

**Supplements and Summaries to
accompany "The System of Sciences
according to Objects and Methods"**

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German-English Translation Notes

From the Foreword by Paul Wiebe: Most of the technical terms Tillich uses are staples of German philosophy, though many of them receive the stamp of his own meaning when they enter the orbit of his thought.

Something must be said about a few of the basic terms and my translation of them.

German	English
Denken	Rendered as "thought," though it refers both to the cognitive subject of the act of knowledge and to the act itself.
Sein	"Being," the cognitive object; this term should not be confused with the term "being" in Tillich's mature theology, for his early and his later ontologies are not identical, though they are similar.
Seienden	"Existents," entities within the realm of <i>Sein</i>
seinshaft	"Existential," of or relating to being; this English equivalent does not refer to human existence, which is to say that it has nothing to do with existentialism.
Geist	"spirit," the sphere of culture and the distinctively human, the sphere in which thought inserts itself into being. No English word corresponds exactly to the German, but I have chosen "spirit" over the other common rendition, "mind" it is less misleading, and Tillich himself preferred "spirit."
Form/Gehalt	The two elements of the spiritual act: <i>Form</i> is the element of universality. <i>Gehalt</i> is the element of irrationality and infinity.
Wissenschaft	"Science," although "science" does not capture the breadth of the German word. "Science" here is intended in the broad sense of "cognitive science." The implication is that there are other ways of knowing than "natural" and the "social sciences."
Denkwissenschaften	The "sciences of thought," of course, or simply the thought sciences
Seinswissenschaften	Either "sciences of being," or "empirical sciences."
Geisteswissenschaften	"Sciences of spirit" is literal but awkward. "Cultural sciences" is reasonable enough, but it leaves no English word for referring to <i>Kulturwissenschaften</i> , which Tillich also mentions but does not include in his system. "Humanities" creates a sense of familiarity that should be avoided; Tillich's <i>Geisteswissenschaften</i> simply do not cover the same territory that our humanities do. "Human studies" is becoming quite acceptable, but it weakens the claim, inherent in the German word, that these disciplines are indeed sciences. I have settled on "human sciences"; it is close to human

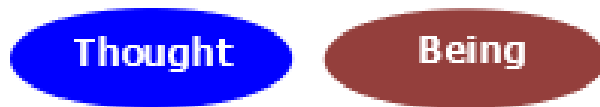
German	English
	studies," but avoids the problems of this and the other possibilities.
Geistesgeschichte	<i>Geistesgeschichte</i> is "history of spirit." but <i>Geistesgeschichte des Rechts</i> , for example, is "spiritual history of law."
Gestalt	I simply anglicize <i>Gestalt</i> , dropping the uppercase and pluralizing in the conventional English way.
Thorie / Lehre	Tillich assumes a distinction between Theorie and Lehre; I respect the distinction with "theory" and "doctrine."
autogen / heterogen Methode	To avoid a double contrast, I render them as "autogenous" and "heterogenous" (rather than "heterogeneous," the more common word).
Logismus	To preserve the contrast with psychologism, I follow Adam's coinage of the word "logism" for Tillich's <i>Logismus</i>

The Two Elements of Knowledge

In order to grasp the idea of knowledge, it is necessary to abstract completely from everything objective, as well as from all psychic contents, and to attend to the pure meaning of that which is implied in the essence of knowledge.

Every act of knowing contains two elements, the act itself and that toward which the act is directed, or the intention and that which is intended. If we refer to the act by which consciousness directs itself at something for the sake of grasping it objectively as "thought," and if we refer to that toward which the act is directed as "being," we have distinguished thought and being as the two basic elements of knowledge. These are notions in which thought and being have already been united: they are already contents of knowledge. Here we are concerned with the ultimate elements of knowledge.

Figure 1: The two elements of knowledge.



