

Course 6-4: Elements of methodology

Location

6. Courses from 1990 to 1993

6.1. Elements of Philosophy of Thought and Methodology, 1990-1991, (EDM1-EDM71, 97p.)

6.2. Elements of harmology 1990-1991, (EH72-EH201, 157p.)

6.3. Elements of Logic, 1990-1991 (EL202-EL321, 351p.)

6.4. Elements of Methodology, 1990-1991 (EM322-EM363, 334p.)

6.5. Elements of Platonism , 1991-1992 (EP1-EP117, 147p.)

6.6. Elements of Platonic Psychology, 91-92, (EP1-EPS114, 150 p.)

6.7. Elements of Rhetoric, 1991-1992 (ER1-ER300, 356p.)

6.8. Soloviev Cosmology, 1991-1992 (SK1-SK65, 78p.)

6.9. Apocalyptic Theology, 1992-1993 (AT1-AT71, 79p.)

6.10. The Healing of a Man Born Blind, 1992-1993 (GB1-GB85, 104p.)

6.11. Elements of thinking, 1992-1993 (logic) (ED1-ED79, 91p.)

6.12. Elements of Rhetoric, 1992-1993 (R1-R61, 70p.)

6.13. Elements of Philosophy of Culture, 1992-1993 (CF1-CF84, 92p.)

Note: *This course has been spaced larger than the text of the original course. References in the older version of this text therefore do not correspond to the current pagination of 'Word'. For this reason, the original pagination is displayed each time with the letters 'MET'. They stand for 'Elements of METHodology ', and are derived from the old page number.*

Introduction:

This course is about reality, about bringing up everything that exists, however it may be. The Ancient Greek ' to ' Ontes ' means 'to be', 'to exist'. We inherited many insights regarding this from ancient Greek culture. Hence, we speak of 'ontology' or the study of being. The existence of 'being' is also the premise of this course. Yet, reality remains particularly complex for us humans. We cannot help but limit ourselves to samples. We do this through generalization and generalization . By generalizing—attempting to surmise the collection of existence—and generalizing —forming a view of the whole—we can form somewhat of an idea of reality. We arrive at basic concepts and basic judgments. We order reality, both around us and within ourselves. This leads us to a harmology , a theory of order, and to logic. In doing so, we arrive at concepts that we use when formulating judgments. We then attempt to relate these judgments to one another in a meaningful and logical way to form valid judgments.

Here are the four major parts of this course:

6-1: Elements of theory of thought and methodology (sample 1 to 10, p. EDM1 to

EDM 71)),

6-2: harmology (sample 11 to 25, p. HAR72 to HAR201),

6-3: Logic (sample 26 to 41, p. LOG202 to LOG321) and

6-4: applied logic or methodology (sample 41 to 46, p. MET322 to 363).

The page numbers in the four parts simply follow one another.

Contents: Click on the section you wish to read.

Course 6-4: Elements of Methodology	287
42.-- Methodology (applied logic) (322/328).	288
43.-- Methodology (theory). (329/335)	296
44.-- Methodology (direct and indirect (method). (336/343)	304
45.-- Methodology (the phenomenological method). (344/353)	315
46.-- Methodology (the arithmetic or formalism method). (354/363)	326
Study Notes.	338

C.6-3 Elements of harmology

MET322

42.-- Methodology (applied logic) (322/328).

Bibl . st.: regarding the Platonic methods:

-- V. Goldschmidt, *Les dialogues de Platon* (Structure et method dialectiques), Paris, PUF, 1947 ;

Regarding Socratic methods:

a. E. De Strycker , *Concise History of Ancient Philosophy* , Antwerp, 1967, 90 (dialogue), -- 73/ 75 (induction);

-- **b.1** . E. De Strycker , oc, 103/104 (*hypothetical method*);

-- W. Klever, *Dialectical Thinking* , Bussum, 1981, 28/55 (*hypothetical method*);

-- EW Beth, *The Philosophy of Mathematics* , Antwerp/Nijmegen, 1944, 29/56 (anamnestic method; stochiastic method);

-- E. De Strycker , oc, 104/105 (*dieretic -synoptic method*);

-- R. Baccou, intr./trad ., Platon , *La république* , Paris, Flammarion, 1966, 445/458 (mathematician methods);

-- b.2. O. Willmann, *Abriss der Philosophie (Philosophische Propädeutik)*, Wien, Herder, 1959, 137 (lemmatic -analytic method).

That is just about the most important thing. We have already provided quite a few determinations and examples— apart from the strictly mathematical and the anamnestic (= reincarnistic) methods.

Bibl . st.: regarding general works.

-- IM Bochenski , OP, *Philosophical methods in modern science* , Utr . / Antw ., 1961 (1. Phenomenological method ; 2. semiotic method ; 3. axiomatic meth .; 4. Reductive meth .);

-- Ch. Lahr, SJ, *Logique* ; Paris, 1933-27, 533/659 (Logique applique ou méthodologie) (La science et les sciences ; -- Méthode générale (L'analyse et la synthèse) ; Particular methods (Sciences mathématiques, de la nature (physico-chimiques, biologiques), morales et sociales (= humaines) (histoire, sciences sociales)).

The concept of 'approach' (method).

' Methodos ', in Ancient Greek, means 'the way to a goal'. The concept of 'purposefulness' radically governs every rational, spirit-based method. This encompasses, and above all, the principle of economy or conservation: achieving the goal with a minimum (minimization) of means.

Logic and methodology.

Logic can be defined as the theory concerning the presuppositions that govern every valid inference.

Methodology then becomes the application: it is the theory concerning the presuppositions that govern valid inferences once they are at work outside the realm of strict logic.

MET323

Epistemological definition.

As has been stated many times: the science of science, indeed, the theory of knowledge, is the theory concerning our knowledge insofar as it encompasses truth—the truth concerning reality. If logic is interested in deductions, then epistemology is interested in truth.

Let us consider the definition of Ch . Lahr , **Logique** , 548: “Method is the collection (and the system) of working methods - 'processes' - which the

human mind ought to apply (1) in the course of the work of inquiry . (Note - what Herodotus would call ' historiè ', gathering of information) - and (2) the argument

Note -- what Herodotus would call 'logos', text - , insofar as these two are attuned to truth". -- With this method of definition, Lahr distances himself

(a) against pure logic, which is not interested in truth but only in valid inference, and

(b) against all sepsis, i.e. doubt as to whether truth is simply possible in our knowledge, -- 'skepticism' then in the extreme sense.

Logic and methods in the specialized sciences.

When we review the list of Lahr's methodological chapters, we see an order of sciences: mathematics – natural science and biology – humanities – or social sciences (which up to and including 1950 were called 'moral and political' sciences).

One can, of course, classify the sciences in many ways. – But Lahr's order does not seem so bad, even today. As evidence: D. Nauta, *Inleiding tot het modelbegrip*, Bussum, De Haan, 1969, 43/47 (Classification of the sciences and a first ordering of the model concepts).

Oc, 44, ranks Nauta as follows:

a. formal sciences (mathematics/logistics);

b . empirical sciences: natural sciences (astronomy, geology, physics and chemistry, -- biology); -- 'Social' (note: better would be: human) sciences (psychology, -- sociology, cultural studies); -- applied sciences (technology).

Decision.

Once outside pure logic, one is dealing with either the whole of reality (ontology) or subfields thereof (specialized sciences). The approach—method, manner of approximation—although governed by one and the same logic, reflects the object. Hence, every science develops its own methods.

Sometimes people speak of the “own logic” of every science. This is a metonymic way of speaking: one speaks of applied logic in terms of pure logic. In fact, it concerns “an own application of logic”.

MET324

Towards a definition of strict specialized science.

Bible st . : -- Fr. Guéry , *L'Epistémologie* (Une théorie des sciences), in: A. Noiray , dir ., La philosophie, Paris, 1969-1, 1972-2, t. I, 135/178;

-- P. De Meester et al., eds., *Science Now and Tomorrow* , Leuven, University Press, 1989. P. De Meester et al. divide the sciences into four sectors:

a. Humanities and behavioral sciences, including more recent ones such as literary studies, musicology, anthropology (ethnology), communication science ;

b. Natural sciences and technical sciences, as well as medical sciences, including the more recent ones such as computer science, artificial intelligence, molecular biology, mechanics and robotics, -- furthermore: human heredity and embryology, infections and immunity, neuroscience. -- The question arises: how exactly does one define such a specialized science?

Tangible and formal object.

This pair of concepts is Scholastic, but it remains useful.

Appl . model -- To take an example from G. Hegel (1770/1831), the great German or Absolute Idealist, we take a beautiful apple.

That is the material, the undefined , not yet interpreted object. Cf. EDM--LOG 292: that is grasped by meaning -giving.

b.1. A girl comes home from school hungry, full of appetite: for her, that apple is something edible that satisfies her appetite (= first meaning -making).

b.2. A dendrologist (tree expert) confronted with the same apple sees it as the fruit, successful or not, of a type of 'tree', (= second sentence construction).

b.3. A painter sees the same apple as a beautiful model, as an object "to be painted" (= third sentence construction).

Conclusion . -- Scholastics (800/1450) will summarize: "The same appeal, material object, -- three times formal object (object of interpretation)".

Note : Translated into the language of cognitive psychologists: the respective understanding that girl, dendrologist , and painter have of the same reality is selective (selecting, sifting): "Only the relevant in the object is brought forward by the concept." (R. Pinxten , *The Notion of Concept in Cognitive Psychology (An Overview and Critical Analysis)*, in: Philosophica) Gandensia , Meppel, New Series 10(1972): 14/42).

Note : Ch . S. Peirce would see this as confirmation that man, indeed every being, is an interpretant (interpreter, meaning-giver).

MET325

The opinion of Fr. Guéry . (324/326)

His definition of science can be summarized as follows.

A.-- Tangible object.

Anything whatsoever—for some time now there has even been a 'skandalology', the science of (political and other scandals)—can be the object of scientific research and text formation. The only condition: it must be firmly delineated from the rest. Now reread EDM--LOG 306v. (limitedness of authority).

Even the 'domain' of ontology, although it attempts to explore all reality (collection) and the whole of reality, is delineated: it concerns reality insofar as it is real, -- not this or that reality. -- One might call this a first form of working ' abstractly '. Or, with Edm . Husserl, the intentional Phenomenologist, a first form of 'reduction' (reduction to a single domain). The 'true craftsman' in matters of science limits himself, specializes.

Remark.

Guéry limits, apparently by definition, the domain of the sciences to the 'worldly' (secular). -- Now reread EDM 18 (transempiricism, transrationality).

Such a position bears a strong resemblance to 'ideology', namely secularism, that is, the unwillingness to acknowledge that the concept of 'reality' possibly extends beyond the domain of these earthly, visible, and tangible data. In any case, it is a type of exclusive thinking.

Appl. mod.-- Bibl. st. : Découverte . -- *Crapauds contre infections* , in: Journal de Genève 30.12.1987. -- Real research work - 'history', in Herodotos' language - knows no exclusivism: it is inclusive, inclusive.

(1) People are well aware of the remarkably repulsive custom of witches and other occultists to prepare some 'brew' or other in a cauldron - the notorious witch's cauldron - (for example, to cure).

(2) Well, it turns out that one of the elements of the preparation consisted in "throwing a toad into the boiling cauldron". -- Hegel says somewhere that everything man does "is in some way rational, reasoned, justifiable and therefore real, which is supported on something real.

Now to the point . -- the 'accidental' discovery by M. Zasluff .-- Zasluff . -
- Zasluff , biologist (National Institutes of Health USA), used toads of the genus *Xenopus* for his experiments .

a. One day he was struck by the speed with which these little animals recovered once they had undergone surgical treatment, -- in non-sterile water.

b . He thereby conceived the idea of attempting further experiments.

MET326

'Lemma': as a 'hypothesis', he formulated the fact that the *xenopus* could contain 'something'—an 'x', a 'black box' perhaps—that strengthens the defense system ('immune system'). From there, he designs (progressive deduction) a series of experiments.

The result.

This amounts to a series of inductances.

1.1. Zasloff discovered a new class of molecules with microbe-killing properties. He named them—after the Hebrew word 'magain' (shield)—'magainins'. These are two small proteins that are present in abundance in the skin of amphibians. Remarkably, they represent a defense mechanism independent of the immune system. They appear capable of rapidly inhibiting the proliferation of numerous species of bacteria, fungi, yeasts, and even protozoa (single-celled organisms).

