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Psychological Stage Development and the History of Philosophy

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Abstract

Historians of philosophy often raised the question whether or not there has been a general trend or a general direction identifiable in the history of philosophy. D´Holbach, Hegel, Comte, Brunschvicq, Cassirer, and Piaget belong to the list of those scholars who tried to describe the history of philosophy as a history of stages of mind. They all described the history of philosophy as a sequence of stages going from more concrete, simple, and childish patterns to more elaborated, systematic, abstract, and mature patterns. Piaget himself made many comparisons between ancient philosophy on the one side and childish stages on the other side, while he identified higher psychological stages only in the sciences and philosophy after 1650. His idea with this regard, supported by T. Kuhn and A. Koyré, has found a couple of followers who likewise contributed to the psychogenetic theory of the philosophy´s history. The new structure-genetic theory programme, however, emphasizes that not only the philosophical theories but also the psychological structures of the philosophers themselves went through the stages developmental psychology has found out. This article here distinguishes six stages identifiable within the history of philosophy: Mythos, archaic philosophy, Ionian philosophy, classical Greek philosophy, early modern philosophy, and modern philosophy, all of them describable in terms of developmental psychology.

Keywords: developmental psychology, psychological stages, history of philosophy, metaphysics, mechanical philosophy, mythology, animism, magic, nominal realism, philosophy of ideas, theory of movement.

Introduction

Philosophers and historians of philosophy wondered over generations whether or not the history of philosophy reveals a progress of mind and knowledge. Perhaps there is no progress at all and philosophers such as Plato or Parmenides have the same intellectual authority and contribute the same amount of knowledge and wisdom as Descartes and Kant, Feuerbach and Hegel, Popper and Cassirer, Sartre and Jaspers. Perhaps there are no intellectual differences between great philosophies across times and cultures because sophisticated philosophers originate by chance at any times in many a cultures. I name this possible position the universalistic position. Another position would be to assume that succeeding generations of philosopher's influence each other in favor of the later generations who don´t have to invent the wheel anew. Correspondingly, the first philosophers had to invent many concepts for the first time and to spend their time with many

fruitless discussions, while the later generations would have the advantage of staying as dwarves on giants, benefiting from the achievements of former generations. Therefore, later generations, exposed to great ancient achievements and knowledge early in their education, have the possibility to go beyond the reach of former philosophers. This kind of interpretation would see the history of philosophy as an accumulation of knowledge, that is, as a knowledge-based advancement.

It would be possible to find a third interpretation already in ancient philosophy, namely the idea of growing insight and intellectual sharpness as a main motor of the history of philosophy. Many ancient philosophers maintained to have surpassed former philosophies due to their superior intelligence or intellectuality.

G.W. F. Hegel (1973), both in his phenomenology and in his history of philosophy, was probably the philosopher who more than any other before him interpreted the history of philosophy as succeeding stages of growing consciousness, mind, and self-reflectivity. He understood the history of philosophy specifically and the history of mind and culture generally as a history of mind going from primitive, unconscious, and perception- bound forms to self-reflective, abstractive, and logical forms of mind. He understood this intellectual evolution as the way how God becomes an awareness of himself and realizes his plans in history. Hegel´s interpretation of the history of philosophy was succeeded by L. Feuerbach (1985), however, without having anymore any metaphysician framework. Cassirer´s (1998) interpretation of the history of philosophy followed this secular approach, describing the growth of mind and philosophy going through three great stages. He understood the history of philosophy as the way the human mind develops from primitive and childlike forms to mature, rational, logical, and abstract forms. In that way the history of philosophy was connected to the history of culture and sciences, art and religion, where the same growing consciousness carried their respective advancement. Cassirer based his theory of mental evolution upon the insights of H. Werner and L. Lévy-Bruhl, that is, upon ideas won in developmental psychology and ethnology. Cassirer believed in parallels between ontogenetic and historical developments, although he did not work out this idea in a very comprehensive way. L. Brunschvicq (1922), similar to Cassirer´s approach, likewise interpreted the history of philosophy in terms of developmentalism.

The evolutionary ideas of Hegel, Feuerbach, and Cassirer were succeeded by Jean Piaget´s (1967, 1975; with Garcia 1989) interpretation of the evolution of sciences and philosophy. As many authors, especially in the prewar era, he described the parallels between ontogenetic and historical developments. He discovered in the history of sciences and philosophy the same stages that characterize the development of children and adolescents. For example, he interpreted the Ionian philosophy and the physics of Aristotle convincingly in terms of developmental psychology, while he referred the rise of sciences "in strictu sensu" and modern philosophy during the 17th century to the historically freshly grown stage of formal operations, nowadays usually occurring among modern adolescents stepwise between their 12th and their 20th year of age. Piaget´s interpretation of the history of philosophy found some successors even in the past few decades (DeCaprona 1983; Fetz 1982; Kälble 1997; Strauss 1988; Habermas 1976; Oesterdiekhoff 2013a, 2015b, 2009, 2011).

The article here intends to reconstruct the history of philosophy in terms of developmental psychology, describing the main historical eras in terms of psychological stages. The main stages are mythological thought, archaic philosophy, Ionian philosophy, Plato´s philosophy, Aristotle´s philosophy, the philosophy of the early modern times, and the secular and rational philosophy from the 19th century onwards.

Piagetian cross-cultural psychology

The whole argumentation provides the existence of far-reaching psychological similarities between premodern adults and children. Numerous researchers between 1840 and 1950 delivered evidence to the existence of these parallels, among them practically all founders of child psychology and psychoanalysis, and many representatives of ethnology, sociology, psychology, and other disciplines (e.g., Schultze 1900; Werner 1948; Frazer 1994; Tylor 1871; Schneider 1909; Allier 1929; Elias 1976). Due to the rise of the two ideologies "cultural relativism" and "universalism of mind" in the past 40 years, these prewar traditions became oppressed and almost forgotten. However, even in the past decades some researchers followed these once great traditions, among them Habermas (1976), Hallpike (1979), Kälble (1997), Oesterdiekhoff (2009, 2011, 2013a), Gablik (1976), LePan (1989), Ibarra (2007), Tulviste (1979), and Radding (1985).