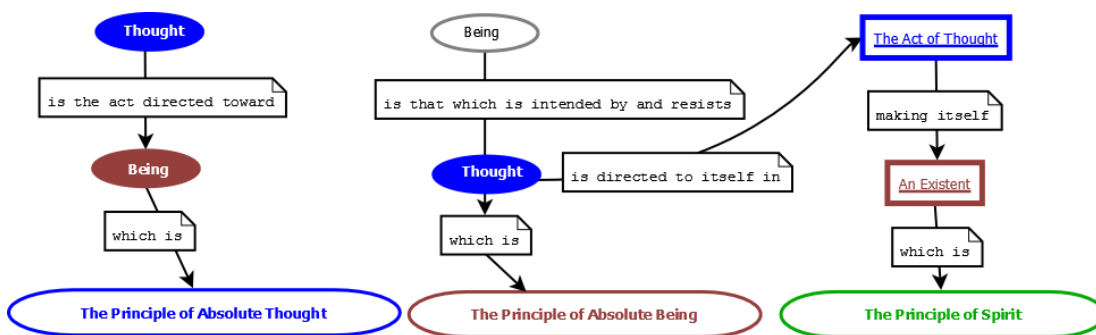
Fundamental Organization of the System: Thought, Being, and Spirit

The fundamental organization of the system is based upon these three propositions.

Here we are concerned with the ultimate contents of knowledge. Thus we can define thought only as the act that is directed toward being, and we can define being only as that which is intended by thought (as that toward which the act of thought is directed). It is utterly impossible to transcend this reciprocal definition of the fundamental concepts, for every higher concept would again be an idea of an existent and would thus contain both elements. Consequently, neither thought nor being can be defined properly speaking: each must be viewed from the standpoint of the other..

1. **Thought** posits **Being** as that which is comprehended or conceived, as that which is determined by thought. (Principle of absolute **Thought**)
2. **Thought** seeks **Being** as that which is strange and incomprehensible, as that which resists thought. (Principle of absolute **Being**).
3. **Thought** is present to itself in the act of thought; it is directed toward itself and thus makes itself an existent. (Principle of **spirit**)

Figure 2: Fundamental concepts.



The Method of the System is "Metalogical"

The method in the sphere of science is dependent upon the method of the human sciences in general.

The method of the human sciences is metalogical; logical because of the forms of thought, metalogical because of the import of being. But the two constitute a unity. Mere logicism does not do justice to the import of being, and alogism does not do justice to the forms of thought. The former leads to formalism, the latter to arbitrariness. Logicism violates all the sciences by forcing them into a formal, logical schema, and alogism is incapable of producing a systematic structure that is self-contained and intrinsically necessary. The method of systematics must include both elements. This is possible only when being is not regarded merely as a logical category, but is also perceived as a living import. For each of these functions, being is something different, yet in all of them, the same being is intended; the unconditionally real that gives import to all forms. Now, the task of logical thought is to allow these approaches to being to operate; its task is to find forms that express (without impairing their logical correctness) the fulfillment with the existential import that is grasped by all these functions. We call this method "metalogical" in conscious analogy to the term "metaphysical."

In a dynamic view such as ours the system of the sciences is envisaged as a living contradiction and a living unity of thought and being. Whenever we use these two concepts, however, we mean them in neither the merely logical nor the mythological senses. They are the elements of meaning within reality; they are grasped by all the functions of spirit and presented in the form of scientific concepts.

