



Origins of Greek Philosophy

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Pre-Philosophy

The philosophy of the Hellenes emancipates itself from their religion in the form of theology and gnostic morality. Aryan naturalism, modified by the national genius and the physical conditions under which it developed forms its starting-point. This naturalism had passed the period of infancy long before the appearance of philosophy. The luminous Ether (Dias-Zeus), the Sun and its fire (Apollo), the Storm-cloud and its thunderbolt (Pallas-Athene), were originally taken for the gods themselves. Just as the child transforms its surrounding into an enchanted world, and regards its doll and wooden horse as living beings, so the humanity-child makes nature after its own image. For the contemporaries Homer and Hesiod, such objects are merely the sensible manifestations of the invisible divinity concealed behind them, a being that is similar to the human soul, but superior to it in power, and, like it, invested with immortality. The gods form a kind of idealized, transcendent humanity whose vices as well as virtues are magnified. The world their work, their empire, the theatre of their wishes defeats, and triumphs. Man, whom they envy rather than love, exists for their pleasure. They are the highest personifications of the will-to-live, and are jealous of their unquestioned superiority; hence they deny him perfect happiness. The most assiduous worship, the richest sacrifices, the most perfect fidelity, cannot move them when our prosperity displeases them. Hence the melancholy which breathes in the gnostic poetry of a Solon or a Theognis, who prefer death to life, and esteem them happy who have never been born or who die young.

In the measure in which the moral conscience is developed and refined, religious ideas are transformed and spiritualized. The gods of Homer, who reflect the exuberant, versatile, and quarrelsome youth of the Hellenic nation, are succeeded by the just and wise gods, the creations of its riper manhood (Pindar, Aeschylus, Sophocles). This *qualitative* transformation of the religious ideas is accompanied by a *quantitative* transformation. Polytheism aims at greater simplicity. The good, which the will perceives as its highest end, is synonymous with harmony, and harmony means unity in diversity. Religious and moral progress is, in consequence, a progress in the unitary and monotheistic direction.

The moral consciousness, which among the Greeks is identical with the sense of the beautiful, finds a powerful ally in reason and its natural tendency to unity. Guided by the monistic instinct, theology asks itself the question. Who is the oldest of the gods, and in what order do they spring from their common Father? and receives an answer in the theogonies of Hesiod, Pherecydes of Syros, and Orpheus. Here, for the first time, the philosophical spirit finds satisfaction; these fantastic conceptions are anticipations of the rational explanation of nature.

To conscience and reason a third factor, experience, is added. This, too, assists in the transformation of religious ideas by demonstrating, with increasing evidence, the impossibility of explaining all phenomena, without exception, by capricious wills. The facts of mathematics, because of their universality and necessity, especially defy theological interpretation; how indeed can we assume the fact that twice two is four or that the three angles of a triangle are equal to two right angles, to be the result of caprice and not of absolute necessity? In the same way the observation of astronomical and physical facts, and their constant regularity and periodicity, gives rise to the idea of a Will that is superior to the whims of the gods, of an immutable Justice, of a divine Law, of a supreme Intelligence. The pioneers of philosophy, men like Thales, Xenophanes, and Pythagoras, who were the first to protest against theological anthropomorphism, were likewise mathematicians, naturalists, and astronomers, if we may so designate men who had an elementary knowledge of the course of the stars, the properties of numbers, and the nature of bodies.

Philosophy dates her origin from the day when these physicians as Aristotle terms them in distinction from their predecessors, the theologians, relegated the traditional gods to the domain of fable, and explained nature by principles and causes. Emerging as she did from the conflict between reason and religious authority, which sought revenge by systematically accusing her of atheism and treason, philosophy did not at once cast off the mythological garb. She loved to express herself in the rhythmical language of the poets; and even her conceptions retained the marks of the religious faith from which she sprang. The gods are not abolished; they are restored to their true nature, and regarded as *elements*. Following the example of theology, philosophy begins to ask herself the question, What is the primitive element, the one that precedes the others in dignity and in time, and from which, consequently, the others have been *generated*? The theogonies become cosmogonies, and the only important question concerning which the first thinkers differ is the question as to what constitutes the primordial natural force, the *principle*.

The School of Miletus. Thales, Anaximander, Anaximenes

1. Thales, the head of what may be called the school of Miletus, and the father of all the Ionian schools, lived about 600 B.C. According to him, water is the first principle, the universal substratum, of which the other bodies are merely modifications; water envelops the earth on all sides; the earth floats upon this infinite ocean, and constantly derives from it the nourishment it needs.

This doctrine is the old Aryan myth of the heavenly Okeanos translated into scientific language: the water of the storm-cloud fructifies the earth and is the father of all living things. It is all we know positively of the philosophy of Thales. He is, moreover, represented to us by antiquity as the first geometrician, the first astronomer, and the first physicist among the Greeks. He is said to have predicted the eclipse of the 28th of May, 585, and to have been acquainted with the phenomenon of magnetism, as well as with the attractive property of polished amber.