Moreover, the empirical research conducted in the frame of Piagetian cross-cultural psychology over the past decades continued to prove of the psychological similarities between premodern adults and children. More than 1.000 empirical surveys across continents, regions, countries, races, and social milieus showed that premodern adults practically do not develop the adolescent stage of formal operations but remain staying on the childish stages of preoperational or concrete operational stages or on mixtures of both. This concerns the whole range of psychological life and world understanding including logic, physics, social affairs, morals, politics, and religion. Everything what was found out to describe the psychology of children is likewise typical for the description of great percentages of premodern adults, no matter whether they live in hunter and gatherer societies, nomadic or peasant societies, or in traditional or underprivileged milieus in developing nations (Dasen & Berry 1974; Dasen 1977; Piaget 1974; Havighurst & Neugarten 1955; Hallpike 1979; Luria 1982; Mogdil & Mogdil 1976; Oesterdiekhoff 2009, 2011).

Transitional phases between the third and fourth stages or beginning phases within the fourth stage may characterize gifted persons or intellectuals, for example in the long transformations to modernity from 1600 to 1900 or in the Roman-Greek antiquity. This process of psychological development did not stop at anytime during the 18th or 19th centuries but continued even in the most advanced nations in the past decades. Moreover, this process modified the psychological structures of people in the Third World during the past century tremendously (Oesterdiekhoff 2009, 2011, 2013b, 2014a; Mogdil & Mogdil 1976; Flynn 2007; Raven et al. 1993).

Hallpike (1979) defined both the resemblances and differences between premodern adults and children, saying that they share their qualitative development (their structures and stages) but differ in their quantitative development (their knowledge and life experience). In fact, they share their whole psychological life down to the smallest details but differ only in those forms of knowledge and skills, which do not depend on stages (Oesterdiekhoff 2016b).

Basically, the correspondences identified do not concern isolated modules but features and faculties that reflect entire psychological stages. Therefore, premodern adults do not develop beyond psychological stages of children aged 7, 10, or 12, respectively. Modern adults, however, when they develop substage A of formal operations, attain their psychological summit with 13 or 15; in case they develop substage B, concerning 30-50% of modern adults, then they establish "developmental ages" of adolescents aged 15 or of adults aged 20 or 25. According to modern developmental psychology, each year from 0-25 can be a full developmental year, establishing new psychological stages. This implies that modern adults unfold between 0 and 18 more developmental years than premodern adults do, typically between 5 and 10 more developmental years (Oesterdiekhoff 2012, 2016b, 2009, 2013a; Piaget 1974; Schultze 1900; Kohlberg & Gilligan 1971).

Without obliging school attendance, basing on scientific curricula, without diligent child care, without demanding job requirements, etc., humans do not develop beyond childish stages. Modern socialisation and professional life are the causes behind the rise of the fourth stage respectively the climbing developmental years. Modern culture, affecting human brains from early infancy, enables humans to use the "developmental window" to establish the higher stages, while the lack of these stimuli causes the "arrested development" of premodern adults (Hallpike 1979; Oesterdiekhoff 2013a, b, 2012, 2009, 2011; Schultze 1900; Flynn 2007; Dasen 1977; Piaget 1974; Scott et al. 1951).

These data deliver the decisive theoretical and empirical background to understand the philosophies of the ancient philosophers. The bell curve of intelligence distribution within a certain population, added by the fact that premodern populations stay on lower stages than modern ones do, illuminates that premodern scientists and philosophers cannot have attained the same psychological stages as modern scientists and philosophers do. Even ancient philosophers with one or two standard deviations beyond the intelligence of the common people of their time would not attain the stages modern philosophers stay upon. In fact, there are no commonalties between ancient and modern philosophers. Moreover, often ancient philosophers do not reach the psychological stages of common modern people although the latter one are mostly unable to share in philosophical discussions and have no respective knowledge. Nevertheless, as I will show below, ancient philosophies usually stay below the ideas modern psychological stages reveal and make possible. The reason to that remarkable phenomenon is that common modern people were exposed to modern culture from their first days on and could use the succeeding developmental windows better than ancient philosophers did. The scholars of the past, learning and teaching philosophy over decades, did not establish the fourth stage of formal operations during their adolescence to

that extent as modern people do. Therefore, modern people have no possibility to understand the ideas of ancient philosophy rightly due to their better primary school education and enhanced early cognitive development, even (sic!) when they are in the end weakly educated and have only executing jobs. Conversely, ancient philosophers, although working on their ideas over years, cannot establish anymore the higher stages in their later years because they missed modern socialisation and correspondingly accelerating cognitive growth early in infancy (Oesterdiekhoff 2013a, pp. 49-79, 195-215, 2016b, Piaget 1975, vol. 10, p. 184, with Garcia 1989, p. 263). Only this theoretical background is able to explain the far-reaching commonalties between the early psychological stages and ancient philosophy on the one side and the higher psychological stages and modern philosophy on the other side. Of course, children aged 8 or 10 could never write the treaties ancient philosophers had written. Children can express their philosophical ideas only by short statements and not in a comprehensive way, as Piaget (1959) remarked. However, as I will show below, ancient philosophers did nothing more than to express children´s ideas. When adults stay on stages of children aged 8, 10 or 12, respectively, over many decades, then they have the skills and characteristics to write ancient philosophy (Oesterdiekhoff 2013a, pp. 251-286). The succeeding sections will evidence this theoretical background that explains the history of philosophy in a very clear and surprising manner.

Developmental psychology and ancient metaphysics

The patterns of children´s thought explain the main characteristics of ancient philosophy and worldview. It is the entirety of children´s psyche that explains the main traits and foundations of premodern worldview and philosophy. It would be insufficient to maintain that only a small sample of children´s mind pecularities cause a few traits of ancient philosophy. Children´s reasoning abilities, their abilities to understand logic, their sense for reality, their physics, their understanding of categories such as causality and chance, their worldview and religion, and their emotional life carry and cause the main traits of ancient religion, philosophy, and metaphysics. Further, it would be insufficient to hint at the mere existence of the parallels of the two groups. Moreover, children´s mind delivers the explanation to foundation and structure of premodern philosophy and its annihilation after 1640.

