite mathematics, to solve a nonalgebraic equation, "applying the rules made for the finite to the infinite." This solution by analogy, and its accompanying answer of $\pi^2/6$, was in no way a proof. Finally, after much effort, Euler "succeeded in verifying ... exactly, the value of $\pi^2/6$ for Jacques Bernoulli's series. ... As this example demonstrates, analogy has a role in mathematics: not probative, but heuristic.

(27-28)

Scientific reports and scholarly arguments are alike in the value they place on the heuristic function of analogy and on the rules of inference and evidence with which analogies and the hypotheses they generate must be examined. (30)

2. Taxonomic Language:

A complete rhetoric of science must avoid this accusation: after analysis, something unrhetorical remains, a hard "scientific" core. In this chapter I want to test the hypothesis of completeness against evolutionary taxonomy, the science of classifying animals and

plants as species in accordance with evolutionary theory. (33)

According to its rational reconstruction, evolutionary taxonomy is a discipline at whose center lies the evolutionary species; in fact, belief in the reality of such species is the sine qua non of being an evolutionary taxonomist. This rational reconstruction of science is both justificatory of , and coextensive with, science itself. For rhetoricians of science, on the other hand, the reality of the evolutionary species is essentially textual. Rhetoricians insist that science "*establish the real. The real* is as much a hypothetical construct as is the universal audience" (50)

the objectivity of science is constituted by some configuration of these reconstructions. Such configurations must be viewed ironically; only if irony is presupposed do they avoid the charge of inconsistency.

Rhetoric, then, is both a discipline and a perspective from which disciplines can be viewed. As a discipline, it has a hermeneutic task, and generates knowledge; as a perspective, it has a critical, emancipatory task, and generates new points of view. The central goal of this chapter is not hermeneutic, but critical and emancipatory: I have elaborated, illustrated, and refined a new perspective. I hope I have shown that a sharp distinction between rhetoric and rationality is untenable --- that such a distinction entails an unduly narrow view of both. Finally, I have tried to show that the objectivity of evolutionary taxonomy depends as much on rhetoric as it does on rationality. (52-53)

池田清彦 『分類という思想』新潮選書

3.Style in Biological Prose

Quine calls attention to the "ironical but familiar fact that though the business of science is describable in unscientific language as the discovery of causes, the notion of cause itself has no firm place in science." (77)

Scientific prose and its accompanying tables and figures work together toward a single metaphysical end: to create a world of quantifies, causally physical objects. For working scientists, science continues to be the "accommodation of language to the causal structure of the world" (Boyd 1979, p.358; emphasis deleted). (79)

The Problem of Metaphor

Although the management of scientific prose seems to support a metaphysical realism, it is impressions only that are being managed. If science really involved the accommodation of language to the causal structure of the world, scientific prose would name, not misname, physical objects. But science is full of metaphor, and it is the nature of metaphor deliberately to misname. (80)

The Problem of Reference

Ideology is a generally notorious concept. We think of Triumph of the Will: the Wagnerian strains, the massed Nazi flags, the crowds surging under Hitler's gaze. But ideology need be neither malevolent nor antirational. (83)

In this uncertainty, an uncertainty that science routinely create, ideology naturally flourishes, a map of problematic social reality, a matrix for the creation of collective conscience.

In science, understandably, metaphor is this ideology's chief tool: at the scientific verge, words routinely fail to refer. In discovery, metaphor is prominent; in verification, it remains so: scientists have no better resource for expressing what they do not see, the universal mechanism whose audible and visible traces they purport to track. (84)

4. The Arrangement of the Scientific Paper

When I speak of the scientific paper as a myth, it is Lévi-Strauss's use of the term that I have in mind. To Lévi-Strauss a myth is not merely a story; indeed, it is essentially not a story at all, but a "logical model capable of overcoming a [fundamental] contradiction" in life and thought. Myths are designed to cope with contradictions so deep that they cannot be overcome. ... In my view, the scientific paper instantiates a myth designed to cope with the fundamental contradictions... (95)

5. Peer Review and Scientific Knowledge

To analyze peer review, I will use speech act theory and, especially, Jürgen Habermas's ideal speech situation, a construct derived from that theory (129)

When, as in the documents examined in this chapter, acceptance is conditional on repair, a communication network is created; it consists of referees, editors, and authors.