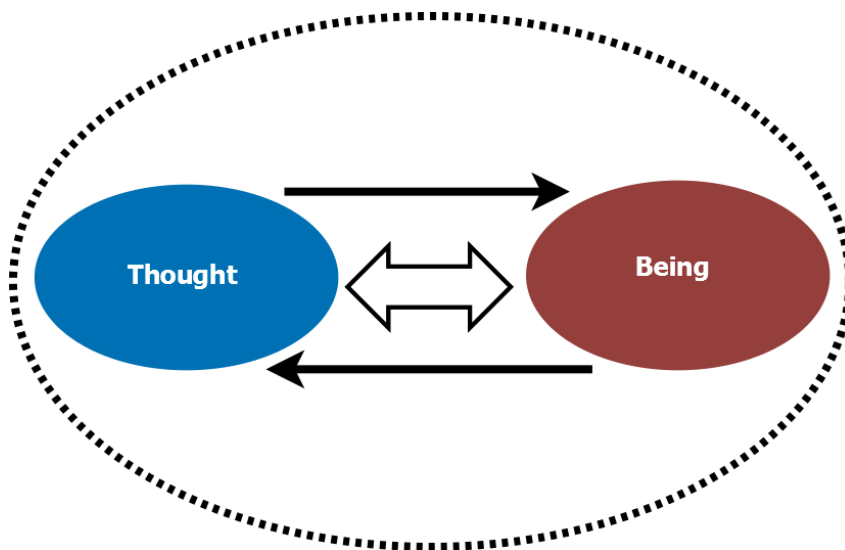


Figure 3: The system of sciences is envisaged as a living contradiction and a living unity of thought and being.

Overview of Methods

The concept of *methods* is used in various contexts, in both "broad" and "narrow" senses throughout the system. This Table summarizes the use of the term methods in the system.

Table of Methods.

Methods in the broad sense <i>The Sciences of Thought: Foundation</i>	Methods in the narrow sense <i>I. Foundation of the Sciences of Being</i>
"Method in the broadest sense has four interrelated sides, which change with the alteration of the fundamental attitude. "	
1. The goal of knowledge	The goals of knowledge correspond to the <i>forms of being</i> . Nothing can be reflected upon unless it has previously been thought; that is, nothing can be known unless it has previously been formed by thought, and nothing can be known except according to how it has been formed.
	law
	gestalt
	sequence
2. The attitude or position of knowledge	perception, experience, and empathy <i>The Attitude of Knowledge in the Empirical Sciences</i>
3. The procedure of knowledge	description, explanation, construction <i>The Procedure of Knowledge in the Empirical Sciences</i>
4. The degree of knowledge	probability, conviction <i>The Degree of Knowledge within the Empirical Sciences</i>

Heterogenous Methods and Objects

The Table shows examples of methods being used heterogenously (outside their native area) to formulate concepts.

Method	Object group	Heterogenous application
law	physical group	Tendency toward gestalt: the idea of <i>universal gestalt</i> in which all particular processes are organically related
law	physical group	Tendency toward gestalt: physical structural elements assume an almost organic character in organic chemistry and crystallography
gestalt	organic-technical	Tendency toward sequence: the <i>theory of development</i> presented as the history of biological, psychological, and sociological forms
sequence	historical	Tendency toward gestalt: the doctrine of <i>spiritual gestalts</i> and the investigation of <i>historical laws</i>

The Sciences of Being: Three Types of Conceptual Formulations

In the area of the thought sciences, the *conflict between thought and being* remains latent, for thought is concerned only with itself. It is different in the sciences of being. Here the "other" is the problem.

The conflict between thought and being pervades even the empirical cognition. The tension between thought and being sustains the entire system. But the "other: that resists the unity of thought is the multiplicity of *individuals*. Thought desires unity; it creates the universal, the comprehensive, the systematic framework. But being confronts thought as the particular, the incomprehensible, the individual, that which cannot be dissolved in the infinity of thought.

Three basic relationships between, thought and being suggest three type of conceptual formulations.