1.2. From this summative to an amplificative induction: warehouses may eventually serve to treat numerous contaminations.

2.1 . Zasloff succeeded in isolating the gene that controls the magainins .

2.2. Amplificative induction: wouldn't such molecules also occur in humans?

Note -- The work of Paul Feyerabend , one of the four great epistemologists , is well known, namely * *Against Method* *. In that work, he argues for an 'open', inclusive epistemology, -- against what he calls “the proliferation of scientific hypotheses”! Here we have a brief application of that:

a. outside of any conscious method Zasloff discovers a fact by chance –
i.e. non-methodically;

b. The fact that Premodern occultists made real discoveries somewhere, mantically (EDM--LOG 242: Primitives also think and have intuitions that are valid; see also EDM 41: Postmodern openness), gives pause for thought: 'proliferation' in science also means that one grants even Primitive, 'mythical' (EDM 05) people with their hypotheses a place within the strict, 'rational' framework of our current science.

Conclusion -- Secularism in defining science is not entirely justifiable.

B.-- formal object.

How does the scientist, now, approach the material, unidentified object?
Guéry : by means of:

I. Description (diachronic: story),

II. Explanation (hypothesis) with testing of the explanation, In Herodotus' terminology; by means of 'historians' (Lat.: inquisitio , investigation of the data) and 'logos' (Lat.: ratio, text).

MET327

Whereby the emphasis seems to fall on the intersubjective character: not the individual, the scientist alone, but “the scientific community” are the actants . -- In the language of Peirce : ' sensus catholicus ' (general opinion). In that of Josiah Royce (1855/1916; American Idealist): “ the interpreting community” (the interpreting community).

Explanation .

Library st. :

-- Claude Bonnafont, trad., Colin Roman, *Histoire nationale des sciences* , Paris, Sueil ;

-- JD Bernal, *The Dimension of the Scientific Revolution* , in: Br. Tierney et al. , ed., *Great Issues in Western Civilization*, II, New York/Toronto, 1967, 4/17;

-- H.Fr. Judson, *On the Barricades* , in: *The Sciences* (New York), 1985: July-August 54/59 (a discussion of I. Bernard Cohen, *Revolution in Science* , Harvard University Press).

Egyptians, Greeks, Arabs, -- Chinese, -- they all founded 'science', each in their own way. But from the 17th century onwards, modern science gradually becomes, through a whole series of revolutions, -- scientific revolutions, that is --, an all-pervasive fact.

Bernard Cohen is a critique of Thomas Kuhn, *The Structure of Scientific Revolutions* (1962), in which a distinction is made between 'normal' and 'revolutionary' science, -- depending on whether the practitioners follow an established pattern ('paradigm') or establish a revolutionary pattern.

Cohen has three remarks.

a . The concept of 'paradigm', in Kuhn, is fluid: at one moment an exemplary method, at another a set of presuppositions;

b . a turnaround, a 'revolution', in science is therefore an abrupt replacement of one paradigm by another, representing a gap;

c . consequence: the concepts, the theories before and after such a reversal, are not comparable (gaps, fractures).

Which Cohen doubts. He distinguishes a four-phase revolution.

1. Someone, an individual, or even a small group discovers a new view (interpretation) based on facts (data) -- which is the actual 'revolution'.

2. In private circles, the new discoveries are still being recorded in texts (notes), in the genuine conviction that a revolution is being experienced.

3. The opinion is published -- among friends, colleagues, -- in the world of scientists. What Cohen calls "the revolution on paper".

4. The reaction of the scientific world follows - "the scientific community."- . Remarkable: these four phases can extend over decades, indeed, over centuries. Like, for example, the Copernican revolution.

MET328

The opinion of the Starnbergers .

The material— undefined , discovered through conception of meaning— object—that is one; the formal object—an approach from a perspective (Fr. Nietzsche) or a special viewpoint—that is two. Guéry sees this clearly. Yet the formal object is defined by more than the method applied over time by the research community.

Library st. :

-- G. Böhme ua ., *Alternativen der Wissenschaft* , Frankf.aM ., Suhrkamp, 1980;

-- id., *Die gesellschaftliche Orientierung des winsttschaftlichen Fortschritts* , Frankf . aM, Suhrkamp, 1978;

-- M. Deblonde , *Science in the service of emancipation ?* (The Starnberger model), in: Streven 1990: April, 640/650.

Reread EDM--LOG 310 (externalism / internalism), -- 307 (stubbornness / preference).

a. The ' Starnberger ' Gruppe ' is a metonymy for a group of researchers working at the Max Planck Institute in Starnberg near Munich. Names: Gernot Böhme, Wolfgang van den Daele , Wolfgang Krohn, Wolf Schäfer.

b. Main theme: internal scientific development insofar as influenced by external, primarily political factors. This since the rise of the Modern sciences, particularly in the course of the 17th century.

The Starnbergers are far from alone: at the 32nd Flemish Philologists' Congress (Leuven 1970), internal questions (questions of what and how , i.e. concept formation and method) as well as external questions (questions of why, i.e. ethical- political consequences) of the humanities were explicitly discussed.

Incidentally : this is one of the many possible applications of the internal and external equation (EDM--HARM 131).

We ourselves have already briefly pointed out the purely economic factors, -- EDM--LOG 307 (economic return on scientific practice). -- The Starnbergers place particular emphasis on political elements that determine scientific practice.

a. Researchers, so to speak, only aim for 'free' (free from any external influence) research.

b . In fact, this is very often the cover for political decisions, according to the

Starnberger Capitalist decisions. With the result that the practice of science by the researching community does not have an 'emancipatory' effect on society as a whole.

Conclusion . -- The so-called inquiring community merges, as regards objective determinations, with the economic and the political community . -- here , is not merely a characteristic of the Capitalist West alone.

MET329

43.-- Methodology (theory). (329/335)

Let us briefly reread EDM--LOG 227 (Platonic ' theoria ').

In the ancient sense, 'theory' means 'insight', especially “insight into presuppositions”. -- That meaning lives on to this day, but updated (adapted to the current situation, re-established).

Two statements.

Joh. W. Goethe (1749/1832; German poet) once wrote a little sentence, strongly Romantic in nature: “Grau, mein Freund , ist alle Theorie und green of life goldner Tree ” (Gray – colorless –, my friend, is all theory and green – colorful – the golden tree of life).

The Romantics situated everything—including the science of the Enlightened Rationalists—in life (i.e., the cosmos as the coherence of life). Yet it is apparently not that simple: Carl Rogers (1902/1986) once affirmed the saying of Kurt Lewin (1890/1947): “nothing is as practical as a good theory”.

Definition

The term 'theory' has more than one meaning.

A. Based on a given—e.g., the political situation, e.g., art—people design a more or less coherent 'system' of opinions, which is then called “political theory” or “artistic (aesthetic) theory”.

B. Based on a number of data (summative induction), scientists develop a more or less—preferably strictly—coherent system of propositions (judgments) such that the data become understandable (explained).

Note : Sometimes the verified part of a science is contrasted with the possibly verifiable part, which is then called 'mere theory'. For example, Ch . Lahr , *Logique* , 598s.

So too A. Chalmers , * *What is called science ?* (On the nature and status of science and its methods), Meppel/Amsterdam, 1981. This work discusses the four great epistemologists - Karl Popper (1902/1994), Thomas Kuhn (1922/1996), Imre Lakatos (1922/1974), Paul Feyerabend (1924/1994). Central to this is the formation of theory (its origins and ongoing developments).

But listen: according to Chalmers himself, theories are 'constructions' (products of the mind) – alongside 'reality'. They represent 'reality' only insofar as it manifests itself in the very practice of the research work . Which, properly understood in our language, amounts to the fact that of the material, only the formal object comes through, namely an interpretation, however well-founded it may be.

MET330

Two main types: Deductive and inductive theories.

Theories reflect types of reasoning.

Let us now briefly reread EDM--LOG 318/319 (the four Platonic main types of reasoning).

A. - Deductive type.

We encountered two examples of deductivism .

a. *Dialectics.* EDM--HARM 159. -- The basic concepts of 'totality', 'change' ('movement'), 'qualitative leaps', and 'purification' ('synthesis on a higher level') determine the strongly deductive framework (pattern) of the Hegelian and Marxist methods. Systematically and consistently, Hegel and Marx approach all data with these four axioms in mind (which constitutes their formal object).

b. -- *Formalized systems* . Now reread EDM--LOG 256/259 (Peano's number definition). 'Primitive' concepts and judgments (axioms) form the presupposed part. From there, one reasons on, -- deductively. Since one starts from 'axioms', this method is called “the axiomatic-deductive method” in the stricter sense. -- Indeed: compared with Hegel's and Marx's dialectics, the stricter logic stands out here, in the sense that one pays close attention to the very limited number of presuppositions and to the very precisely defined rules of deduction (di procédés applicable to the operations).

Note : Do not confuse the term 'rules' (in operations) with the term 'laws' (generally valid theorems). -- In Platonic language: 'synthetic method'.

B. - Inductive type.

We summarize, as best we can, an inductive theory, namely EDM--HARM 164/184 (chaology). Here, a number of axioms are not presupposed, which are then applied methodically. No! First, there were, for example, laboratory results of a chemical nature. If one wanted to make these understandable (explained), they necessitated a rather drastic re-establishment of Modern natural science. In Platonic terms: one proceeded 'analytically', that is, by asking backwards about the secret presuppositions. Inductively.

“Hard and soft science”

'Hard science ' / 'Soft science '. -- This pair of concepts can be used in more than one sense.

Operationalism .-- Also ' Operationism '.

Bibl. st .: Bridgman, *The Logic of Modern Physics* , New York, 1927-1, 1960-2.-- Defining within an 'operational' framework - EDM--LOG 250; -- 254 - is defining in terms of 'operations' (actions, operations).

MET331

According to a Bridgman, there is also what follows.

1. Every scientific activity makes use of the necessary infrastructure (e.g. measuring instruments, observation devices) as an extension of exact sensory observations.

2.-- Every scientific activity develops into some form of measurement.

Appl . mod .-- The physical concept of 'length', for example, is defined exclusively by the methods which, equipped by infrastructure and associated calculations, measure a singularly concrete length.

Appl. model -- Bibl. st. : S. Erkman, *Accélérateurs de particules* (Histoire du plus long défaut du moins : in : Journal de Genève 09.02.1991.-- Well known is CERN (European Centre for Nuclear Research) in Geneva, with its ring-shaped tunnel, about a hundred meters underground, 27 km long. Purpose: microphysical experiments. - To study the hair-fine structure of matter, particles (protons, electrons, quarks) are accelerated around and made to collide.

In the first trials (1988), the particles behaved “a bit strangely”. Months of testing (measurements, hypotheses of all kinds) revealed that the nickel (a magnetic substance), within the magnetic field created by the large magnets surrounding the kilometers-long empty chamber, causes disturbances. The result: the tested particles do not follow exactly the intended path. Result: the entire experiment is partially spoiled.

Conclusion . -- Hard science apparently sets very high technological requirements.

Analogy . -- For Bridgman, Operationalism was primarily a method within physics.

Some social scientists have sought to extend them to the human sciences. Thus psychology: Stevens (1935; 1939), Tolman (1936). Likewise sociology: Lundberg (1953), Zetterberg (1954). Every 'subjective' (or dismissed as 'subjective') aspect of those human sciences had to be banished at all costs:

introspection, vitalistic and finalistic concepts, etc. Actions determined by measurement methods predominate.

J. Piaget (1896/1980; genetic psychologist; Structuralist) was of the opinion, in 1967, that according to Operationalism , the element of “human intervention” in science distorts “objective reality” (note: the material object). The goal of the operational method is to definitively eliminate that disruptive factor.

MET332

Falsificationism (K. Popper) .

K. Popper, the renowned epistemologist , believes much more in falsification (testing with a negative result) than in verification. -- To briefly clarify this subtle difference, consider the following.

Bibl . st.: AP, *Commonly used drug worsens Alzheimer's disease* , in: De Nieuwe Gids 30.08.1990.-- It is the New England Journal of Medicine that broke the news.

1. Hydergine

Through August 1990, Hydergine was number eleven on the list of the most prescribed medicines in the world. It had been on the market for twenty years. -- In the USA, it was even the only approved drug for Alzheimer's patients (a type of premature insanity), for whom it was intended to counteract a number of symptoms (related to memory loss).