This set of peer review transactions can be analyzed in terms of the criteria of the ideal speech situation, (130)

The ideal speech situation permits each interlocutor an equal opportunity to initiate speech acts. (131)

Ideally, peer review communication operates under two constraints: discourse must be free of emotion, and it must be polite. (132)

Peer review in science is a system of communication that achieves rational consensus by means of the balance it strike between deviations from the ideal speech situation and their correction. (137)

The rational consensus that peer review exemplified has epistemological implication. Scientific reports and peer review documents are very different illocutionary enterprises. Scientific reports are cognitive; they thematize truth, the link between statements and the world; In contrast, peer review documents are regulative; they thematize trust, the intersubjective nexus linking authors, editors, and referees. In peer review, then, the results of a cognitive process are certified, at least initially, by a regulative one. ... The knowledge that peer review certifies is grounded wholly in argumentation: (139)

Publication is the symbolic act that obliterates all traces of the procedure by which the knowledge it asserts is certified; (140)

6. The Origin of *The Origin*

Self-Persuasion as Rhetoric

Between the Notebooks and the *Origin*, there is a difference in persuasive strategies, but there is no disparity in the nature of the reasoning Darwin employs. His thought resembles ordinary problem solving, not some special model of scientific thinking, such as the hypothetico-deductive method. (157)

I claim in this chapter that Darwin's most creative phase is appropriately described as a rhetorical transaction within the self. The Notebooks enact a drama of self-persuasion: (159)

7. The Social Drama of Recombinant DNA

Conflicting Ideologies

By the end of the nineteenth century this early enthusiasm concerning experimental science had in many cases turned to scientism, the view that natural science is the sole source of knowledge, including all ethical knowledge. (182)

8. Reference without Reality

the concept of realism

In virtue, says Putnam, of internal realism, a realism wholly compatible with "the conceptual relativity." To an internal realist, questions concerning objectivity make sense, but only "within a theory or description" of the world; "'objects' do not exist independently of conceptual schemes." (197)

ハーバーマス:意味の問い(1970年代:意識・理解 言語行為)

Jürgen Habermas, *Theorie des Kommunikativen Handelns*, Suhrkamp 1981

Konsensustheorie der Wahrheit

ideale Sprechsituation / Vorgriff

Austauschbarkeit

Universalpragmatik

Geltungsanspruch: Verständlichkeit, Wahrheit, Wahrhaftigkeit, Richtigkeit

芦名定道 『ティリッヒと現代宗教論』北樹出版 1993年 121-123頁

(2) 科学から日常へ

説得としての科学的知:

二つのタイプの知 慣習的 / 転換的 イデオロギー / ユートピア

芦名定道・小原克博 『キリスト教と現代 終末思想の歴史的展開』世界思想社

科学とイデオロギー

佐藤文隆 『量子力学のイデオロギー』青土社

『科学と幸福』岩波現代文庫

文化としての科学、永遠のメタファーとしての科学、イデオロギーとしての影響

科学論への苛立ち: ワインバーグ『究極理論の夢』

第7章「哲学に反対して」

イデオロギー的機能: 進化論、しかし量子力学も

科学とユートピア

1. 高木仁三郎 『市民の科学者として生きる』岩波新書

・専門家の科学(アカデミズム、エスタブリッシュメントとしての科学、科学のための科学、あるいは国家・企業への貢献としての科学)と

市民の科学(オルターナティブな科学)

・説明責任、インフォームドコンセント

・「希望」「希望の原理」「希望の組織化」(ペーター・ヴァイス)

現実の中でニヒリズム(絶望、逃避、居直り)に陥らないために

現実を相対化し批判し、かつ新しい現実を構想すること、その意味での夢を見る能力が大切になる。ユートピアの問題

cf. Jürgen Moltmann, *Theologie der Hoffnung*, Chr. Kaiser 1964

飯沼二郎 『国家権力とキリスト者』未来社 1973年

2. Donella H. Meadows, et al., *Beyond the Limits*, Chelsea Green Publishing Company
1992

Sustainability

They are considered too "soft" to be taken seriously in the cynical public arena. They are: visioning, networking, truth-telling, learning, and loving. The transition to a sustainable society might be helped by the simple use of words like these more often, with sincerity and without apology, in the information streams of the world. (224)

Visioning means imagining, at first generally and then with increasing specificity, what you really want. That is, *what you really want*, not what someone has taught you to want, and not what you have learned to be willing to settle for. Visioning means taking off all the constraints of assumed "feasibility," of disbelief and past disappointments, and letting your mind dwell upon its most noble, uplifting, treasured dreams.

Vision needs to be balanced with skepticism.

More than that, vision, when widely shared and firmly kept in insight, *brings into being new systems*. (224)

A sustainable world can never come into being if it cannot be envisioned. The vision must be built up from the contributions of many people before it is complete and compelling. As a way of encouraging others to join in the process of visioning, we'll list here some of what we see, when we let ourselves imagine a sustainable society that we would like to live in. (225)

One is not allowed in the modern culture to speak about love, except in the most romantic and trivial sense of the word.

That pessimism is the single greatest problem of the current social system, we think,

and the deepest cause of unsustainability. A culture that cannot believe in, discuss, and develop the best human qualities is one that suffers from a tragic distortion of information. (233)

It is difficult to speak of or to practice love, friendship, generosity, understanding, or solidarity within a system whose rules, goals, and information streams are geared for lesser human qualities. But we try, and we urge you to try. Be patient with yourself and others as you and they confront the difficulty of a changing world. ... Seek out and trust in the best human instincts in yourself and in everyone. Listen to the cynicism around you and pity those who believe it, but don't believe it yourself. (234)