- 1. Law:** In the first basic relationship, thought attempts to confine being completely within its universal forms and thus to extinguish diversity and individuality. We use the concept *law* for this relationship between thought and being. The "propositions" of the sciences of thought are analogous to the "laws" of the empirical sciences. They are similar because both disregard the individual; they are different because the thought sciences do not even refer to the individual. They provide pure forms that are infinitely remote from every individual reality while the empirical sciences attempt to grasp individual reality. Physical laws annihilate the individuality of things in order to control them. Law is therefore that goal of knowledge in which the individual is subsumed under the universal.
- 2. Sequence:** On the other side there is a concept that refers to the fact that the individual is inserted into a context, not in order to abolish this individual but in order to represent it. We will call this context a "sequence" context. We place the temporal context within a *sequence*. In laws time is only a dimension of space. Time has no power to create the new. But time is essentially a category of the new, of development, of history. it is therefore the form of therefore, the form of the individual, existential element. (See related concept link below).
- 3. Gestalt:** We had assumed in the sphere of law that, being is not completely fulfilled by thought determinations, and that in the sciences, being is completely and individually fulfilled by these determinations. Both assumptions are abstractions. Both "law" and "sequence" presuppose "gestalt". The latter concept contains the other two. For every gestalt is both an individual and a universal. The peculiar nature of the gestalt rests on this duality.

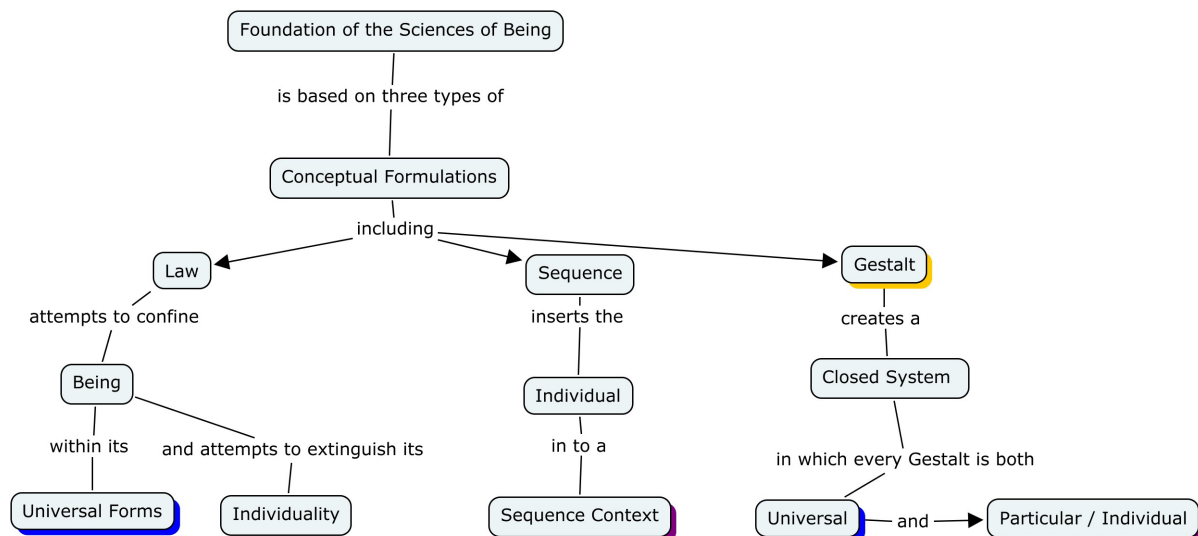


Figure 4: Summary of the Foundation of the Sciences of Being

The Law Sciences of the Sciences of Being: Summary

The table below provides a summary of the sciences classified as law sciences within the sciences of being, including overviews of the methods and objects used in the individual sciences