2. Assessment.

a. Structure. -- Number of subjects: 80. -- Administration of a placebo (pseudomedicine without any active substance) and of doses of hydergine . –

Randomization meant that neither patients nor doctors knew who had received what. This was to eliminate the influence of positive or negative thinking (EDM 35) (something that sometimes plays a decisive role in healing, as all doctors—if honest—can observe daily).

b. Result. -- Those who received hydergine deteriorated faster than those who were administered a placebo. To the researchers at the University of Colorado School of Medicine, the result was 'surprising', indeed, a mystery. -- It is quite possible that the patients who were 'treated' with hydergine for twenty years, as well as their family members and acquaintances, do not know about this.

One wonders what observational skills all those doctors have displayed all this time. Is it any wonder, then, that Operationalists want to eliminate “the human factor” in research work ... in order to take only material test and visible results seriously? Operationalism has sometimes been subjected to very harsh criticism. And rightly so: the human factor can occasionally work for the good, defying any infrastructure and measurements. But the Hydergine incident proves that this same human factor sometimes acts very negatively—'subjectively,' say the operationalists — when doctors test medicines .

Is it surprising, then, that more and more patients, upon discovering the observational shortcomings of 'scientifically' trained doctors, end up with 'quacks'?

MET333

Science and Postmodernity.

Reread WDM 41.

Bibl . st.: G. Lernout , *Postmodernism* , in: Streven 1986- Oct.), 33/44.
Lernout 's theorem boils down to this.

A. - A certain classical tradition regarding philosophy and sciences

This places—what he calls “the architectural metaphor”—at the center. What does that expression mean?

(1) Thinking, if worthy of the name, is thoroughly logical.

(2) The question of presuppositions – whether forward (deductive thinking) or backward (inductive thinking) – is also central. Among the presuppositions – called 'foundations' or 'bases' – there are those that are a. strictly provable and b. eternal. The rest are uncertain or, at least, disputed.

Now the metaphor, covering a comparison: just as a building rests on foundations, on a true pedestal, on “solid ground,” so too does our thinking rest on a solid pedestal, those eternal, strictly provable foundations. Which is why one might call it ' Foundation (al)ism' or 'Fundamentalism'.

B. -- The Postmodern feel of thinking is completely different.

The “network metaphor” applies here.

(1) Thinking, as it actually takes place—the classical tradition would say here: as it is applied—is anything but 'logical'.

(2) Moreover, it lacks foundations (eternal, apodictically certain proofs). -- What is it then?

(1) Working logically amounts to combining (combinatorics; EDM--HARM 145) ideas into a network.

(2) To proceed logically is to constantly absorb changes, given that, inductively, the reality in and around us (the entire moving cosmos) is constantly subject to change, rise and fall, for example.

The metaphor: just as a weaver weaves a bird's net that floats in the air, so too does our 'thinking': we constantly 'weave' views of life and the world of all kinds—including “philosophical systems of thought” that come and go—scientific theories that come and go—all this detached from the 'reality' (who knows exactly what it is?) outside of us.

In a multicultural world like ours, such Postmodernism can rely on more than one indication pointing towards the weaving of ideas into networks of ideas.

Conclusion -- Instead of a solid thinker, man is not rather like Constantine Guys (1805/1892; Dutch artist) and Charles Baudelaire (1821–1867; *Les fleurs du mal* (1857)), who considered themselves uninvolved 'strollers' amidst all those changes ?

MET334

Remark.

The inductivism that we have advocated since the beginning of the course offers a solution here. Provided, at least, that one does not restrict induction to the metaphorical-set theorem, but extends it to the metonymic-system theorem (EDM --LOG 237; EDM--LOG 319 (inductive syllogism), -- in a Platonic-hypothetical sense (EDM 02).

This means that:

(1) our conceptions (EDM-LOG 292) are merely samples in the total (set/system) reality and

(2) our sentence structures rely only on those samples, -- are 'founded'.

The concept of 'sample' is the lifeblood of our inductivism . Or, if you will, 'philosophy of sampling'. We do, admittedly, have an immediate intuition of 'collection' and 'system' (we think metaphorically and metonymically).

But the application is reminiscent of Platon's method, as we have outlined it in EDM--LOG 227 ('theoria'). This always revolves around three main matters (EDM--LOG 225, namely (a) names, terms, concepts, (b) whose content is clarified in the definition, insofar as possible at a given moment, and whose scope is clarified singularly and concretely by means of examples (called 'phenomena', -- 'images' of the 'idea', in Platonic interpretation). - In education this is called the visual method, -- where 'visualization' means the direct confrontation with both the examples and the definition(s).

Practical:

Our inductivism implies, regarding observation, i.e. conception of meaning, that it, as a sample, is always subject to errors. Consider the twenty-year-long 'observations' of the physicians regarding hydergine (EDM--METH. 332): all those years they observed either not at all or observed too little—in both cases erring—what exactly that hydergine did to the sick. Our inductivism implies, regarding reasoning, i.e. conception of meaning, that it, supported by sample observation, is subject to errors.

Conclusion . -- Our inductivism is both architectural -- it relies on observations and on reasoning (presuppositions) -- and a network; it sees through the narrow limits of perception and reasoning of the 'architectural edifice' that is our knowledge, including scientific knowledge.

Herodotal : our 'historia', information gathering, and our 'logos', text (exposition), are both 'inductive', based on sampling.

MET335

Critique of ideology.

This name actually denotes 'ideological science', because it describes and evaluates—what is called—'ideology'.

Library st.:

-- C. Hertogh , *Bachelard and Cnaguilhem* (Epistemological discontinuity and the medical concept of norms), Amsterdam/ Berchem, 1986;

-- J.-Fr. Rolland, *Un dimanche inoubliable* , Paris, Grasset.

There are many definitions of 'ideology'. Historically, it originated following Destutt de Tracy (1754/1836), * *Eléments d' idéologie* * (1801/1815). In that book, the term means “intellectual, and especially epistemological, psychology”.

We adhere to Canguilhem 's definition .

a. With regard to knowledge – 'cognition' – there is, first of all, what is called “pre-scientific knowledge”

b. Once the sciences have introduced data (information) and 'rationality' (reasoning), the pre-scientific element quietly melts away.

However, opinions differ here.

a. G. Bachelard (1884/1962; epistemologist) sees an absolute break between pre-scientific knowledge and the actual rigorous sciences.

b . G. Canguilhem (1904/1995, epistemologist) sees only a relative break: there is always something pre-scientific and non-scientific within actual, even rigorous science itself. In short: if 'ideology' is the preliminary phase of science insofar as it is non-scientific knowledge, 'ideology' is simultaneously, within science, what is its preliminary phase.

In other words: this is one argument in favor of the network proponents (of the Postmodernists). After all, anything that is a preliminary stage of science is certainly subject to suspicion, due to the fact that it is inherently unexamined .

Jacques-Francis Rolland , *Un Sunday inoubliable* (près des casernes) is a description of ideological collapse. -- Rolland is a former Communist.

The book, a novel, tells the story of a certain Pierre Mesleau de Die, of bourgeois origin, yet full of Marxist ideas. The “Unforgettable Sunday” is set in March 1943. Pierre actively participates in an assassination in Grenoble for the first time. -- But for years he endures the 'death' of his youthful ideology. -- The work received “ le Grand Prix de l'Academie Française”. –

Such works illustrate, albeit in a literary manner, that even what calls itself “scientific socialism”—the Marxists pride themselves on having fused 'science' and 'socialism'—is not without ideology.

MET336

44.-- Methodology (direct and indirect (method). (336/343)

Apart from a few Early Socratics , about which more later, the following were mentioned:

-- Ch. Lahr, *Logique* , 547 (L'esprit de finesse et l'esprit de géométrie);

-- IM Bochenski , *Philosophical methods in modern science* , Utr ./ Antw., 1961, 250 (Classification).

First, a brief explanation of the 'esprit de finesse' and the 'esprit de géométrie'. Lahr derives this system from Blaise Pascal (1623/1662; to *De l'esprit géométrique* (1654)).

(1) Visual acuity.

Note: 'finesse', in French, can mean that. "La finesse de l'ouïe " means "the sharpness, 'sensitivity', of hearing."

Lahr describes: perceptual acuity sees the data "d' une "seule vue" (suddenly). - If perception is hesitant, then perceptual acuity adheres to the most probable, to approximate 'perceptions' (intuitions). In that case " il conjecture , il suppose , -- au besoin il divine " (he guesses, supposes, -- if necessary he speculates). Hypotheses spring - thus Lahr - from perceptual acuity. Conclusion. -- direct knowledge.

(2) Reasoning mind.

Note: in French, for example, "esprit géométrique " means "rational thinking". -- Deduction—according to Lahr —characterizes the reasoning mind.

Decision -- indirect knowledge.

Note : Following in Pascal's footsteps, Lahr argues that both together constitute true knowing.

Note -- Francis Bacon of Verulam (1561/1626), in his *Novum organum scientiarum* (1620), in which he proposes a thorough reform of scientific work, characterizes what Pascal (Lahr) says as follows.

(1) Empirical method.

The Empiricists—a type, especially Anglo-Saxon, of Enlightenment Rationalists—resemble ants: they confine themselves to accumulating isolated data. -- Think of Herodotus' *historia* , the gathering of data.

(2) a priori method.

The A prioris —another type of Enlightenment Rationalists—following primarily Descartes—resemble spiders: from their own minds they weave beautiful webs (theoretical views), independent of empirical data. Think of Herodotus' *logos*, the composition of a closed exposition (text formation).

(3) experimentalist method.

The Experimentalists – according to Bacon – resemble bees:

- a** . they extract honey from flowers,
- b** . of their own essence they produce nectar from it.

MET337

Conclusion . -- The experimentalist—at least the real one—combines observation (data) and reasoning (closed text). This is how real science builds itself.

The Opinion of Father Bochenski .

The methods of direct knowledge—among which Husserlian Phenomenology occupies a place of honor—exhibit, according to Bochenski , two aspects:

- a** . The spiritual 'contemplation', (the comprehension of meaning);
- b** . The description (or story, if necessary) of what was 'observed' (construction of meaning).

Note : One can add model making, e.g. in the computer field, to this: there, too, a. there is 'viewing' of data, b. which is 'described' (represented) in the 'model'. – The indirect methods fall into two large groups.

1. Language analysis.

Due to the very large role that language plays in virtually all sciences—think of terminology—language analysis is an absolute necessity.

Incidentally : revisit EDM--HARM 84 (logical syntax), vrl.98/105 (Sign and model). Revise EDM--HARM 94 (language systems: formalization); 145 (combinatorics). -- Bochenski also calls such methods 'semiotic methods' (oc, 45/89).

2.-- The reasoning methods.

Here Bochenski distinguishes two main types.

- a** . The deductive method.
- b** . The reductive method.

Note .-- Bochenski relies on William Stanley Jevons (1835/1862; The Principles of Science (1874, a treatise on logic) and especially on Jan

Lukasiewicz (1878/1956; Aristotle's Syllogistic (1951)). They distinguish two main types of indirect knowledge.

The deductive type : if A, then B; well A; therefore B;

The reductive type : if A, then B; well, B; therefore A.

Both lines of reasoning prioritize the principle of sensibility (principle of necessary and sufficient reason) (EDM--LOG 300),-- expressed in the first antecedent: “if A, then B (intelligible, explained, justifiable): But in the deductive case the antecedent is realized ('analytical' reasoning, in Kant's terminology); in the reductive case, however, the concluding clause is realized first and foremost and the antecedent is sought in the conclusion,-- as a hypothesis for explanation.-- Which Platonically amounts to forward and backward dialectics (EDM--LOG 300).

In our usage of language, “we adhere to the traditional dichotomy of deduction and induction (EDM--LOG 318/319).

MET338

The comparative method.

Comparison plays the fundamental role par excellence. After all, the scientist not only compares the data with one another (object-based comparison), but constantly compares what is observed with his own representation of it (subject-based comparison).

A.-- Internal and external comparison.

We have set this out in EDM--HARM 131/134.

B.-- comparative method.

We have set this out in EDM--HARM 185/194. -- Add to this EDM--HARM 195/201 (Assimilism / Identivism / Differentiation). For there are clear emphases in the comparison.

Note 1 Why do we situate the comparative method here within direct knowledge? Because—as Ch . S. Peirce, for example , already noted—comparison is already present in our perception. One sees a hare running, for instance: who does not simultaneously see the entire trajectory? One would have to use some kind of Eastern meditative method to, for example, sit

'looking' ('staring') on a green wall for hours, so that one perceives only, i.e., without comparing it with the rest, such as oneself.