Piaget (1959) himself, especially in his book on the worldview of children, delivered the decisive contribution to this approach. He described there that animism, magic, artificialism, and conceptual realism build the scaffold of children´s worldview. He showed there that modern adolescents after their tenth year of life surmount this fairy tale worldview by the evolution of the causal-empirical categories, the mechanical worldview and the subjective understanding of mind. Even at first glance it becomes apparent that the four main traits of children´s mind are those of ancient metaphysics, while the characteristics of the adolescents´ mind match to the traits of the early modern philosophy since Descartes. That surely implies that psychological stage development beyond children´s stages have caused the replacement of ancient metaphysics by modern philosophy. That sheds a new light on the nature of ancient philosophy and on the evolution of modern philosophy as well.

Developmental psychology has shown that every child irrespective of culture and socialisation starts his or her life with animistic interpretations of nature and physics. He or she does not know the difference between body and soul, matter and mind, physis and psyche but interprets any kind of movement and body as conscious and alive. Rocks, rivers, stones, artefacts, clouds, houses, cars, etc. are understood as living beings or even as persons. The decline of animism starts roughly with six years of age and the phenomenon vanishs with 10 or 12 years of age at the latest in modern societies. The adolescent growth of intelligence and mind causes then the evolution of causal-empirical categories and mechanical worldview, eliminating the former fairy tale worldview (Piaget 1959, 1969; Werner 1948; Hyde 1990; Rosengren 2000).

Ethnology over the past 300 years has abundantly described that premodern peoples across continents, cultures, and races since prehistory up to the era of Enlightenment share the same animistic worldview as children do. There is not one premodern culture that does not regard matter, things, objects, etc. as alive and conscious, often even as persons and gods. Nature religion consists of the adoration of winds, rocks, clouds, sun, woods, etc. (Campbell 1960; DeGroot 1910; Evans-Pritchard 1937; Fortune 1963; Frazer 1994; Havighurst & Neugarten 1955; Kälble 1997; Tylor 1871; Lévy-Bruhl 1923, 1971, 1985; Oesterdiekhoff 2007, 2009, 2011, 2015a, b, c).

Correspondingly, the whole premodern philosophy in Asia and Europe, from the axial times to the early modern period, shared this animistic view on nature and reality. The whole cosmos was seen as a living being, stars and planets as persons or gods, likewise earth and heaven, oceans and mountains. Plato (1980) saw the world soul governing all movements within the cosmos, controlling all incidents happening in the world and all regularities as well. Likewise Aristotle (1995) understood the functionning of the whole cosmos and the movement of every single stone as caused by intentions, as I will show below in more detail. Plato´s and Aristotle´s ideas, however, covered and reflected the ideas of Europe´s philosophy for roughly 2000 years. Neither the medieval philosophy in Europe nor in Asia had ideas on nature differing from this animism (Störig 1996; Russell 2004; DeGroot 1910; Oesterdiekhoff 2009, 2011, 2013a, pp. 129-138).

Developmental psychology has shown that every child automatically believes in magic and artificialism. He or she believes that humans and gods can cause incidents of any kind by mere wish or some rites. The child initially assumes that the world and its ingredients such as sun, mountains, waters, animals, and humans are made by the magic of gods or humans. Moreover, the child believes that the whole world has a function to fulfill the wishes of gods and humans. Therefore, divine intentions cause existence of the cosmos, the laws that govern it, and the incidents happening in it. On the whole, the world is a moral institution and a divine being. There are no differences between moral and physical laws. The world has a sense and a goal, and history, down to single incidents, is ruled by providence and wisdom. Modern adolescents after their tenth year start to abandon this pleasant and cosy worldview, differing now between moral and physical laws, theology and physics, psyche and physics, natural and supernatural phenomena. The disenchantment of the world is the inevitable outcome of the rise of the formal-operational stage (Piaget 1959, 1969; Piaget & Inhelder 1975; Rosengren 2000; Hyde 1990; Oesterdiekhoff 2009, 2011).

It is evident that this children´s philosophy completely matches the centre and kernel of premodern philosophy in Asia, Europe, and elsewhere. The idea that the cosmos is a living being and a moral institution, governed by mystical influences that control history and time is an idea to find right across the numerous philosophies over millennia. Ancient metaphysics admires the beauty, indescrutibility, divinity, and morality of the cosmos, seeing the eternity of the human being as connected to the eternity of the cosmos, describing the deep and mystical tights between cosmos and humans, cosmos and individuals, invisible and visible world, invisible soul and visible body, gods and humans. Ancient metaphysics completely denies materialistic ideas of world and human beings. These metaphysician ideas are shared by Plato and Aristotle, and by medieval philosophers in Europe and Asia (Störig 1996; Russell 2004). Ancient metaphysics from prehistory over Plato, Aristotle and Thomas to Leibniz, Spinoza, and Hegel is theological philosophy (Weischedel 1979). The world is made by gods for gods and humans (Cicero 1995, p. 243f). Frequently, the world is seen as a perfect world without leaving any possibilities for improvements, as for example by Plotin (1973, p. 224, 243), Cicero (1995, p. 195) or Leibniz (1986). According to them, the real world is the best world possible because there is no difference between “is” and “ought”, between the “real” and the “best”. Hurt, sickness, death, and unhappiness are mere illusions and do not reflect the divine truth viewable only to believers and philosophers. “Wenn also das geringste Übel, das in der Welt geschieht, in ihr fehlte, so würde sie nicht mehr diese Welt sein, die alles in Rechnung gestellt, von dem Schöpfer, der sie erwählt hat, als die beste befunden worden ist.” (Leibniz 1986, p. 221)

Modern philosophy since the era of Enlightenment roughly cannot believe anymore in this philosophy. Therefore, ancient philosophy must base on a different emotional and cognitive foundation. It bases on a tight relationship between humans and world, on the lack of a strong separation between subject and object, and on a deep trust of humans in the world, undestructible by experience and reasoning. It bases on that what Piaget (1959) named “ontological egocentrism” as a typical trait of children´s philosophy. Ancient philosophers have different psychological structures from modern ones.