The Law Sciences

Science	Method	Notes on objects and methods
mathematical physics	law / autogenous series	The science is not mathematics, for unlike mathematics, its objects are actual bodies moving in space. It is not a science of thought it is an empirical science. But it is an abstract empirical science, Since mathematical physics is a science of being, it has an empirical, inductive character, not the self-evidence possessed by mathematical structures. But it is presented in a mathematical, self-evident form. This apparent contradiction reveals the nature of the science even more clearly. That is to say, it shows that in its quantitative relations, reality is indeed mathematical. Based as it is on the fundamental relation between thought and being, this fact has allowed mathematical physics to become the <i>ideal of pure science</i> as such.
mechanics	law / autogenous series	Deals with homogenous, moving mass that is formed, like mathematical space, by definition. The empirical element in mass is indissoluble; this element is expressed in all the laws of mechanics.
dynamics	law / autogenous series	Qualities are considered only at a preliminary stage. The gestalt method remains heterogeneous.
chemistry	law / autogenous series	Chemical formulas disclose the gestalts of phenomenal material. They symbolize the omnipresent elements of a cosmic gestalt. Nevertheless, these formulas do not reveal a total gestalt, for they are isolated from each other and are subject to the the regularity that ignores individuality. They belong to the physical sphere in spite of

Science	Method	Notes on objects and methods
		the heterogenous influence of the gestalt method.
mineralogy	law / autogenous series	Mineralogy forms the transition to the heterogenous series of the physical sciences. Mineralogy is the description of those compositions of matter found on the earth. It investigates the laws of existing compositions of matter and is thus an extension of chemistry; it describes this matter from the point of view of its geological and geographical reality. Thus it leads to these sciences themselves.
astronomy	law / heterogenous series	Constellations are undoubtedly closer to being gestalts than is anything else in the physical sphere. Like crystals, constellations lack the immanent teleology by which isolated parts become members of the whole. Constellations can be destroyed, but the parts that are destroyed follow their same cosmic laws as those that are not.
geology	law / heterogenous series	As paleontology, geology investigates organic remains of the past.; Thus the method of this science oversteps the boundaries of the physical sciences.
geography	law / heterogenous series	The geography of plants and animals as as anthropological geography, encroaches on the area of organic-technical reality. Geography nevertheless belongs within the physical group. Organic technical things are not treated in an organic-technical way., but in a geographical way, from the point of view of their diffusion, their existence, and their position on the earth's surface, along with the types of rocks, oceans, and deserts.

Methods in the Sciences of Being

Can be seen as a spectrum

Concept definition.

Creativity across the Sciences

The following distinctions might clarify our understanding of the proper sense of creativity: in the sciences.