One might ask whether this single-point 'meditation' is ever truly achievable . Not to mention the mutilation of the natural totality of all perception that is inevitably at work with such methods.

Peirce calls this the perception of 'a first' (= a first given), -- which, in his view, is immediately accompanied by 'a second' (= a second given), -- both what surrounds the first and 'a third ' (= a third given), namely the fact that I/ you/ we perceive the/ be the first (and the second) given.

In Eastern mystical meditation, it would therefore be possible to perceive merely a first given (through hyperconcentration on it) without immediately perceiving the second and third given.

Note 2 Why do we also situate comparison within indirect knowledge? Reread EDM--HARM 209 (the method of logic) for a moment. Judgment presupposes a minimal comparison between the original (subject) and the model (predicate). Reasoning presupposes—whether it is (expressly) syllogistic or not—the simultaneous, thought-together comparison of at least two contents of thought.

Appl . model -- Let us take the Jevons-Lukasiewicz model of reasoning . “If A, then B. Well, A. Therefore B.” It is impossible to carry out such reasoning without having A and B simultaneously in mind and ... comparing them!

MET339

The ancient Greek prelude to 'metatheory'

Bibl . st.: IM Bochenski , *Philosophical methods in modern science* , Utr./Antw ., 1961,77v, (Semantic steps).

A.-- Context.

Now reread EDM--HARM 98ff. (Semiotics). The second aspect that sign theory brings up, after syntactics , is semantics, which deals with the relationship between signs—e.g. a sentence that I think (in Peircian language: a thought sign) or that I pronounce (Peircian : a speech sign) or even write down (Peircian : a writing sign),—e.g. an entire theoretical text—and a reality indicated by it,—this for pragmatics.

B. -- Metalinguistics, metatheory.

Note-- For comparison. -- Theory of intentionality.

(a) Already before and at Plato's

intentio ', orientation towards consciousness, since St. Augustine of Tagaste (354/430; the greatest Church Father of the West) and Scholasticism (600/1450).

The sentence "I see that little squirrel combing over there" implies (encompasses) a direction of my attention—away from me towards that squirrel and its activities. The Scholastics called this "intentio prima" (first, natural direction of attention).

The sentence "I realize (am aware of it, pay attention to it) that I see that squirrel unraveling" entails a shift of my attention (awareness, consciousness) away from the busy squirrel towards my seeing it. Medieval thinkers called this "intentio secunda" (second focus of attention).

The sentence "I attempt to see through how I see the busy squirrel and also how the realization that I see it, in a theory about it" entails an "intentio tertia" (a third, this time theoretical, focus of attention).

(b). The three semantic degrees.

A small example clarifies immediately.

1. Semantic zero step.

"I see that little squirrel over there picking at a pine cone;" -- In grammar that is called 'direct speech' ('speech' here means 'language usage') Cf. , first 'intentio '.

2. First semantic degree ('object language').

"I utter—to indicate what is seen and the seeing of it—a sentence (a set of signs): 'I see that squirrel there etc.' -- Grammatically: a first lateral (indirect) speech. -- Among semioticians , 'object' in the term 'object language' means "the signs used". -- Cf. second 'intentio '.

MET340

3. Second semantic degree ('metalanguage').

I attempt, in a theoretical reflection, to understand that and how I pronounce the sentence (a set of signs) to indicate that I see a squirrel at work, etc.

Grammatically: a second lateral speech (i.e., a series of sentences (sets of signs) about a sentence (a set of signs)).

Semiotic: “I construct a metalanguage, a language about the language about the things indicated by that language”. A language about the 'object' (the signs).

The term ' metatheory ' is immediately clear as well: “a theory about theorizing”. That would be a further degree of metalanguage, for I do not merely theorize, but I theorize about my theorizing! So much for the introduction.

1.-- The ancient Greek term ' sofia ',

We translate it as 'Wisdom'. -- But what exactly did ancient thinkers understand by that?

The (in)direct method.

The ' sophos ', Lat.: 'sapiens', directs his 'noble yoke' (Platonic term for ' intentio ', direction of attention) towards “ beings ”, everything that is even remotely 'real'. - The first thing that stands out in this regard is his 'ta fainomena ', the appearances, the 'phenomena', that which reveals itself directly, immediately comprehensible (meaning-making). - The second thing that stands out is the explanation of the phenomena. Platonically: from which presuppositions do the phenomena become comprehensible?

Incidentally : Now reread EDM--METH 325 (material object) and 326 (formal object).

Note : What stands out in this regard—and this is one of the most fundamental differences with current thought that has emerged since Modern Rationalism—is that the Ancient thinkers always aimed for some kind of doctrine of happiness (eudemonology (soteriology)) in their theorizing.

'Virtue'—understand: the conscientious life—was central,—indeed as the source, the main premise (hypothesis) of a happy life. And, as W. Jager once made abundantly clear in *Paideia *: 'wisdom' (understand: philosophy) was always a doctrine of health and a doctrine of education.—Cf. EDM 06 ('heilkunde')

2. a. Xenophanes of Colophon (-580/-490).

Bible st. : W. Röd , *Geschichte der Philosophie* , I (Die Phil. der Antike 1 (Von Thales bis Demokrit)), Munich, 1976, 75/82 (Xenophanes).

“Metatheoretical insight ,” writes Röd. Xenophanes very explicitly admitted. -- “ Xenophanes was apparently not concerned with justifying a skeptical (note: understand: radically doubtful) position.

MET341

He wanted to clarify the relationship between perceptual knowledge and rational understanding in the form of a theory.” (Oc, 79/80).

In other words: Xenophanes saw the problem of the direct and the indirect method. Or put differently: the distinction between certain knowledge, because it is based on direct observation, and 'opinion', indirect knowledge.

Appl . model

Note: Among the Ancient Greeks, the term 'Iris' meant both the natural phenomenon of the 'rainbow' and the goddess conceived in conjunction with that phenomenon. Perhaps due to the fact that a rainbow connects 'heavenly realm' (the dwelling place of one type of deity) and 'earth', the goddess Iris, otherwise worshipped by no religion, was interpreted as the messenger—in Biblical terms, 'angel'—on behalf of the divine world.

Here is how Xenophanes speaks of it. -- “What the masses call 'Iris', -- that too is, considered according to its ' fisis ', nature, merely an atmospheric phenomenon which, when observed, displays purple and bright red and yellow-green colors” (Fr. 32).

Note : If we interpret the term ' fisis ', Latin: natura, nature, correctly, then Xenophanes means here “reality perceived without religious interpretation”. Which, since Thales of Miletus (-624/-545; founder of 'natural philosophy'), is one of the meanings of the term ' fisis '.

Or: conception of meaning, -- not construction of meaning. Direct, immediate interpretation, -- not indirect, mediate interpretation.

Appl . model -- Fr 35: “These data were put forward (' dedoxastho , presented as mere opinion), -- as somewhat approximating the original reality (' etumoisi eoikota '). Xenophanes himself designates his own opinion as “ etumoisi (= fusei) eoikota ”, as a merely approximate representation.

The term ' eidenai ', usually translated as 'knowledge', means - according to Röd , oc, 80 - “ direct knowledge, observed ” haben ” (“to know directly, to

have observed”). Which differs from ' dokos ' —think of the later ' doxa ' in Plato , for example—that it means 'opinion', indirect knowledge.

Conclusion . -- The basis is ' eidenai ' (which provides the original in a judgment); the superstructure is ' dokos ' (which, in a judgment, provides the model).

Indeed: Xenophanes has a 'theory' about what the Greeks, as a mass, say (object language) about things (semantic zero stage). -- Two features stand out to him in this regard:

1. The ambiguity (there are many opinions regarding one phenomenon);
2. Progress (tireless research (' zetountes ') provides better interpretations under divine guidance).

MET342

2.b.-- Alkmaion (= Alkmeon) of Kroton (-520/-450).

Bible st.: A. Kremer Marieth, *Alcméon de Croton* , in: D. Huisman, dir., Dict. d. philosophes, Paris, PUF, 1984, 43;

-- J. Zafiropulo , *Empedocle d'Agrigente* , Paris, 1954 99ss.;

-- W. Röd , *Die Philosophie der Antike 1* (Von Thales bis Demokrit), Munich, 1976, 71/73

J. Zafiropulo writes: “ Alkmeon , the great physician of the ' sect ' of Kroton , whose fame was brilliant at the time: Kroton is the city where Puthagoras of Samos (-580/-500) ended up. Alkmaion could therefore have known him.

Alkmeon was first and foremost a physician, and indeed stemming from an independent tradition of healing that connects with Democedes of Croton — he was apparently a Pythagorean physician :

a. Like the Paleophythagoreans, he defined health as ' iso.nomia ', 'equality', (' harmonia ', proper fitting) of ' dunameis ', life forces (EDM 05), in order to in systems expressible as e.g. “moist/dry”, “warm/cold”, “bitter/sweet”;

b. like the Paleophythagoreans , he designates the human soul as an immortal being, -- indeed, as 'divine' to a certain extent, since it “moves of itself” (which is not sluggish (inert) like (dead) matter).

Alkmaionical epistemology.

Röd , oc, 72, emphasizes this: “In Alkmaion's epistemology a sharp distinction is made between ' aisthanesthai ', direct knowledge, and ' xun.ienai ', indirect knowledge. -- Alkmaion , in a Paleopythagorean spirit, sees a hierarchy:

a. The animals do possess direct knowledge, but not ' xunienai ', indirect knowledge;

b. Humans possess the two: human knowledge is twofold, -- and perceptual knowledge and interpretative knowledge. Cf. Fr. 1a.

c. The deities , however, 'see' directly and with absolute certainty.

Semiology. -

Alkmaion was by profession a ' semeioloog ', the interpreter of symptoms, ' tekmeria '.

Interpreting signs (EDM--HARM 98/105) is typical doctor's work. Suppose: a woman has injured her leg.

a. Recognizable immediately: the injury is likely physically visible (redness, swelling); it is accompanied by the complaint;

b. Knowing indirectly: is it a common sprain? Is it a real broken bone? Here deity and humanity diverge: a healing deity sees directly —what she communicates, for example, through inspiration, to a healer.

MET343

Note-- The rhetoric.

Ancient rhetoricians, in their textual theories, apparently drew upon the pre-Socratic traditions of a Xenophanes and an Alkmaion .-- Reread EDM -- LOG 292ff. regarding this matter (direct and indirect proofs).

Note -- We will briefly refer back to what we touched upon in EDM 02 (given/asked). -- Even today—especially when solving mathematical problems—the distinction applies:

a. What is immediately given? (direct knowledge);

b. What was asked? (indirect current knowledge).

The second is accomplished by means of reasoning.

Conclusion. -- **Bibl . st.:** S.L. Kwee, *Philosophy of Science*, in: C. van Peursen / S. Kwee, eds., *Guide to the Sciences, I (Physics, Biology, Psychology, Sociology, Linguistics, History, -- Philosophy of Science)*, Rotterdam, 1966, 110/126.

Kwee characterizes science based on the concept of 'process' (in Ancient Greek: kinesis ; Latin: motus). This implies that Kwee defines it narratively, in terms of story.

A. The data. -- Here a Herodotus comes into play: data—according to Kwee—are tracked down. What Herodotus calls 'history', *inquisitio* , investigative work . The question—according to Kwee—is: “how do I obtain my data?”

B. The processing of the data.

With Herodotus: 'logos', text. -- According to Kwee, this proceeds in two ways.

b.1. The identification – verified by the research work – of the data.

b.2. The organization of the data, preferably within a scientific system. -- This answers the question: “what do I do with my data?”.

Conclusion . -- “In science, it is about this insight” (oc, 115).

An application. -- **Bibl . st.:** Wilfr . Daim , **Tiefenpsychologie und Erlösung**, *Wien/München*, Herold, 1954, 18/23 (Drei Methoden). -- Steller primarily aims to resolve deeper-seated psychological problems, -- with the Biblical concept of 'redemption' as his background (the psychologist, -- neurologist/psychiatrist, psychotherapist, 'redemptes' the patient, as it were). -- He views the method as threefold.

A. Phenomenological. -- Direct knowledge is captured in description/story.

B.1 . Hermeneutical ('verstehende Methode', EDM--HARM 135/139).

The first degree of indirect knowledge based on the patient's 'expressions'.