Modern humans usually do not share principles and argumentations of ancient metaphysicians. Although Plato and Aristotle are said to be the first philosophers who developed a Begriffssprache (concept language), thus transforming the former Bildsprache (picture language) of Ionian philosophers (Snell 1975; Störig 1996), and impress by their argumentation and thoroughness, modern humans or scientists usually have higher standards regarding argumentation, conviction, theory construction, and proofs (Russell 2004, p. 223; Oesterdiekhoff

2013a, p. 252). Modern humans commonly cannot anymore believe that world and cosmos are holy, are gods, and are ruled by moral laws. They cannot believe that the existing world is the best possible one, etc. Nobody today could follow the ideas outlined by Plotin, Spinoza, Plato, or Thales. Their way of thinking rather reveals some kind of wishful or dreamy thinking, lower standards of examination of reality, and other traits of simpler forms of mind. Accordingly, Plato and Aristotle, as most other philosophers of ancient and medieval times, believe in magic and superstition, in ghosts and angels, in gods and divinities, in providence and oracles, etc. thus more or less sharing the ancient popular superstitions (Luck 1990; Thorndike 1923-1946). Usually, this magical-animistic worldview matches to the stages below the fully developed formal-operational stage.

The rise of the early modern philosophy with R. Descartes (1980) as one of its most famous founders opened the door for the destruction of ancient metaphysics. Descartes annihilated the magical-animistic interpretation of world and physics. His distinction between res cogitans and res extensa surmounted both magic and animism, and separated subject and object, mind and matter. To Descartes, the real world is only res extensa and therefore without any soul, intention, and moral. The material world is subordinated to physical laws, which have nothing to do with moral laws. Thus, Descartes is one main founder of the new physical sciences. As protagonist of the modern philosophy he destroyed the plausibility of ancient metaphysics, the legitimacy of the philosophies of Plato and Aristotle. He is one of those who removed and surmounted ancient metaphysics for ever (Dijksterhuis 1956; Brunschvicq 1922; Russell 2004, p. 567; Störig 1996).

Piaget (1975, with Garcia 1989) made it very clear that the transformation to Cartesian philosophy is understandable as transformation from the childlike mind to the formal-operational stage. Piaget and Garcia themselves described that the evolution of formal-operational thought in modern adolescents corresponds to and replicates the same evolution that took place in science and philosophy of the 17th century. On the whole, the rise of early modern philosophy and modern sciences is born in psychological stage development, that is, in the transformation from the concrete operational to the formal operational stage. It did not originate in theory modifications only but in psychological stage transformations (Oesterdiekhoff 2013a, pp. 283-286; Kälble 1997; Strauss 1988; Fetz 1982; DeCaprona 1983). “In den Anfängen der Wissenschaft, zu einer Zeit, als die Physik noch in den Kinderschuhen steckte und noch nicht das war, was sie seit Newton geworden war, findet man Entwicklungsstufen, die erstaunliche Entsprechungen zu den Stadien bieten, die ich bei Kindern beobachtet habe.“ (Piaget 1996, p. 143) Of course, the last rests of ancient metaphysics died out only in the 19th century, mainly with Hegel´s death. On the whole, the well-known death of ancient metaphysics is explainable in terms of developmental psychology. Therefore, the whole history of philosophy is explainable only this way.

Stage one: Mythological mind

The ancient philosophers knew themselves that philosophy was born late in history as a stage of mind superior to the prior mythological mind. Criticism of the belief in myths was a main part of early philosophy. “From mythos to logos” (Nestle 1975) was the first movement of the Greek enlightenment and of the rising philosophy. Nature peoples and archaic societies that do not have philosophical systems perform their mental activities by inventing and telling myths. These myths frequently explain the world and its ingredients, the origination of cosmos, sun, stars, mountains, seasons, rivers, peoples, animals, plants, customs, down to the smallest details. They explain and justify the world, they inform about the gods and their deeds. Archaic societies understand the world mythologically, neither philosophically nor scientifically (Lévy-Bruhl 1983; Oesterdiekhoff 2015c, Wuttke 1860; Tylor 1871; Snell 1975; Campbell 1960).

For example, the Andaman Islanders tell the myth that once upon a time a human being killed a cicada, committing a crime because cicadas are the children of the master god Biliku. The god punished the whole race of humans for this sin by sending them the alternation of day and night (before this crime there was no night). This myth is the Islander´s explanation how the daily alternation of day and night originated: God made it in order to punish humans. Moreover, the Islanders fully believe that the punishment is imposed by god and his children every day again. This belief bases on the daily observation that the cicadas make their noise (their singing) mainly during dawn and dusk. The Islanders assume that the cicadas intentionally make their noise in order to cause dusk and dawn. They believe, moreover, that the magical power of the cicadas and their singing actually cause dusk and dawn. The cicadas are the masters of day and night in order

to punish the descendants of the early sinner. Thus, both myth and everyday understanding base on the same ideas (Oesterdiekhoff 2016a).

This myth reveals many psychological traits typical for mythical thinking. Natural phenomena are explained in terms of intentions and actions, they originate in magical actions, they have moral and religious implications, animals and objects can think as humans do, they share the social world of humans, cicadas can play a role as big as humans or gods do, there is no difference between nature and society, etc. Intererestingly, the Islanders identify the observable timely coincidence of noise and daily alternation as a causal one – against all rational ideas modern humans would have when exposed to explain this phenomenon. The main features of this myth are to find in myths right across the continents, cultures and times from prehistory to the end of the premodern world. These forms of myths are the typical form of reason right across the whole premodern humankind. Although ancient philosophers tried to object to such myths, especially the common people adhered to such myths by the era of Enlightenment.

Modern children aged eight could not believe any more in the Islander´s myth; however, this myth matches to the psychology of children aged three to seven. Therefore, numerous mythologists hinted at the parallels between ancient and children´s myths, saying ancient myths are born in peoples staying on childlike stages. In fact, child research found out that children´s creation and belief in myths completely match the features of ancient myths. Children and archaic adults are likewise capable to create such myths – and to believe fully in their own creations, seeing no difference between myths and reports, fantasy stories and fact reports. Both groups have a fairy tale understanding of the world. Children´s myths have the same pecularities as those of the Islander´s myth mentioned. The last origin of such kinds of myths is the anthropological stage of children aged three to seven. Only children this age or people staying on this preoperational stage have the preconditions in order to create and to believe in such myths. People must have a childlike fantasy, a weak sense for reality, a weak understanding of causality and chance, a magical-animistic understanding of nature, a tendency to personify animals and objects, a moral and religious interpretation of nature and cosmos, etc. in order to be capable to understand the world this way (Bühler & Bilz 1977; Campbell 1960; Dieckmann 1995; Piaget 1975, vol. 5; Oesterdiekhoff 2009, 2013a, 2015a; Prentice 1978; Rosengren 2000).