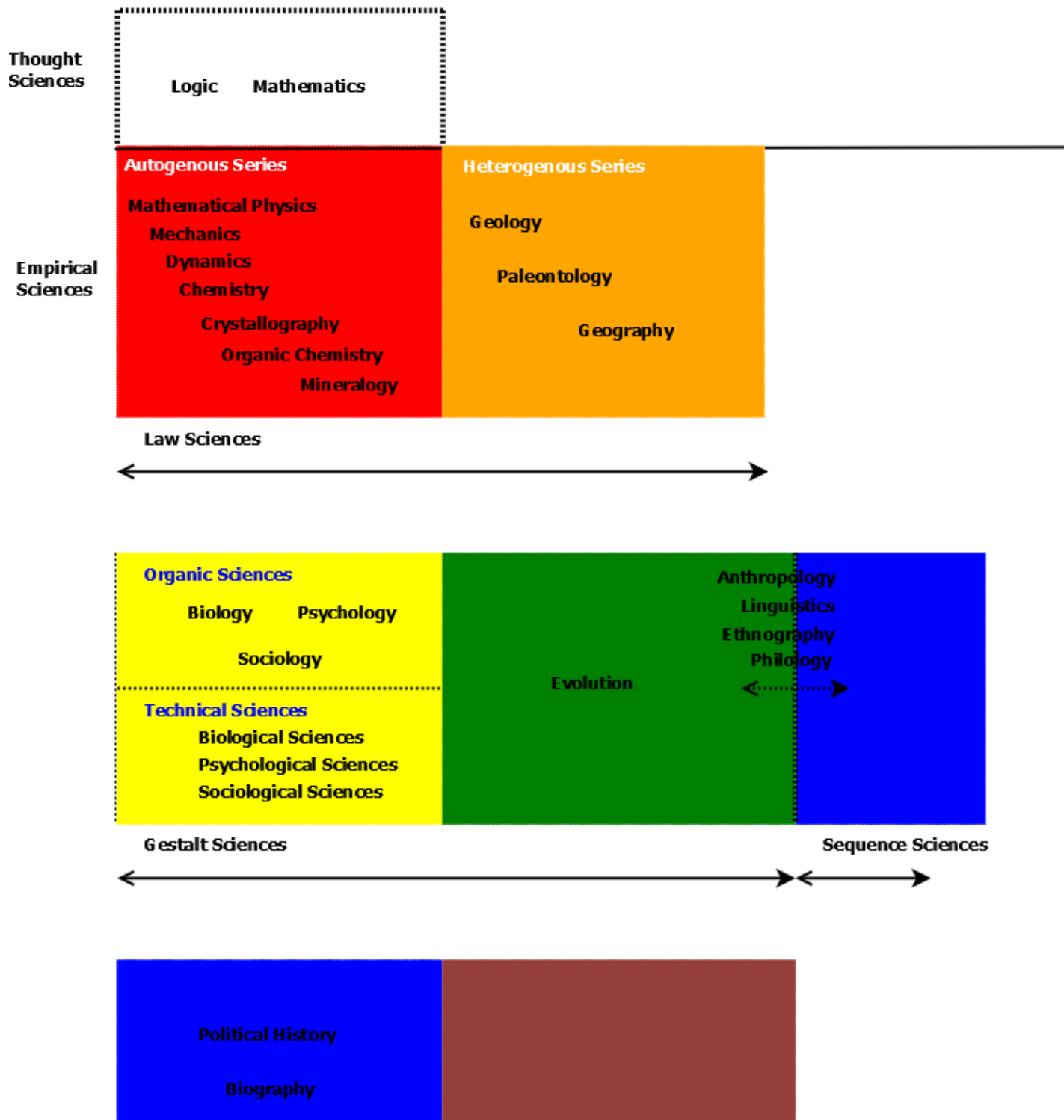
Science	Sense of "creativity"
Sciences of Thought	The object of knowledge is found .
Sciences of Being (Empirical Sciences)	The object of knowledge is discovered .
Sciences of Being (Technical Sciences)	The object of knowledge is invented .
Human Sciences	The object of knowledge is created .

The original discussion of this material is found in the section "Technology and the Spirit."

An Overview of the Sciences

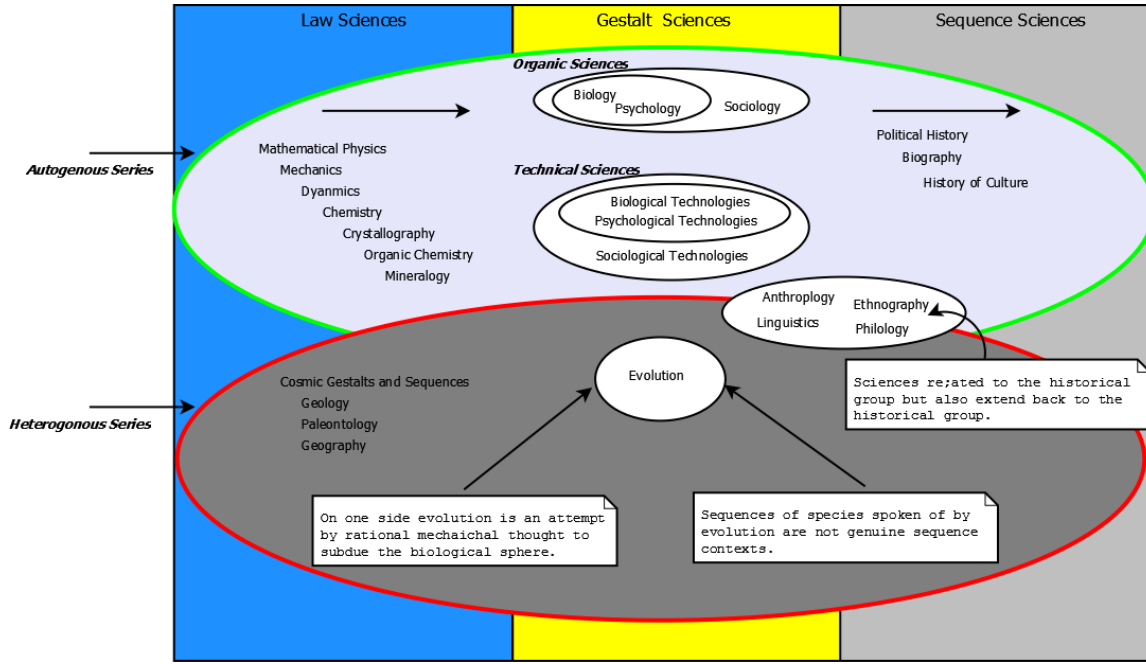
An overview of academic subjects according to objects and methods.