—

B.2. Depth psychological. -- The second degree of indirect knowing: the 'expressions' are examined down into the unconscious and subconscious.

MET344

45.-- Methodology (the phenomenological method). (344/353)

We will now focus on one method.

Bibl . st.: Dossier. -- *Husserl Archive in Leuven* , in: Academische Tijdingen (13/14)/ Alumni Leuven (22 (1988): 13/14 (22.04.1988), -- in which it is briefly outlined how the legacy of Edmund Husserl (1859/1938; one of the greatest founders) arrived in Leuven; -- it comprises some 40,000 pages;

-- W. Biemel , Hrsg., E. Husserl, *Die Idee der Phänomenologie* (Fünf Vorlesungen), Haag, M. Nijhoff , 1950.

Note : Unraveled down to its ultimate consequences, Phenomenology is a highly diverse movement. Here we limit ourselves to a mere introduction.

The 'intentionality'.

Reread EDM--METH 339 (Theory of Intentionality) for a moment.-- Indeed: the orientation of our consciousness towards either the realities outside us or the realities within ourselves is central.

Incidentally : one can also express this differently: the 'encounter' of ourselves, either with the external world or with ourselves, on the basis of that orientation, is the essential core of the Phenomenological method.

Note : In our country, for example, Fr. Buytendijk (1887/1974) was someone who used the concept of 'encounter' – in the sense of a personal, direct confrontation or acquaintance with something – as the main concept (Cfr . F. Buytendijk , *Ontmoeting* , in: Tijdschrift voor Filosofie (Leuven) 51 (1989)/ 1 (Mar): 1 107/113).

Note .-- Ch . Lahr , *Psychology* , Paris, 1933-279 113/125 (Miscellaneous theories relatives à la perception), discusses mediatism and immediatism . A mediatist posits that we perceive reality indirectly, ' médiatement ' (meaning by means of means). An immediatist, however, posits that we grasp reality ' immediately ' (immediately, without any intermediary of any kind), directly, that is—(to use Buytendijk's words) 'encounter' it.

There are valid arguments for the two views. What is certain is that the Phenomenologists adhere primarily, if not exclusively, to immediatism : thanks to our intentionality (openness of consciousness, referredness), we encounter the things within and outside us directly. We “are directly with the given themselves.” This is one of the basic axioms of the Phenomenological method. In other words, the tendency of Modern Rationalists, since Descartes

and Locke, to always think from our 'inwardness,' as if some kind of 'bridge' had to be built between us and “the world,” is over.

MET345

The Austrian school

Bible st. : H. Arvon, *La philosophie allemande* , Paris, 1970, 133ss. (L'Ecole autrichienne).

a . A distant predecessor was B. Bolzano (1781/1848 (EDM--LOG 298)), known for prioritizing concepts, judgments, and reasoning “in themselves”. Bolzano broke away from Modern 'psychologism' regarding logical entities,

b . Franz Brentano (1838/1917) was the founder in the true sense. Known: *Psychologie vom empirical Standpunkt* (1874). The viewpoint of such an 'empirical' psychology was – not the so-called causal explanation of psychic phenomena, but – the description of psychological phenomena as phenomena. That is to say: insofar as they are immediately given. More narrowly defined: 'phenomena' here are so-called acts , such as the act in which I form the image of a person walking. Hearing, seeing, remembering, – judging and reasoning, – experiences (e.g. joy) are called ' acts ' by Brentano .

counterparts to such acts “ physical phenomena”—such as colors, people, landscapes—which are objects of acts .

Conclusion -- Following Scholasticism (800/1450), Brentano introduces the term ' Intentio ', or orientation towards consciousness, here. Viewed in this light, every 'act' is 'intentional', i.e., directed towards a given (object).

He defines consciousness as the orientation of an 'I' (subject) towards an 'object'.

Note : Brentano already practices a kind of ' phenomenology ', a description of phenomena, which is limited to rendering phenomena (regardless of whether or not they exist 'in themselves' independently of the consciousness of them). It suffices: the lived experience, with its mere orientation towards 'something' (within or outside the experience).

Note : Others have further developed that basic intuition of Brentano . For example, Alexius. Meinong (1853/1927), known for his *Gegenstandstheorie* (another name for the description of phenomena); -- Carl Stumpf (1848/1936); -- the most famous is Edmund Husserl (1859/1938), the founder in the

narrower sense of Phenomenology, which flourished especially immediately after World War II (1940/1945) and which culminates in existential phenomenology (M. Heidegger, for example).

Note: The term 'phenomenology' dates from JH Lambert (1728/1777).

G.Fr.W. Hegel (1770/1831) published his *Phänomenologie des Geistes* (a kind of philosophy of culture) in 1806. P. Teilhard de Chardin (1881/1955), the evolutionist, developed an evolutionary 'phenomenology'.

MET346

Note .-- A work by John R. Searle (1932/2025), philosopher of language (Berkeley, Cal.), namely *L'intentionnalité* (Essais de philosophie des états mentaux), Paris, Ed., was published in French. de Minuit, 1986: the language certificates can be interpreted as An kind intentional acts

Mistake to be avoided.

More than one thinks of intentions when hearing the term 'intentionality'. In this phenomenological terminology, intentions are merely one type of intentional act . Every psychic phenomenon is 'intentional'. Take, for example, the concept, in which I have a mental representation of an object , with which I focus on that object. Take, for instance, the judgment: it is an act of affirming or denying, whether restrictive or not, a given upon which I direct my attention. That is cognitive, ' intentio '.

But there is also volitive (axiological) ' intentio ': I love someone while focusing on them, for example.

Note : According to Brentano , no ' physical object' is endowed with intentionality: only man is 'open' to reality, within or outside of him.

Phenomenology and (phenomenological) psychology.

In a single first degree, every phenomenology is “science of phenomena of consciousness”. In Latin “ cogitata qua cogitate ” (Cartesian expression: that of which I am conscious insofar as I am conscious of it).

Note : In a not very successful usage of language, it is also said that phenomenology is “the science of immanent phenomena”. 'Immanent' means “all that is situated within something”, such as our consciousness as interiority. That term is really good, insofar as one does not forget that

phenomenologists (especially of the Austrian School) are immediatists , of course.

In other words: purely mental acts —however internal—always result in 'something' (an 'object'), even if it be a fantasy, a daydream, or something absurd. This does not prevent one from developing, along the lines of Brentano for example, a pure ('empirical' or not) psychology that is limited to such 'immanent' products of consciousness.

But then such a mode of description does not reach the level of true philosophy. It is and remains positive science. Even if it is with a 'phenomenological method'. As, for example, A. de Waelhens (1911/1981; Belgian phenomenologist) noted: a psychological novel can, by chance, contain much empirical phenomenology, because its author depicts the life of the soul in an 'object-oriented' manner.

MET347

Cf. A. de Waelhens , *Existence et signification* , Louvain/Paris, 1958,-- om . oc ., 233/261 (Sciences humaines, horizon ontologique et rencontre).

-- See also S. Strasser, *The Concept of the Soul in Metaphysical and Empirical Psychology*, Leuven/Nijmegen, 1950;

-- Alexander Pfänder (1870/1941), *Phänomenologie des Wollens* (1901; Pfänder , about the same time as Husserl, adopts the term ' Phänomenologie ');

-- id., *Einführung in die Psychologie* , Leipzig, 1904,-- in which he notes four main meanings of the term 'consciousness':

a. self-awareness, b. awareness of something (= intentional character), -- c. all that is psychic (= psychology of consciousness), -- d. the psychic subject (the self-aware, I).

Point c is strongly disputed by Depth Psychologists.

The positioning of consciousness psychology.

Let us revisit EDM--HARM 145v. (Differential of the psychologies). -- To the left of the configuration lies 'introspective psychology' Cf. EDM--LOG 211 (The trained introspective method), -- 267 (Self-knowledge).

Fundamentally, every Phenomenology e) is a theory of observation that limits itself, is trained, and is method-conscious to what one actually and

directly perceives (whereby the rest is ' clumped together ' and placed in parentheses),

Consequence : it is the presupposition of every possible theory of perception.

Appl . model -- Joh. Wagemans , *Looking and Seeing at First Sight* (The Psychology of Perception Examined More Closely), in: Streven 1990: May, 712/725.

The article discusses the last three perceptual learnings: the Cognitive (schema: information - information-processing subject - output of processing), the Ecological (schema: information in the context of the landscape - information-processing subject - output), and the Computational (imitation of human perception using computer tools; cf. EDM -- LOG 269 (Neuron networks))

Let's take a practical example;

Bible st. : Fr. Joignet/ P. van Eersel , Visions. -- *Le Chaos par Prigogine* , in: Actuel 1990: oct., 91/93.

The text begins as follows: "In the course of a frosty morning in the winter of 1961, Edward Lorenz (EDM--HAR 169), a highly gifted mathematician, makes his way to his laboratory at MIT, the famous Institute of Technology in Boston. But he does not yet realize that he is about to enter "chaos." For, since the Second World War, he has been digging himself into meteorology."

MET348

That day, he became fascinated by a sequence of a numerical simulation—of the development of a climate. In the silence of his laboratory, he typed the data regarding the climate under study onto his operative —an old Royal MacBee . (...). Lorenz could not believe his eyes: the course of the new curves diverged from it by far from dutifully repeating the old model! At first by a few millimeters. Later, the operative drew "the craziest figures". The new climate, shown in the simulation, has nothing to do with the predictions."

Incidentally: Lorenz discovers the Butterfly Effect in this way.

Phenomenological assessment.

From a consciousness-psychology perspective, what does Lorenz 'perceive'? The curved, numerical representation ('simulation') of an evolving climate! Through what he perceives from a consciousness-psychology perspective, he thinks about that which is being represented (simulated).

But that is the indirect method. With the direct method, only the moving curves on the screen are present. The rest is interpretation, indirect knowledge. -- One can, of course, speak metaphorically of "direct observations of the weather." But then one is expressing oneself in a form of imagery.

Conclusion . -- However one may look at it, regardless of hostile or skeptical circles within the psychology of consciousness : what psychologists of consciousness uncover is always the first observation. Upon which all other 'observations' build. In that well-defined sense—as we stated above—psychology of consciousness is the foundation of all other theories of perception.

Phenomenological 'consciousness' and cognitivist 'consciousness'.

Imagine a twofold scenario.

A. Lorenz has fallen asleep while his operative is in operation: his 'awareness' of the curves on the screen is 'zero'. Unless, by stipulative definition, one says that his 'awareness', having fallen asleep from fatigue, is still somewhere "with the device".

B. A child comes walking up and looks from Lorenz to the working screen. It perceives the curves. It has a 'Phenomenological consciousness' of the curves.

C. Lorenz wakes up with a start: he, too, perceives the curves, but has a different 'consciousness' of what those curves are telling him—a 'consciousness' that the child does not have (it does not realize what those moving lines mean)—in cognitivism, one might call this a 'consciousness' that is not merely 'phenomenal' (merely dwelling on the phenomena). A matter of definition, of course.

MET349

Phenomenology as description.

As PIM Bochenski very rightly states (EDM--METH 337), phenomenology, in whatever interpretation, exhibits two aspects:

a . spiritual, i.e. with the mind, to behold (direct perception, 'intuition'),

b . representation (description, story) of what was 'seen'

In other words: 'to describe' is "to render how the world and our life within it present themselves to our 'I' as the meeting point of psychic experiences" (according to Husserl).

In M. Heidegger's usage: "The articulation (= verbalization) of what 'phenomenon' is" (*Sein und Zeit* , I, Tübingen, 1949-6, 27/39).

Gerhardus van der Leeuw, *Phänomenologie der Religion* , Tübingen, 1956-2, 768, says: "The phenomenon is something that shows itself, -- precisely because it shows itself". Specifically: within consciousness!

Conclusion -- Phenomenology is the discussion of phenomena insofar as they are manifest data ('information').

' Egology ' .

'Ego' in Latin means 'I', ' Egology ' is a barbaric term for "bringing the self into question". I-science .

That this is the case becomes apparent when one compares a Positivist description or a Marxist description with a Husserlian one .

The Positivist describes, in unity with the inquiring community, what is describable within positive-scientific objectives .

reproducible of reality within Marxist intentions .

Both forms of description, however, when they rely on direct observations, describe like the egologist Husserl. What I, Auguste Comte , personally observe—that I reproduce (Positivism). What I, Karl Marx, personally observe—that I reproduce (Marxism).