Child psychology described that children after their seventh year of life, and after their tenth year of life at the latest, surmount the mythological stage, replacing it by empirical-causal descriptions and rational explanations. The rise of the stage of concrete operations starts to destroy mythological capacities (Piaget 1975, vol. 5; Bühler & Bilz 1977; Oesterdiekhoff 2011, 2013b). Humankind surmounted his or her mythological stage the same way as modern children do. The axial times in Asia and Europe were the first stages in history where intellectuals surmounted the mythological stage, founding those philosophies that are famous by today, basing those mental foundations from which our modern culture could develop (Snell 1975; Nestle 1975; Feuerbach 1985).

Stage two: Archaic philosophy

Some authors such as Griaule, Dieterlen, Gutmann, Tempels, and de Ganay described a kind of philosophy that is intellectually very close to mythology but differs from that by the higher amount of coherence and consideration. This kind of philosophy is not to find in the written history of philosophy but only in oral traditions. It is typical for archaic and illiterate societies since prehistory. Although Griaule (1970) compares it to Ionian philosophy it is evident that it is below the psychological stage of the Ionian philosophy.

Griaule´s book presents talks, Ogotemmeli, a philosopher of the Dogon people of Mali, gave in 1946. “Nachdem Gott die Frau gemacht hatte, gab er ihr ein schlechtes Blut, das allmonatlich hervorflutet… Da die Frau aus Erde gemacht ist, ist sie ihr etwas schuldig. Gott hat eine Blutschuld in die Frau hineingelegt. Sie muss das Wasser vom Leib Gottes für die Erde vergießen. Nur während der Schwangerschaft und während des Stillens treibt die Erde diese Schuld nicht ein, denn auch das Kind ist eine Bezahlung.“ (Griaule 1970, p. 135) Ogotemmeli explains that god made the woman to have something to drink. He understands the earth as god, and as a being dependent on the regular provision of fluids. The menstruation blood of women is made as a sacrifice and drink for the earth. The earth necessitates water or blood as any other living being does. Moreover, god or earth made the woman´s lack of period during pregnancy as gratification to the women for her making of children. These children, the female ones, will again provide the earth with

nourishing fluids. Therefore, the missing menstruation is the earth´s payment to the women´s contributions (Griaule 1970, p. 132-135; Oesterdiekhoff 2013a, pp. 263-270).

Ogotemmeli explains the whole cosmos this mythical way, down to the smallest details. There is not one talk of Ogotemmeli where he not explains phenomena in this strange way. He seems to have for anykind of phenomena such forms of "complex" and "difficult" explanation available. There is nothing to find where the philosopher demonstrates any kind of rational and logical thought; he simply has not any common sense intelligence and mind regarding any phenomena. Though, his expositions seem to originate from long-lasting considerations, from ancient traditions he follows, and from suddenly arrived ideas in his mind when exposed to questions. His mind and reason strongly resembles mythical thought, resembles even the cicada myth mentioned. There is no difference regarding the developmental stage apart the amount of consideration and processing.

Griaule (1970, p. 105) states, not to have the slightest idea how to explain this extremely strange form of reason and mind. Of course, developmental psychology can explain this kind of thought. It strongly resembles the preoperational thought of children aged 3-7, differing from that only by the amount of consideration and processing involved. Children this age and Ogotemmeli share the same magical, animistic, transductive, phenomenistic, analogical, and synkretistic patterns of reason. It is some kind of autistic, dreamy, and playful thought characteristic to the symbolism of the preoperational stage (Piaget 1975, vol. 5, pp. 314, 321, 300; Oesterdiekhoff 2013a, pp. 266-269).

On the whole, in world history there has been some kind of philosophy on a purely preoperational stage. This kind of philosophy is completely distant from modern everyday and philosophical understanding of the world, and from classic Greek philosophy.

Stage three: Ionian philosophy

Piaget (1975, vol. 9, p. 79) himself understood the Ionian philosophy as a form of philosophy completely defined by the concrete-operational stage. Moreover, the Ionian philosophers may have been those humans who developed this third stage of human development for the first time in history. According to Piaget, Ionian philosophy is beyond preoperational stage and mythical thought but below the formal operational stage, that is, it is close to the thinking of children aged six to ten. To my opinion that may explain the developmental difference of the Ionian philosophy to the archaic philosophy and mythology of the stages one and two mentioned but its still to our minds obvious oddity and simplicity. Ionian philosophy appears to us much more strange and primitive than the philosophy of Aristotle or Cicero.

Children on the concrete operational stage try to explain different phenomena by identification and tend to atomistic explanations, thus surmounting the phenomenism of preoperational thought. The experiments to the conversation of physical entities showed how children come to understand basic elements of physics and nature (Piaget 1975, vol. 4). As the children of the concrete operational stage, the Ionian philosophers discover the conversation of substance, volume, weight, quantity, mass, causality, chance, etc. and express this evolution in their philosophies. As children aged seven or eight understand for the first time that a mass may consist of many small and invisible elements, Ionian philosophers develop the philosophy of atomism as a general theory of the world. Accordingly, Empedokles explains that air is a substance or that shadow and night are not substances, contrary to the ideas of the preoperational stage. Only children of the concrete operational stage grasp that shadows are not material opposite to preoperational children and common premodern adults. Therefore, there are remarkable similarities between the pecularities of the concrete operational stage and the philosophy of nature of Thales, Anaxagoras, Anaximenes, Empedokles, etc. (Piaget 1975, vol. 9, pp. 172; Piaget 1959, 1969; Diels 1969). The strong animistic, magical, and artificialistic tendencies in the Ionian philosophy supports this assignment, too.