	Autogenous	Heterogenous
Law		
Gestalt		
Sequence		



An Overview of the Empirical Sciences

An overview of law, gestalt, and sequence sciences including auogenous and heterogenous uses of these goals of knowledge.



Alphabetical List of Academic Topics

A list of the academic topics discussed in the book and guide to their classification by the system of sciences according to objects and methods

Alphabetical list of academic subjects.

Academic Subject	Classification	Method	Notes on methods and objects
administration			
agriculture			
animal husbandry and breeding			
animal psychology			
anthropology			
archaeology			
arithmetic <i>Mathematics</i>	thought science		
astronomy <i>Law Sciences: Heterogenous Series / Cosmic Gestalts and Sequences</i>	science of being	law / heteogenous series	Astronomy is a heterogenous law science. Constellations are undoubtedly closer to being gestalts than is anything else in the physical sphere. Like crystals, constellations lack the immanent teleology by which isolated parts become members of the whole. Constellations can be destroyed, but the parts that are destroyed follow their same cosmic laws as those that are not.
biography			
biology			
biological geography			
chemistry <i>Law Sciences: Autogenous Series / Chemistry and Mineralogy</i>	science of being	law / autogenous series	Chemical formulas disclose the gestalts of phenomenal material. They symbolize the omnipresent elements of a cosmic gestalt. Nevertheless, these formulas do not reveal a total gestalt, for they are isolated from each other and are subject to the the regularity that ignores individuality. They belong to the physical sphere in spite of the heterogenous influence of the gestalt method.
child psychology			
chronology			
crystallography <i>Law Sciences: Autogenous Series / Chemistry and Mineralogy</i>	science of being	law / autogenous series	The <i>crystal</i> belongs to the physical sphere, but it is distinctive because it represents a structure that is concretely perceptible. The crystal is indivisible

Academic Subject	Classification	Method	Notes on methods and objects
			and uncompounded. It is grounded in the microstructure of dynamic substance. Nevertheless the gestalt character of the crystal is heterogenous. The crystal lacks the inner teleology, the organic connection of the individual parts, and the individual character, of genuine structure.
comparative linguistics			
cultivation of plants			
cultural psychology			
diplomacy			
dynamics <i>Law Sciences: Autogenous Series / Mechanics and Dynamics</i>	science of being	law / autogenous series	Qualities are considered only at a preliminary stage. The gestalt method remains heterogeneous.
dynamic chemistry <i>Law Sciences: Autogenous Series / Chemistry and Mineralogy</i>	science of being	law / autogenous series	
economics			Protection and advancement are both based upon preservation. The technical activity that is directed to the pure preservation of life is <i>economics</i> . Economics is the science of the rational satisfaction of needs. Economics as a science appears only when there is an economic subject. But man as a rational being is always present as an economic subject, not just as a natural being.
entropy <i>Law Sciences: Autogenous Series / Chemistry and Mineralogy</i>	NA		
ethnography, ethnology			
folk psychology			
forestry			
gardening			
geographical anthropology			
geography	science of being	law / heterogenous series	The geography of plants and animals as as anthropological geography, encroaches on the area of organic-technical reality. Geography nevertheless belongs within the physical group. Organic technical things are not treated in an organic-technical way., but in a geographical way, from the point of view of their diffusion, their existence, and their position on the