That in which Comte and Marx differ from Husserl is, in Husserlian terms, already interpretation—not a direct representation of data revealing themselves to the 'I' of Comte or Marx.

This becomes apparent when one Positivist differs from another when he merely describes. This also becomes apparent when one Marxist differs from another as a mere describer. -- Again: Phenomenology, certainly in the Husserlian sense, is at the beginning, as a premise, also of Comtian or Marxist so-called 'objective', 'factual' representations. Everything passes through the conscious 'I' which is directly confronted with data, 'phenomena'.

MET350

Phenomenology as a science directed “zu den Sachen selbst”.

Egology , yes, but also objectivity -- that is Phenomenology.

Consequence : just like the distant predecessor Bolzano (EDM--METH 354), Husserl, for example, is not a ' psychologist '. Not all realities—not the whole of reality—can be reduced to mere psychic phenomena. Which would be a kind of 'reductionism' ('reductionism' here means “the tendency to smooth over various things into a single type thereof”, one of the possible forms of Assimilism (EDM--HARM 195)).

Immediatism already points to this: the object, “die sachen “selbst ”, stands central, -- albeit provisionally contained within the intentional consciousness directed at that object. Precisely for this reason, Phenomenology, although psychological in some respects and the mother of one kind of psychology, is not mere psychology.

Two 'reductions' (understand: shutdowns that are simultaneously suspensions).

Do not confuse the term 'reduction', in Husserlian usage, with the same word-sound, in purely logical usage.

A. The phenomenological reduction.

Husserl 'reduces' – reduces, diminishes – the entire given, the entire object, to what reveals itself of it in its consciousness.

App. mod . - Think of Lorenz's computer: what the child, with him, perceives on the screen, is retained from the entire experience. The rest is 'clashed ' (placed in parentheses). The judgment of that remainder, which is not 'phenomenally' perceptible, is suspended (' epochè ').

Appl . model -- Husserl observes the electric light in his study. What his 'I' directly perceives of it is the phenomenal part. The rest, e.g. that electricity is a flow of electrons, he puts “in brackets” (he suspends judgment on it), because he does not perceive it directly.

B. The eidetic reduction.

The entire object undergoes a second reduction, namely that only the general concept (EDM 30: universal concept) or the all-encompassing (transcendental) concept (ibid.), present within it, is retained. The rest, this time all singular characteristics, is “bracketed”.

With Plato —albeit differently—Husserl uses the term 'eidos' for this (with the adjective 'eidetic'): through eidetic reduction, only the general and/or the transcendental concept remains of the entire object. For the time being, the individual does not count.

MET351

A number of aspects of phenomenological reduction.

What, for instance, can be “bracketed” to prepare the pure phenomenon freely.

A.-- On the side of the self.

E. Husserl, * *Die Idee der Phänomenologie* *, The Hague, 1950, 44, states, in his sophisticated language, that the self, insofar as it does not reveal itself directly—e.g., as a 'given' amidst other things in the external world,—e.g., as an independent personality,—indeed, as the not immediately evident source and seat of the psychic acts (EDM--METH 345)—must be radically 'eliminated' so that “only and solely what the given is in itself” (oc,44) is exposed in a description.

This, notwithstanding RA Mall , *Experience and Reason* (The Phenomenology of Husserl and its Relationship to Hume's Philosophy), The Hague, 1973, emphasizes that reflective (loop-shaped , self-knowing) consciousness is functioning while the description takes place.

IM Bochenski , **Wijsgerigemethoden in de moderne wetenschap* *, 32ff., specifies this.

a. The so-called subjective is, first of all, whatever obscures the purely cognitive, that is, the grasping of meaning regarding what is immediately given.

Incidentally : according to the author, this is somewhat reminiscent of what the Ancient Greeks called 'theoria' (EDM--LOG 227), the perception attuned to pure insight into the immediately given .

b. The 'subjective' is, furthermore, anything that is practical and/or pragmatic. It remains limited to mere, value-free description—without additional practical or result-oriented intentions.—Which Bochenski does not consider so easily feasible. After all, we all have—possibly unconsciously or subconsciously—our value tendencies , such as, for example, opposing an

opinion or talking someone into something—finding the object uninteresting or unsympathetic.

This does not prevent a Phenomenological psychology from remaining possible, as we have already explained (EDM--METH 346): every psychic experience—experience, sensation (hate, love,—expectation, aversion,—enjoyment of football, art experience)—can become the object of direct, pure contemplation (pausing to, paying attention to,—reflective, introspective). Cf. *Die Idee d. Ph.*, 31, 45.

Note : This corresponds somewhat to Peirce's elimination of the stubbornness method (EDM 12).

B.-- On the side of the object.

A number of reductions must be implemented here as well.

MET352

1.-- The elimination of extra-intentional 'existence'.

Whether it is the description of:

a . absurd,

b . fantastic (the fantasies of Psychoanalyses, for example, or those of science fiction or Postmodern network fiction, or also of what is called “fantasy literature” (about werewolves and vampires, for example)),

c mathematical example (the 'given' is an object of very precise intentional approximation: whoever does not observe the mathematical given exactly starts off on the wrong track) data – we do indeed say 'data' applies, intentionally, within the Phenomenological attention, they certainly exist. Otherwise, we cannot even conceive of them!

The descriptive Phenomenologist, however, suspends his judgment regarding modes of existence other than 'intentional' ones. - Everything has an essence linked to some 'existence' (EDM 33), where the term 'existence' is to be understood in the strictly ontological sense, i.e., as a word for all possible forms of 'existence'.

2.-- The elimination of transmission (tradition).

'Tradition', here is “all that others than the phenomenologist with his descriptive self have or have had to say about the object.

This is reminiscent of what Peirce calls the 'orthodoxy method' (EDM 12). Cf. the argument from authority (EDM--LOG 305): anyone who, impressed by the rejection of Galileo—who holds enormous authority in natural scientific circles—would refuse, as a Phenomenologist, to represent, for example, astrological belief, commits an error of observation: astrology as a business exists (and that is Phenomenologically sufficient).

In the *Odyssey* (900/700), in X: 305, there is mention of 'moly' (Latin: moly), the gift from the god Hermes to Odysseus to protect himself against the sexual magic of the sorceress Circe: a black root (dark as the Earth Goddess) crowned by a flower reminiscent of 'milk'! Whether or not that mythical figure is ridiculed by Rationalist- Enlightenment thinkers leaves the true Phenomenologist unmoved: he simply describes.

Note -- St. Thomas Aquinas (1225/1274; leading figure of High Scholasticism) is cited by W. Jaeger, * *Humanisme et theologie* *, Paris, 1956, 112: "Whatever the true state of affairs in these matters may be, we do not worry much about it. Reason: philosophy as inquiry serves not to find out what 'people' say, but rather 'qualiter se habeat'." truth rerum": the true state of things (St. Thomas Aquinas , *Expositio in libros Aristotelis De coelo et mundo* , Romae , Editio leonina , lib. I, lect . 22, n. 8 (p. 91).

MET353

The Middle Ages are accused by the Renaissance and even more so by the Enlightened Rationalists of being "dark times," for and especially because they think, so to speak, 'traditionally' and 'submissively to authority'. None other than a Werner Jaeger, whom one can hardly suspect of bias (he was a Protestant), feels compelled to cite that text to break the image, the visual impression, that has been attributed to the Middle Ages.

The 'image', the visual impression, is one of the disturbing factors that the true Phenomenologist intercepts in his subtly treacherous operation.

3.-- The elimination of the theory.

By this is understood—according to Bochenski , oc, 29)—"hypotheses, proofs, and knowledge acquired from elsewhere (note: other than the intentionally present object)". We can be brief about this after what we have seen regarding the theory in EDM--METH 329/335.

The only 'theory'—without theory there is no science (and Phenomenology invariably wanted to produce 'scientific work')—that is valid and deemed applicable, is the one we are now concluding. -- but pay close attention: phenomenology designates itself as the beginning. -- “(With the provisional elimination of every theory concerning the object) the Phenomenologists do not wish at all to deny the value of indirect knowledge: they consider this quite permissible. But only after the phenomenological foundation.

This forms the absolute beginning and justifies the legal validity of the rules of conclusion.” (I.M. Bochenski , 35).

Incidentally : this is reminiscent of Peirce's law regarding the method of preference (EDM 14): every theoretical ' a priori ' disturbs the pure reception of the given itself about which it theorizes.

Conclusion -- The most individual perception! The ' intentio ' inherent in the 'I' of each of us.

Consequence : in his *What is phenomenology?* de Waelhens , himself a phenomenologist, said that the answer to that question is “highly controversial”. Indeed, it is usually very difficult to determine exactly what a phenomenologist understands by 'phenomenology'. -- Thus de Waelhens .

Decision . -- Dialogue is the only way out.

MET354

46.-- Methodology (the arithmetic or formalism method). (354/363)

Bibl . st.: IM Bochenski , *Philosophical methods in modern science* , Utr./Antw ., 1961, 51/55 (Formalism).

“One of the most important results of Modern Methodology is the insight that 'operating' with language on a syntactic level can substantially facilitate thought. Such 'operating' is called 'formalism'”. (Oc, 51).

The semiotic 'pedestal'.

The premise of formalistic operations is the tripartite division characteristic of semiotics. For this, we refer to EDM--HARM 84/85 (Logical syntax, semantics, pragmatics); 98ff. (The three semiotic aspects).

The formalizing method is situated in the first aspect, syntax, -- with the parentheses of semantics (the reference to something outside the signs themselves) and pragmatics (the application of signs with a view to achieving results).

The combinatorial 'pedestal'.

The second basic premise of the computational approach is 'combination'. For this, reference is made to EDM--HARM 144 (configuration) and 145 (combinatorics).

'Configure' is:

- (1) at least two sets and/or systems think together
- (2) such that one set/one system contains at least one place and the other set/one system is given at least one place.

Note : This is strongly reminiscent, very strongly indeed, of what the Ancients called ' stoicheiosis '. Cf. EDM--LOG 244v. (the Platonic stochiastic method).

Note : The Stoichiastic method, which is one possible form of combining disparate elements, did not fall from the sky.

Anaximenes of Miletus (-588/-524; the third of the Milesian naturalists) already designates the essence of *fysis*, *natura*, nature, as ' aer ' (air) and/or 'pneuma', Lat.: spiritus, breath of life—in his terminology: air as primordial substance (a subtle reality) or breath-natured substance—primordial substance that either condenses (' *puknosis* ') into liquid and/or solid matter or dilutes (' *manosis* ') into fire (Cf. Röd , *Von Thales bis Demokrit* , 46). Qualitative leaps are explained on the basis of quantitative, or better: combinatorial, changes ('operations'). Cf. EDM--HARM 154ff. (Quantitative change/ qualitative leap).

Alkmaion of Croton (EDM--METH 342) also uses the term ' *krasis* ', just like the later Parmenides of Elea (EDM 08), -- to combine ('to mix' is usually translated). —

MET355

Empedocles of Akragas (Lat. for Akragas is Agrigentum) , who called himself 'god' (in the sense of “paranormally gifted”) (-463/-423). This Sicilian posits that ' *rhizomata* ', literally: prepositions (often translated as 'roots') -

later translated as 'elements' - govern (= determine) the realities in and around us. Specifically: earth, water, air, -- fire. In each case to be understood as 'primordial substances'.

Note : That it is indeed a harmology , a theory of ordering, can also be concluded from a text to the Paleopythagorean. Attributed to Archytas of Taras (Lat.: Archytas of Tarentum) (-400/-465). “If anyone was capable of tracing all ' genea ' (note: collections/systems) back to one and the same ' archa ', primipium (Lat.), preposition (in Greek ' analusa ', backward preposition) and, starting from that one preposition, re-“ suntheinai kai arthmesasthai ” (literally: to put together and combine), then – it seems to me – such a person is the supreme figure regarding ' sophia ', wisdom (Cf. EDM-METH 340),-- equal to him who possesses all truth as a share (destiny),-- equal also to him who adopts a standpoint from which he can know God and, at the same time, all realities as God has put them together, namely: according to the model of the opposite pair and the ordering (Greek: “en tai sustoichiai kai taxi ”)”.

Conclusion . -- Not the 'quantification' of so-called “qualitative realities”, but the combination, in various forms (modalities), of data of all kinds, including presuppositions or material particles, for example, is the hallmark of what one once dared to label as 'Greek mechanics '.