The predecessor of Ionian philosophy is the theology of Hesiod (1999), as a missing link between mythos and philosophy. There are some resemblances between Hesiod and Ogotemmeli, but, on the whole, Hesiod manifests higher forms of rationality and objectivity, that is, a higher psychological stage than the true archaic philosophy. Altogether, Ogotemmeli is a missing link between mythos and Hesiod´s theology, and Ogotemmeli and Hesiod both manifest stages between mythos and Ionian philosophy.

Stage four: Classical Greek philosophy

Plato (1980) and Aristotle (1995) are said to be the main protagonists of the Western world´s ancient philosophy. They themselves understood their philosophies as intellectually superior to that of the Ionian philosophy, a judgment, which can be verified by developmental psychology. Plato presents his philosophy in form of dialogues, while Aristotle in form of books, divided in chapters unfolding a system or architecture. Aristotle is said to be the first scientist who presented systems of thought, thus being perhaps the first great scientist, the man, who truly originated scientific reasoning abilities more than anyone before him (Russell 2004). However, Plato and Aristotle are analysed here in the same chapter because they were both followed to the same extent over 2000 years. Authors, Plato and Aristotle, and readers or followers, the latter ones over 2000 years, belong more or less to the same psychological stage. Otherwise, the disciples up to 1650 wouldn´t have read and followed the both Greeks. However, I think that Aristotle represents a higher stage in terms of developmental psychology when considering that his theory of logic is superior to Plato´s Maieutik or he has a system philosophy and not only a philosophy born in everyday talk and myths. Both authors exhibit a Begriffssprache, differing from Hesiod and, to a certain extent, from Ionian philosophy (Snell 1975). Aristotle´s Begriffssprache is more exact and abstract than Plato´s one, I think. Ogotemmeli would not interest himself for Plato or Aristotle because their philosophies are beyond his abilities, while Descartes or Newton, and all others who came after them, would disregard Plato and Aristotle because philosophers after 1650 are intellectually beyond their systems respectively stages. European philosophers of the 16th century, however, could not even imagine that philosophies could ever surmount classical Greek philosophy (Russell 2004).

Plato´s philosophy of ideas is understandable only in terms of developmental psychology, as I am going to show. According to Plato (1980), opinions reflect the visual or material world, while knowledge (or truth) reflect the immaterial or supernatural world. The material or visual world is irreal, while ideas are realities. Things or objects are irreal, while ideas are realities or substances. The idea of a "lion" is true and real, while the many lions running through the world are only appearances. God created the idea "lion" and this idea created the many lions in the world. The single appearance is a manifestation of the general idea "lion". The many lions come into being by participation into the idea. God created the general ideas (classes), they themselves create more particular ideas (kinds), and the kinds again create the appearances. The philosopher understands the truth or the idea by recognizing the supernatural world.

The whole construction of Plato´s theory consists of elements of the lower psychological stages. The early modern philosophy, with Descartes, Hume, etc., turn around the relationship between cognition and reality. From now on the empirical, visual, and material world is real and objective, while cognitions are insecure and subjective. For early modern philosophers cognitions are not anymore supernatural traits, reaching eternal and immaterial truths. Plato, however, regards the true cognition as an immaterial and supernatural act. His theory of knowledge reflects the mystical understanding that Lévy-Bruhl had identified as main pattern of archaic societies. Therefore, many authors have paralleld Plato´s theory to corresponding ideas of shamans (Allier 1929; Lévy-Bruhl 1983; Radding 1985). Children understand cognitions, too, as made by souls, who are interpreted as immaterial ghosts. Moreover, children, like Plato, believe in the absolute truth of ideas (Piaget 1926; Broughton 1978).

Lévy-Bruhl (1923, 1971) has shown that the law of participation is central to the worldview of premodern cultures. According to the archaic worldview, the visual, material, and empirical world participates in the mystical and supernatural world. The latter one is real, while the material world is completely governed and caused by the mystical world. Piaget himself (1975, vol. 5, 1959) showed that children believe in mystical participations the same way.

The philosophy of ideas does not discriminate ideas and realities the way, which is inevitable to every modern adult irrespective his education and social milieu. This philosophy realizes or materializes ideas and irrealizes realities. It fails to understand the modern or formal-operational distinction between subjective and objective, material and immaterial, real and irreal, soul and matter, psyche and physis. Developmental psychology has evidenced that children suffer from the same insufficiency by their tenth year of life roughly. Piaget himself called this phenomenon conceptual or nominal realism as inevitable part of human development. He showed it regarding the children´s misunderstanding of the interrelationships names/things, words/things, language/reality, and dream/reality. As Plato does, children have a realistic understanding of

names, words, language, and dreams, too (Piaget 1959; Broughton 1978; Radding 1985; Oesterdiekhoff 2013a, pp. 270-280, 2009, pp. 170-187).

Aristotle as Plato´s heir and the debate about the status of universals in the Middle Ages reveal that the following ancient and medieval philosophers failed in understanding the subjective nature of mind and the distinctions mentioned, too, including the nominalist fraction. As modern adolescents, with the rise of formal-operational stage, come to understand these basic distinctions, early modern philosophers such as Descartes and Hume surmounted the ancient and medieval concepts and erected the so-called critical theory of knowledge. The 17th century abolished ancient metaphysics, incapable to understand even the premises upon ancient philosophy was once built. On the whole, the endurance of the lower psychological stages by the 17th century is the cause to the continuation of the ancient conceptual realism, and ancient metaphysics, while the psychological stage development during the 17th century is the cause to the rise of the early modern theory of knowledge and world, to the new philosophy of Descartes and followers (Oesterdiekhoff 2009, pp. 170-187; Radding 1985).

Aristotle´s theory of syllogistic shows that he stays upon the stage of formal operations, at least to a certain degree. However, his physics resembles more childlike ideas. On the whole, his philosophy may match to psychological stages staying at the border concrete/formal operations. Piagetian cross-cultural psychology has shown that roughly 80% of premodern adults, living in 20th century´s Third World, weren´t capable to understand syllogisms, as modern children by their eight or tenth year do (Tulviste 1979; Hallpike 1979; Oesterdiekhoff 2009, 2011). It is possible that in Greece at times of Homer practically nobody could understand and apply syllogisms, while at times of Aristotle a few percentages of people only. Aristotle, however, does not only understand syllogisms but outlines a complete theory regarding the scrutiny of their structure. Nonetheless, the relevance he imposed to their study shows both the freshly arrived capacities and the lower level of philosophy at that time. Nobody today would assign syllogisms that importance ancient and medieval philosophy accounted to them (Oesterdiekhoff 2009, pp. 130-148).