Academic Subject	Classification	Method	Notes on methods and objects
			earth's surface, along with the types of rocks, oceans, and desserts.
geology	science of being	law / heterogenous series	As paleontology, geology investigates organic remains of the past.; Thus the method of this science oversteps the boundaries of the physical sciences.
grammar			
gymnastics			<i>Homiletics</i> , as rhetoric on a theonomlus fioundation,, is a part of practical theiology.
historiography			
history of culture			
history of technology			
homiletics			
linguistics			
literary forms			
logic <i>Logic</i>	thought science		
logic of language			
mathematics <i>Mathematics</i>	law science		
mathematical physics <i>Law Sciences: Autogenous Series of the Physical Sciences / Foundation: Mathematical Physics</i>	science of being	law / autogenous series	
mechanics <i>Law Sciences: Autogenous Series / Mechanics and Dynamics</i>	science of being	law / autogenous series	Deals with homogenous, moving mass that is formed, like mathematical space, by definition. The empirical element in mass is indissoluble; this element is expressed in all the laws of mechanics.
medicine	science of being	Technical Science / Technology of Development	Medicine in the proper sense is only when present when the goal of preserving life determines scieitntific work. Medicine is a technology within the technology of development.
metaphysics			
metaphysics of history			Metaphysics is a special sphere of meaning standing alongside and above science.
military science			
mineralogy <i>Law Sciences: Autogenous Series / Chemistry and Mineralogy</i>		law / autogenous series	Mineralogy forms the transition to the heterogenous series of the physical sciences. Mineralogy is the description of those compositions of matter found

Academic Subject	Classification	Method	Notes on methods and objects
			on the earth. It investigates the laws of existing compositions of matter and is thus an extension of chemistry; it describes this matter from the point of view of its geological and geographical reality. Thus it leads to these sciences themselves.
natural history			
organic chemistry <i>Law Sciences: Autogenous Series / Chemistry and Mineralogy</i>			
paleontology			
pedagogy			
philology			
physiological psychology			
plant medicine			
political history			Political history is the history of historically significant social gestalts.
political journalism		<i>Political journalism</i> is concerned with both overcoming the spatial divisions of the social organism through the written word and forming a collective will despite these divisions.	
political science			
psychiatry			
psychology			
psychotechnology			
radio dynamics			
rhetoric			
sociology			Sociology contains biological and psychological elements, but it looks beyond these elements to its own object the social organism.
social hygiene			Social hygiene deals with the protection and development of the social organism on its biological side. This science is concerned with such important topics as population growth.

Academic Subject	Classification	Method	Notes on methods and objects
social pedagogy			<i>Social pedagogy</i> contains both technical and ethical elements. The doctrine of community shows which cultural goals the social organism ought to realize; social pedagogy finds means to realize these goals. On their technical side, the problems of popular education and training belong to social pedagogy, which, as the last of the sciences of social technology, forms transition to normative sciences themselves.
statistics			<i>Statistics</i> has practical and intimate relation to the sciences of technology. Yet it is not a science.; it is a method that can and must serve all the sciences, though it has especially important functions in the area of economics. For in economics, more than any other area, the description and supply of material depend on numbers. But at other empirical sciences, pure or technical, also use data that are subject to statistical count. Statistics does not have its own area within the empirical sciences. it belongs to the methodology of science.
textual analysis			
thermodynamics (theory of heat)			
veterinary science			
writing			