So much for the 'precedents' of current combinatorics.

Mathesis universalis .

Some claim that, for example, Galen of Pergemon (second century AD), the famous physician, wanted to establish a mathesis universalis of all knowledge. Ramon Lull (= Lullus) (1235/1315), the founder of an ecumenism of religions, wanted to create an Ars magna, a combinatorics of the sciences.

In the work of G.W. Leibniz (1646/1716; Cartesian), this becomes *De arte combinatoria* , a work that anticipates modern logistics to some extent.

Cf. EDM--HARM 189 (already Descartes). Later also the Romantics (EDM-HARM 158).

MET356

The logical 'pedestal'.

A further presupposition is strict logic.

Let us briefly revisit EDM--HARM 189 (The Cartesian Method).-- Descartes, in the spirit of his 'mathesis universalist' (generalized mathematics), confronted with a given and with the question asked, which is the same in all situational mathematical cases (= problem-solving mathematics), applies a two-part method.

(1) The stochiastic method.

Stoicheiosis —as we have seen—is making the whole (all/entire) manageable, indeed, transparent, by splitting it up, provisionally, into its smallest, 'irreducible' (= not reducible to smaller parts/elements) 'elements' ("ta stoicheia "). This, in order to subsequently make that same whole a 'whole' again, "step by step."

(2) The summative -hypothetical.

First, summative induction. For which EDM--LOG 236, then the hypothetical method. For which EDM--LOG 298 (Basic form: if, then).

What Descartes calls the "step-by-step" method. Which, moreover, is a form of algorithm (EDM--LOG 262). -- After all, on the way to the 'solution' of the problem (= all mathematical operations, which invariably begin with the systechie 'given/requested'), one totalizes time and again: one constantly takes into account both the given that is a general presupposition (for deduction) and the final operation, whose result is a less general presupposition (for deduction). Until the final localization (= summative induction) is possible and the problem (= total operation) is 'solved'.

Conclusion . -- Logic governs calculating thinking.

Definition of 'formalism' (calculative thinking).

We break this down in steps. Because those steps actually form a whole.

1.-- Graphic art.

Literally "swearing by the written word." – The simplest element of every formalized process is the single sign. -- Which refers us to semiotics (the study of signs).

The graphic reduction.

Please reread EDM--METH 350 (reduction understood as partial shutdown).

Appl . mod . -- Let us take graphicism as a sign for the general concept of 'sign'. Now, in formalism, the 't' is reduced to its purely syntactic aspect. It is therefore a meaning-diminished 't'. Which 'sense' has been disregarded (provisionally)? The semantic (= the fact that 't' represents every sign) and the pragmatic (= the intentions, the intended result).

MET357

The graphic form is the form present on paper or in the mind (in mental arithmetic, for example, the mind is somewhere the sheet on which the purely syntactic signs 'appear').-- In short: the way in which the ink makes the paper black! The personal 'intentionality' (EDM--METH 344), that sharply focused attention, of the one who practices formalism, limits itself, in the perception of the purely syntactic sign, to the purely readable.

Appl . Mod . -- A specialist in formalized thinking and a twelve-year-old child, for example, see exactly the same thing, -- insofar as they both represent the purely graphic intentionality. -- Cf. EDM--METH 348 (Lorenz and the child, - both 'see' (= strictly phenomenally perceive) the same thing.

But with a different total consciousness, of course. Here: the child does not see this sign as matter to which formalizing operations apply. In that very limited sense, neither the specialized nor the child perceives the same thing, since the child exhibits only the graphic intentionality and not the formalistic one.

Concreter appl . mod .

Re-read, for example, the signs introduced by Peano (pasigraphy ; EDM--LOG 258), but only the set-theory and number-mathematical symbols (the implication or enclosure sign , after all, is already logical). Note, moreover, the term ' pasigraphy .'

Another model -- EDM--HARM 84: the graphic rewriting of sentences. The characters introduced there—"p, q1, q2, r1, r2, if merely formalizing, or even more so, viewed purely graphically, are merely ways of blackening paper"—are meaningless both semantically and pragmatically. Mere 'shells' for possible meanings that can be placed within them.

Note . -- **Bibl. st.:** st . : es Ritter, *Les sources du nombre* (Entre le Nil et l'Euphrate), in : Le Courrier de l'Unesco 1989 : Nov., 12/17.

By the way : Ritter is the author of *om . Elements d'histoire des sciences*, Paris, Bordas, 1989.

Ritter writes: “Mathematics is closely related to graphic skill (...). Have recent archaeological discoveries not shown that many writing systems arose from the vital necessity to measure, divide, and distribute wealth?”

He believes he can identify two graphic systems: a. +/- 3,500 in Lower Mesopotamia ; in Susa (present-day Iran), somewhat later; b. +/- 3,250 in Egypt.

MET358

2. The actual formalization.

Graphicism is matter, the material object (EDM--METH 325), for formalizing in the proper sense. -- Let us return to J. Ritter .-- *Egyptian papyri* -1,500 give models of problems.

For example: Given: a pyramid, whose side is 140 cubits and whose slope is 5 hands 1 finger; Required: calculate the height. -- “The operation proceeds step by step until the final solution. -- Each part is derivable (1) from the preceding or (2) from a part of the given at the beginning of the text”.

It is evident: the logification of graphic signs. The question arises: how do the purely graphic signs acquire a formalizing meaning?

A. Syntax in the strict sense of signs introduces, first of all, meaningful, i.e., logically acceptable, signs. Or: 'permissible signs'. The irreducible (smallest) signs—the stochiastic method—can thus be incorporated into compound, well-formed expressions.

B. -- Syntax in the strict sense applies logic to the characters thus placed in configurations.

Result . -- The syntactic rules—as they are called—encompass those two aspects (well-formed expressions and applications of logic).

Thus a 'calculus' is created, i.e. an account.

Appl . mod .

Let us return to EDM--LOG 258 (Peano): the sign is the strictly logical implication sign. The sequence “if/then”.

Revisit EDM--HARM 85 (logical syntax): the characters standing for sentences are 'placed' (configuration) and, at the same time, logically connected by inclusion signs, which represent a line of reasoning. -- Or let us take another example. $(a \rightarrow \leftarrow b) \rightarrow (a \leftrightarrow b) \wedge (b \rightarrow a)$. In colloquial terms: if $(a \rightarrow \leftarrow b)$, then $(a \leftrightarrow b)$ and $(b \rightarrow a)$. Whereby the relation “if/then” is also present within the parentheses, as can be seen. With this, the equivalence relation, a harmological phenomenon (EDM--HARM 78), is formally expressed.

Conclusion . -- Thus, purely graphic signs acquire a fully formalized 'meaning' (but then the term 'meaning' is not intended semantically or pragmatically, but purely syntactically).-- So much for the definition of formalism.

Note : Anyone well-versed in Phenomenology will see that this is an application of the theory of intentionality, namely that the formalizer (e) adheres strictly to his/her formalizing 'intentionality'.

MET359

Examples of formalism.

To make the foregoing more colorful, a few small-scale models.

A.—Mental arithmetic as a formalism

Let's take an example.

To calculate 27×35 “in our heads”, we apply the splitting method .

(1) 27 .-- Let us split into two subtotals (wholes) 20 and 7 . - Thus we calculate in our minds, for example, $10 \times 35 + 10 \times 35 = 350 + 350$. Or: $20 \times 35 = 350 + 350$. If there are two subtotals, then, by summative induction, there is one total: $350 + 350 = 700$.

$\times 35$ can be split into $7 \times 30 = 210$ and $7 \times 5 = 35$. Again, if there are two subtotals, then there is one total, via summative induction: $210 + 35 = 245$.

(2) $27 \times 35 = 700 + 245 = 945$ (again: if subtotals, then via summative induction, total).

Conclusion -- Summative induction + hypotheticalal method. With splitting of totals into subtotals. To make it transparent.

Note : Making transparent means falling back on direct intuition, which stands at the center of the Phenomenological method. Thus, formalism consists of calculating with a number of direct intuitions. Otherwise, one “does not realize” that the calculation 'is correct', that it is logically valid.

Note-- Bibl . st .: J.-CM, *L'ordinateur humain Wim Klein assassiné à Amsterdam*, in: Tribune de Genève 04.08.1986.

Wim Klein was a mathematical genius. Nickname: “the human coordinator .” -- Klein was a peaceful Dutchman from Amsterdam. Initially, he led a “turbulent life.” He lived as a tramp. Moreover, he was once persecuted by the Nazis.

But in 1958, he ended up at CERN (EDM--METH 331: Geneva). The reason: by calculating purely in his head, he could perform arithmetic operations that the coordinators of that time could not handle. He remained at CERN until 1968.

In that year, he returned to Amsterdam for retirement. This did not prevent him from giving demonstrations at higher institutions in many countries (including Japan). His lessons were instructive and full of humor. -- An example: -- One day, in the large auditorium of CERN , he managed to calculate the nineteenth root of a 133-digit number in his mind in eight minutes. -- With such feats, he ended up in the Guinness Book of Records several times .

Conclusion : his housekeeper found him lifeless in his home, stabbed to death.

MET360

Incidentally : the evolution of the coordinators meant that, from 1974 onwards, the coordinators surpassed him.

Note : The question arises: does Klein differ from us, ordinary calculators , by more than by an intuitive faculty that is either more trained or more comprehensive?

Note . -- Bibl. st .:st . : Christian , *Etonnantes découvertes d'un chercheur japonais : les animaux peuvent-ils compter ?* in: Figaro Magazine 01.06. 1985.-
- Following an announcement in the British scientific journal Nature.

A. Given. Tetsuro Matsuzawa , Institute for Primate Research (University of Kyoto, Inuyama (Japan)), recently demonstrated that a five-year-old female chimpanzee—name: Ai— can handle number operations to a limited extent . Ai had not only been taught to point to objects and colors: Ai had also been taught to count objects and colors. For example, she points to three red pencils using symbolic signals.

B. Requested. So much for the facts. Now for the requested interpretation.

(1) Everyone agrees that apes - including those other than Ai - use 'words' (= language use, 'reason'), and indeed, to a certain extent, 'argue' (= dialogue, discussion) with humans.

(2) However, whether such monkeys really speak and discuss as humans do is highly questionable.

The reasoning of Brendan McGonigle (psychologist, Edinburgh).

McGonigle applies the comparative method.

Preface 1. -- If one shows children easily recognizable objects, they immediately recognize them. In a so-called 'global' manner. a. Up to and including the number four, only 200 milliseconds more are required for each added object. b. Beyond four, children need 1000 milliseconds more. This is five times more.

Opening clause 2. -- Well, Ai begins to make a terrible mistake precisely between the numbers 5 and 6. -- Which, compared to children, seems to point to something analogous. -- Postscript. – So Ai does not calculate in the strict sense of the word, but immediately grasps the sentence by means of “direct intuition” (immediate perception). Just like children.

B.-- Written accounting as a formalism.

We will briefly examine these operative processes taking place within the interior of the spirit in more than one form.

B.1.-- The numerical calculation.

Here, more attention must be paid to the configuration. -- Let us take the same multiplication “27 x 35”.

MET361

Every schoolchild learns in due course that the 'units' - 5 and 7 - and the tens - 2 and 3 - (1) are placed and (2) correctly, i.e. according to syntactic rules, governed by logic. The split elements are placed in a logically strict order from right to left: first the units 'E', then to the left the tens 'T ', etc.

Appl . mod 27 .-- <u>x35</u> 135 <u>81</u> 945 HTE	The breakdown is clear: first $5 \times .77$, then 3×27 . The totalization of the subtotals, result of summative induction = is also clear: $135 + 81(0) = 945$. - Every step takes into account everything that precedes: a. the given ($27 \times 35 = x$), b . every partial result along the way. Which is an “if/then” reasoning (hypothetical method). In particular: if everything that precedes, then everything that follows (from it).
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Abbreviated : (logical) sign/ (logical) continuation. -- That is logical syntax. Calculus. 'Formalism'. Like a machine, the elementary school child learns to apply the configuration without any explicit philosophical-logical training. -- Which amounts to a logical-syntactic 'algorithm'.

B.2.-- The alphabetical calculation.

We have already seen this from one perspective, namely the summing (collection): EDM--LOG 247v. (Algebraic application). -- Also the aspect of the “ lemmatic -analytical method”, present in the use of letters for numbers (by means of converting vaguely knowns into possible knowns).

Algebraic model.