Piaget (1967, 1969, 1975, vol 8-10, with Garcia 1989) did a lot to reconstruct Aristotle´s physics in terms of developmental psychology. Many authors followed him and did the same (Kälble 1997; Fetz 1982; Oesterdiekhoff 2009, 2011, 2103a; DeCaprona 1983; Strauss 1988). Already Lewin (1981, p. 239) has compared Aristotle´s physics to that of children and primitives. A. Koyré and T. Kuhn declared that Piaget´s description of these parallels have helped them to understand both Aristotle and children. Like children sees Aristotle the cosmos ruled by laws that are both morally and physically. To both groups the cosmos has a goal and follows intentions. Both groups understand cosmos and world in terms of animism and artificialism. Aristotle´s artificialism is close to the fourth stage of artificialism in children just before they establish the mechanical worldview and formal operational stage. Both groups have a similar understanding of causality, chance, possibility, necessity, and probability (Piaget 1969, pp. 117-118, 1959, with Inhelder 1975, pp. 213-214; Kälble 1997; Lewin 1981, pp. 235-240; Oesterdiekhoff 2009, pp. 211-260, 2013a, pp. 307-314).

For example, like children Aristotle (1995, vol. 6) explains every movement as caused by an internal power accompanied by an external supporter. “Auf der Stufe der konkreten Operationen (speziell gegen 9-10 Jahre) liefert das Kind genau die beiden komplementären Erklärungen, die von Aristoteles eingeführt worden sind. Einerseits wird das Wurfgeschoß durch die Luft gestoßen, die es beim Voranfliegen verdrängt („umgebende Reaktion“ oder antiperistasis), und andererseits wird es durch die Luft begleitet, die von der Hand angestoßen wurde, als man das Objekt fortwarf.“ (Piaget 1975, vol. 9, p. 67) When trees are swaying from one side to the other then they cause a wind that additionally supports their movement. The movement, however, starts in the trees themselves. Clouds walk for their own power through the air, making winds thereby, that enhances then their movement. Waves go up and down by their own force, make wind this way, which again supports the waves. A projectile, thrown by a man, flies due to its own will and internal force, because it is its destination to fly. However, the surrounding air aims to support this flight and rushes therefore intentionally aside, flies back to the end of the projectile, makes a 180 degree turn again, and pushes the projectile forward. Without this intentional air support the projectile would immediately fall down. Every movement is therefore caused by two motors, an internal and an external motor (mover, force or causer). Both motors are ruled by intentions and independent forces. The external causer has the moral duty, on behalf of the cosmos, to support the internal causer. Antiperistasis is Aristotle´s name for this double movement or double causation. Both

groups believe that the projectile flies strictly horizontally and falls down vertically with a 90 degree angle. Both groups assume that every object has its "natural place" to land and to stay (Piaget & Garcia 1989, pp. 45, 67-69; Piaget 1969, pp. 50, 61-64, 1975, vol. 9, p. 67). "Aristotle, on the other hand, associated all motion with a biomorphic goal, as is also true for the elementary stages of thinking. In the child, the hypothesis of an internal motor goes quite far." (Piaget & Garcia 1989, p. 67) As children do, Aristotle denies the operational distinction between matter and soul, psyche and physis, biology and physics, seeing dead matter in animistic terms. The theory of the double movement bases on the assumption that the whole cosmos participates in individual entities (Oesterdiekhoff 2013a, pp. 310-313; Kälble 1997, pp. 124-128).

The similarities between the two groups do not originate in early problems of theory building, as sometimes insufficiently assumed (Strauss 1988). They originate in exactly defineable psychological stage structures, in core structures of mind, reason, consciousness, and world understanding, in certain developmental stages that cover as structures d´ensemble the complete psychological life of a person, down to different areas and single details. Aristotle´s physics is a clear indicator of his own psychological stage position and not only of that of his theory he formulated.

Stage five: Early modern philosophy

The theory of movement went from animism to mechanics over several smaller stages I will not describe here (Piaget 1967, p. 67, 1975, vol. 9, pp. 63-85; Kälble 1997, pp. 128-130). "In one particular case, that of the evolution of physics from Aristotle until just before Newton, we have been able to establish a correspondence – indeed a very direct one – between the four historical periods (the two Aristotelian driving forces, the recourse to a single driving force, the discovery of the impetus, and that of acceleration) and the four stages in psychological development. In particular, we observe a striking construction and generalization, at about seven or eight years of age, of the idea of élan, in surprising analogy with Buridan´s concepts." (Piaget & Garcia 1989, p. 26).

The 17th century originated both the rise of modern sciences "in strictu sensu" and of modern philosophy, sometimes represented in the same persons (Russell 2004). Descartes (1980) is the main protagonist of this new form of philosophy, thus being the father of this new era of philosophy, sciences and the modern world. The greatest scientist of the early modern times is later then Newton with his *Principia* of 1687.

Descartes´ distinction between res extensa and res cogitans surmounts the conceptual realism and provides the construction of a new theory of mind and knowledge, the so-called critical theory of knowledge. This distinction between subjective and objective, psyche and physis, idea and matter is fundamental from that time up to now. He surmounted not only the ancient theory of knowledge but also the ancient metaphysics. Descartes´ distinction between res cogitans and extensa eliminates magic and animism from the material world. He is the discoverer that there are "things". Things have no internal motors but react only to surroundings under the rule of physical laws. Descartes replaces Plato´s and Aristotle´s idea of moral laws governing nature by the conception of physical laws, a concept, invented by Suarez in 1612. On the whole, Descartes developed the so-called mechanical philosophy or mechanical theory of the world. The world functions not according to a soul or an animal but to a machine or to a clockwork (Descartes 1980; Leibniz 1986; Dijksterhuis 1956).

Developmental psychology has shown that in modern society adolescents surmount the animistic worldview in favor for the mechanical worldview the same way, replacing magical-animistic terms by empirical-causal ones between their 12th and their 18th year of life (Piaget & Inhelder 1958, 1969; Piaget 1969, 1959). Modern adolescents aged 15 or 16 usually have not anymore an Aristotelic worldview but a Cartesian one. They replace the idea of a world soul and of an internal goal nature is aiming at by the strict materialistic view, seeing the universe as a container of dead matter. Numerous authors have described the parallels between the rise of formal operations in modern adolescents and the rise of mechanical philosophy and physical sciences during the 17th and 18th centuries (Piaget 1975, vol. 8-10, with Garcia 1989; Kälble 1997; DeCaprona 1983; Strauss 1988; Fetz 1982). It is decisive to understand that the rise of formal operations within the brains of the scientists during this period is the single cause to the origin of sciences and rational philosophy (Oesterdiekhoff 2013a, pp. 312-323). The transformation from alchemy to chemistry, from astrology to astronomy, from magic to medicine, from metaphysics to physics, biology, geology, etc. is solely born in the rise of formal operations (Oesterdiekhoff 2013a, pp. 287-328).

The mechanical philosophy annihilated animism but not artificialism and finalism completely. It continued to base on theology because a machine or a programme hints at the inevitable existence of a maker.

Stage six: Modern philosophy

Modern philosophy after Hegel´s death developed a new stage of mind measurable in terms of developmental psychology. The new philosophy surmounted the last rests of theology, that is, the last rests of ancient metaphysics. The left-wing Hegelian philosopher D. Strauss disenchanted Christianity writing its natural history, showing its legendary character only. L. Feuerbach (1985), likewise left-wing Hegelian, delivered 1841 the first scientific theory of religion in world history, describing religion be a phenomenon born in the childish stage of premodern man, while modern humans surmount both religion and childish psychological stage. This by now unsurmounted theory of religion is later on followed by the structure-genetic theory programme basing on developmental psychology, a discipline that did not exist at times of Feuerbach. According to this new theory of religion, religion is solely born in psychological stages, and not explainable in terms of socialpsychology, functionalism, biology, or anthropology. Children and adult humans on childish stages are religious due to their stages, while modern adults, staying on the higher phases within the formal operational stage (substage B and beyond) become agnostics and atheists. Accordingly, half of peoples in modern societies are now still believers, the other half consists of agnostics and atheists (Oesterdiekhoff 2013a, pp. 215-240, 2007, 2011; Hyde 1990; Piaget 1959; Campbell 1990).

D. Diderot and P. Thiery d´Holbach are said to be the first atheists in history; France the first country where atheists were born ever (Buckley 1990, p. 34). Atheism spread from Paris right across the whole western world across intellectual circles and middle classes during the 19th century. Already in 1916, 41% of the members of the American Academy of Sciences were atheists. This number raised to 93% in 1998 (Leuba 1916; Larson & Witham 1998).

The decisive trait of modern philosophy from roughly 1840 onwards is the abolishment of any theological foundation or reference. Feuerbach, Marx and Nietzsche are the main protagonists of this new philosophy during the 19th century (Löwith 1979; Weischedel 1979). They destroyed not only the last rests of metaphysics but tried to explain its psychological origins.

The rising formal operational stage in mind and brains of philosophers and scientists explains not only the abolishment of religion but also the explosion of sciences during the 19th century. It was the transformation from the machine model of the universe to the idea of evolution that helped to surmount the theology or the deism of the period 1640 to 1840. The idea of god the creator becomes superfluous according to the idea of evolution of universe, earth, life, human being, and mind (Oesterdiekhoff 2013a, pp. 285-286). The idea of evolution of mind originated child psychology, folk psychology in terms of child psychology, and this structure-genetic theory programme destined to explain the history of humankind in terms of child psychology. Hegel´s idea of the evolution of philosophy and mind was followed by Feuerbach, Cassirer, Piaget, and the new approach presented in this article. The main protagonists of modern philosophy such as Plessner, Popper, Sartre, Merleau-Ponty, Russell, etc., manifest higher stages of reason and mind as the protagonists of the early modern period exhibited. Modern philosophy has retreated from the try to explain universe and human being, handing over the making of explorations and discoveries to the new sciences. Modern philosophy rather tries to interpret the discoveries physical sciences, modern humanities and social sciences have found.

Conclusion

The contention that there is a mental evolution carrying and leading the history of philosophy, born already in antiquity, stood in the centre of Hegel´s (1973) philosophy, followed later on by Cassirer (1998) and Piaget (1975, vol. 8-10) mainly. Piaget´s (1959) book on the worldview of children is the central book to explain the main features of premodern worldview and philosophy, especially conceptual realism, magic, animism, and artificialism, and to explain the rise of modern mind and worldview.

However, many interpreters of the rise of philosophy and sciences (e.g., Fetz 1982; Kälble 1997; Strauss 1988; DeCaprona 1983; Lewin 1981) did not know whether the theories only or the psychological structures of the philosophers themselves are describable in terms of developmental

psychology. Their descriptions did not find the decisive point because they had no knowledge about Piagetian cross-cultural psychology and the discovery that premodern adults do not develop the formal-operational stage. The structure-genetic theory programme emphasizes that the core structures both of ancient metaphysics and modern philosophy originate in the psychological stage structures within the brains of the philosophers themselves. The evolution of modern philosophy and sciences "in strictu sensu" has originated in the evolution of formal-operational stage structures in the brains and minds of the scholars themselves and not only in their theories they formulated (Oesterdiekhoff 2016b).

That what the article here presents regarding the history of philosophy worked the structure-genetic theory programme out also regarding the history of culture, society, religion, sciences, law, arts, literature, politics, customs, and morals. The same patterns discernible in the evolution of philosophy are describable in the evolution of the other main areas of culture and society. Moreover, the structure-genetic theory programme has outlined a complete theory of history, a comprehensive theory of the psychological development of the humankind, an encompassing approach of social change from prehistory to modern world, and a general theory of the humanities and social sciences (Oesterdiekhoff 2009, 2011, 2013a, b, 2014a, b, 2015b).

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