Given: the 'equation' (= ontological: analogy) “ $ax^2 + bx + c = 0$ ”.

Requested: 'solve' the equation. -- For example: “ $(ax^2 + bx + c) - c = 0 - c$ ”. Which leads to “ $ax^2 + bx = -c$ ”.

Here we are faced with a syntactic rule (EDM--METH 350), namely: “For all bridging, it holds that every member of an equation may be moved to the other side if it takes an opposite sign (+, - become -, +).

This mechanical execution, without any explicit logical analysis, of a syntactic rule that rests, of course, on a justification ... of a strictly logical nature. Here, for example: the equality sign compels absolute equality on both sides, precisely through the exchange of sign values.

Note : Consider how an algebraic equation is a strictly logical configuration, within which, sometimes with a certain degree of leeway, every component is placed and subjected to logical syntax.

MET362

B.3.-- Logistics (logical accounting).

Bible st. : G. Jacoby, *Die Ansprüche der Logistiker auf die Logik und ihre Geschichtschreibung* , Stuttgart, 1962, 9 (Bremer Philosophenkongress 1950).

At the Congress of Philosophers in Bremen (1950), the discussion revolved around the distinction between traditional ontological logic and current 'calculating logic' or logistics.

Bruno von Freytag , known for his *Logik (Ihr System und her Verhältnis sour Logistik)* , Stuttgart, 1955-1, 1961-3, explained to the logisticians gathered there from all kinds of countries that there are indeed many logical calculi , but only one logic, --- the latter with concepts and judgments as its theme, insofar as they are entangled in reasoning. In Platonic language: the three 'elements' of philosophical logic.

Similarity and difference (analogy).

Let us take a single application model.

A. Logical . -- Reread EDM--LOG 312 (Immediate derivations). If “syntactic rules” exist in logistics, then “rules of thought” exist in logic. For example, the logical conversion rule: “In a deductive argument, a negative judgment of general scope (general negative judgment) may be ‘converted’”. Thus: a. “No human being is a stone”. b. Converse form: “No stone is a human being”.

Practical: subject and predicate may be interchanged. - Symbol abbreviated. -- S (= subject), P (= predicate), e (= is not) (= nEgo , in Medieval Scholastic-logical Latin: I deny). -- Thus the rule of thought reads: “For all sentences of the type “S e P”, they are interchangeable to “P e S”.

Conclusion . -- Traditional logic also has its symbol abbreviations, standing for syntax. But it remains initial.

B. Logistics

In formalized logic, it reads as follows: “There is a syntactic rule, applicable to S e P (universal negative judgment), such that the letters (note: letter

calculation) before and after ε – in all formulas of the type “ $X \varepsilon Y$ ” (note: regulative model) – may be interchanged (= be convertible);

Decision.

The by Francois The Viète -introduced algebraic arithmetic marks the transition to the logistification of logic. However, the intuition remains the same. The syntax is implemented thanks to algebraic arithmetic .

B.4.-- The computational calculus.

Bibl . st.: Ph. Davis/ R. Hersh, *L'univers mathématique* , Paris, Gauthier-Villars, 1985, 131.

MET363

Authors touch upon one of the basic premises of computational thinking .

I.-- The running ('readable') mathematical text.

a. The premise of the current mathematical text is that it is in any case formalizable , thanks to, for example, a single artificial language.

b. In fact, ordinary mathematics textbooks contain at most sections that are formalized. “They are written in French, English, or other colloquial languages (EDM 26ff. (Neo -Rhetoric)), because they serve to be read by human beings.” -- The artificial language par excellence is set theory, -- thus the authors. Cf. EDM--LOG 251 (G. Cantor). In other words: the summative tradition!

II.-- The coordinator .

Cf. EDM--LOG 262ff. (Algorithmic thinking).-- Proponents state that one application of formalized text is the program of an ordinator (EDM--LOG 263ff.). To program an ordinator —usable, for example, to test calculations in a company—one must:

a. The graphic style (EDM--METH 356), i.e. the vocabulary and

b. Know the syntactic rules, i.e. the 'grammar' (a metaphor) that master that vocabulary, the basic terms. (EDM--METH 358).

Conclusion . -- In everyday language, the entire situation is considered without being spoken aloud. With the coordinator , there is no such situation: everything must be formulated explicitly. Nothing may be implied, as in everyday languages. -- That is the totally mechanical nature of it.

An application

Bible st. : A. Crettenand , *Colloque scientifique* : Eh bien, jouez maintenant, in: Journal de Genève 31.07.1987.

After the fashion of the audiovisual and that of the microcomputer, the 'fashion' of the simulation game, especially in the USA. (Cf. EDM--METH 348.) Economists, engineers, and military personnel practice it extensively.

1. Basis: a small program suitable for 'calculating' probabilities, using logical rigor. For example, those of a politician to be elected.

2. Further necessary condition: preferably all factors ('elements') that influence an election, such as the city or municipality, the parties, women, religions, etc...

The interested party only needs to 'play': the program is designed so that the logical results (if factors, then probabilities) yield the probabilities ('output'). The scientific discipline thereof: audio-videomatics . -- Again: summations (summative inductions) and ... hypothetical method (if, then), but now applied to the relationship "factors/probabilities".

Study notes.

The center of gravity is logic (theory of thought), which, on the one hand, has the following presuppositions:

- a. a minimal ontology (theory of being, metaphysics) and
- b. a harmology (theory of order, theory of relations) and, on the other hand, as an elaboration (application), methodology (applied logic).

A bookmark with study indicators follows now.

preface (01-07)

Sample 1: Ontology (08-11) Thorough knowledge

Sample 2: the ontological method (12-15) Main points

sample 3: phenomenal, rational, transempirical / transrational (16-19) main points (cf. 336ff.)

Sample 4: tropology (study of tropics): metaphor, metonymy, - synecdoche (20-27) Know thoroughly. Cf. 25 (identitive) 90/92, 102, 186, 291.1.

Sample 5: ontological concepts are transcendental concepts (28-35) 28/31: know thoroughly – Concept, term, scope, content). Categorical

(singular, particular, universal) transcendental (= all-encompassing).
Existence / essence (mode of existence) cf. 129 (form of being)

Sample 6: digression: categories (commonplaces) (36-42)

Sample 7: the alethic ('physical') modalities (43-49). Remember well:
necessary / not necessary (possible, probable, etc.) necessary not and
obligatory (must) / not obligatory (may) / obligatory not (may not)

Sample 8: Being and Nothing (50-57). Remember: “the absolute something” and “the relative nothing”.

Sample 9: Being as inviolable 'sacred' (58-64)

Sample 10: ontological judgments are transcendental judgments (65-71)
Question 65/68 (thorough knowledge). Judgment / proposition (sentence, statement). Identitive nature. Interpretive character. Model-theoretical nature (subject = original, predicate (= model). Comparative nature. Quantity (categorical (sing./ participic./ universal) and transcendental) quality (affirmative, negative and restrictive (reserving))

Thoroughly know Logic 291/297 (theory of judgment). Metaphorical and metonymic judgments. Meaning-gathering / meaning-creating judgments. Analytical / synthetic judgments (cf. I. Kant – who uses the terms in a different sense than Plato .) cf. 292/293: 293ff.

Note: It will be observed that similarity (metaphor, distributive structure, collection) and coherence (metonymy, collective structure, system or the negate thereof (contrast)) recur time and again – as fundamental identifiable concepts.

sample 11: (judgment theory/ordering theory (72-76) Main points

Sample 12: relation theory (77-79) Know thoroughly. Reflexive (loop-shaped) and non-reflexive (e.g. reciprocal (symmetric), transitive, clarity relations).

sample 13: relations logistically speaking (80-89) Main points (content (implication) or inherent to (inherent to)

Sample 14: structure, collection, system (90-96) Know thoroughly. Structure (network of relations), - distributive (metaphorical, collective) and collective (metonymic, system-theoretical) structures. – Systems theory (main points). Cf. 106 (all / whole)

Sample 15:: sign (symbol) and model (98-105) Main points: the three semiotic aspects (syntactic / semantic / pragmatic) cf. 84/85, 105. Remember: map (meta ., similarity) / signpost (meton ., coherence)

Sample 16: Similarity and coherence in the psyche (106-111).

Sample 17: Theory of Contrasts (112-124)

sample 18: dichotomy (complementation) (125-139)

sample 19: measuring equation (140-143)

sample 20: differential theory (144-153)

sample 21: quantitative change/ qualitative leap (154-163)

sample 22: chaology (164-175)

sample 23: crisis theory (176-184)

sample 24: comparative method (185-194)

sample 25: harmology : assimilism (concordism)/ identivism / different(ial)ism discordism) (195-201) note. Similarity and coherence, -- but also non-similarity and non-coherence (which, paradoxically, also establish a similarity and coherence) govern the entire harmology .

sample 26: introduction (202-210)

Main points, question . 207/210 (definition, the logically valid relation, i.e., content (implication) expressed in a hypothetical (conditional) sentence. Know thoroughly. Symbol abbreviation: if preposition , then noun . Deductive: if A, then B, and if A, then B. Inductive (reductive): if A, then B, and if B, then A

sample 27: concept theory (definition) (211-221)

See 5 supra. Concepts enter into logic insofar as they are components of judgments.

sample 28: concept theory (platonism) (222-227)

see 5 supra: visual . sub .

sample 29: conceptual understanding (division, classification) (228-235)

Only know 229 (successful enumeration) thoroughly.

Sample 30: Conceptual theory (induction) (236-241)

to know thoroughly. 'Induction' is a sampling method. In all (collection), in the whole (system) summative (knowledge- or information-summarizing) and amplificative (knowledge-expanding) induction. Scope square . Socratic, Baconian induction, and general and causal induction.

sample 31: concept theory (collecting) (242-253)

Remember 244v. (stochiastic method) 247. (lemmatic -analytical method).

Sample 32: Conceptual theory (algorithm) (254-261)|

Remember the praxeological definition (initial situation, algorithm, final situation) (254)

cf. 95 (goal-oriented system)

sample 33: concept theory (algorithmic thinking) (262-270)

computer algorithm , automatic washing machine as model (263)

sample 34: concept theory (individuology) (271-273)

ideography as description or explanation of the individual (singular, unile)
) The proper name

sample 35: concept theory (individuology) (274-285)

Definition of the singular (syn) and diachronic, coimbra method , singular situational method. Mean method (convergence), detective method

sample 36: concept theory (individuology) (286-290)

scientific definitions

sample 37: theory of judgment (propositional theory) (291-297)

see 10 supra

Sample 38: theory of reasoning (the hypothetical sentence) (298-302)

preposition and concluding clause (Preposition, Consequence). Typology of concluding clauses (302) de-in- and abduction in Peirce .

sample 39: theory of reasoning (proof/ argument/ argumentation) (303-307)

logical and illogical reasoning

sample 40: reasoning theory (syllogistics - closing reasoning) (308-312)

Categorical and hypothetical syllogism

sample 41: theory of reasoning: syllogistics : typology) (312-321)
question . 318/321 (Platonic reasoning). Know the latter thoroughly.

Sample 42: Methodology (Applied Logic) (322-328)
mainly 323: epistemological definition (research + argument)

sample 43: methodology (theory) (329-335)
mainly definition (329). System of (a) opinions, (b) propositions (judgments, so that what is given becomes understandable, Also known as: the purely verifiable part of science. Hard / soft science. (330/331)

sample 44: methodology: direct and covered method (336-343)
Perceptual acuity (finesse) / reasoning mind (esprit géométrique). The concept of metatheory (330/340), the theory concerning the theory.

sample 45: methodology (the phenomenological method (334-353)
This is the basis of every direct method. Intentionality. Psychology of consciousness (phenomenological psychology). Phenomenology as description, as a factual message (with the reductions, the eliminations so that the object is exposed).

sample 46: methodology: the arithmetic or formalism method (354-363)
Semiotics (the purely syntactic), combinatorics (placement), and especially logic (step-by-step method (algorithm)) as preconditions.

Definition of 'formalism': 1. Graphicism (blackened paper) 2. Logification (processing meaningful signs according to syntactic rules).

Examples: a. mental arithmetic, b.1. numerical arithmetic, b.2. letter arithmetic, b.3. logistics (logical arithmetic), b.4. computational arithmetic (coordinate arithmetic). This is clearly an indirect method: not 'description' as in phenomenology, but calculation is the task.

For the exam: either the phenomenological method or the formalism method, regarding the main points.