2. According to ANAXIMANDER, a fellow-countryman and disciple of Thales, the author of a work *On Nature*, the first principle is not water, but the infinite atmosphere from which it comes in order to fructify the earth. This infinite, indistinct matter is the mother of the heavens and the worlds which they encompass. Everything that exists owes

its being to the first principle, and arises from it by separation; it is therefore just that everything render to it, at the hour appointed by Fate, the life which Fate has given it, in order that this life may circulate and pass to new beings. The opposites, warm and cold, dry and moist, which do not exist in the primitive chaos where everything is neutralized, are gradually parted off, and form nature, with its contraries, its opposite qualities, and separate elements. The first opposition is that between the warm and dry, on the one hand, and the cold and moist, on the other; the former occurring in the earth, the latter in the heavens which surround it. The earth is a cylindrical body, and floats freely in the infinite ether, being held in equilibrium because of its equal distance from all the other heavenly bodies. There are an infinite number of worlds which are alternately formed and destroyed. The first animals were produced in the water, and from them the more advanced species gradually arose. Man sprang from the fish. Individuals and species constantly change, but the substance whence they are derived, because it is uncreated. It envelops everything, produces everything, governs everything, It is the supreme divinity possessing a perpetual vitality of its own.

3. Anaximenes of Miletus, the disciple of Anaximander and third representative of the Ionian philosophy, calls the generative principle of things air or breath. His philosophy, which is a more exact formulation of Anaximander's doctrine, may be summarized in the following words: infinite matter, a perpetual motion of condensation and rarefaction that is something like a plastic principle, necessity directing the motion. Matter, motion, motive force, directing necessity: we find among the Ionians all the elements of the explanations of nature attempted afterwards. But their systems are like rudimentary organisms. The perfection of a living being depends upon the greater or less differentiation of its organs; the more its constitutive parts differ from each other and become specialized, the higher it rises in the scale of beings. Now, the Ionian philosophy is, when compared with that of Aristotle, perfectly uniform. Thales regards water, Anaximenes air, as substratum, motive force, and fate, or the law of motion. Progress in science, as well as in nature, is made possible by the division of labor, by differentiation of the constitutive elements of being, by the multiplication and opposition of systems.

The Problem of Becoming

1. The first question that arouses controversy is the problem of becoming. *Being* persists, *beings* constantly change; they are born and they pass away. How can being both persist and not persist? Reflection upon this problem, the metaphysical problem *par excellence* since it lies at the root of all the sciences and dominates all questions, gives rise to three systems, the types of all European philosophies, — the Eleatic system; the system of Heraclitus; the atomistic system, which was proclaimed in the idealistic sense by the Pythagoreans, in the materialistic sense by Leucippus and Democritus, and with a dualistic turn by Anaxagoras. The first two are radical; each suppresses one of the terms of the antinomy; the third is a doctrine of conciliation. According to the Eleatic hypothesis, being is everything, change is but phenomenal; according to Heraclitus, change is everything, and being, or permanence, is but an illusion; according to the monadists and atomists, both permanence and change exist: permanence in *the beings*, perpetual change *in their relations*. The Eleatics deny becoming; Heraclitus makes a god of it; the atomists explain it.

A. NEGATION OF BECOMING

Eleatic Philosophy. Xenophanes, Parmenides, Melissus, Zeno, Gorgias

At the time when Anaximander flourished in Miletus, another Ionian, Xenophanes of Colophon, immigrated into Magna Graecia, travelled through the cities as a philosopher and rhapsodist, and finally settled in Elea in Lucania, where he gained adherents. His theological innovations were developed and systematized by Parmenides of Elea and Melissus of Samos, who raised them to the dignity of a metaphysic. Zeno of Elea, the disciple of Parmenides, undertook to defend them by means of dialectics, thereby becoming the precursor of the Sophists.

1. Xenophanes is a decided opponent of the national mythology, towards which he assumes a similar attitude to that of the Hebrew prophets who raised their powerful voices against polytheism and its empty conceptions. His written and spoken words proclaim him as the real creator of philosophical monotheism, which he identifies with pantheism. With an eloquence that is full of irony, his satires, some fragments of which are extant, combat the error of those who infinitely multiply the divine Being, who attribute to him a human form (anthropomorphism) and human passions (anthropopathism). There is one God, he says, one only God, comparable to the gods of Homer or to mortals neither in form nor in thought. This God is all eye, all ear, all thought. Being immutable and immovable, he has no need of going about, now hither, now thither, in order to carry out his wishes, but without toil he governs all things by his thought alone. Mortals, of course, accept the authority of Homer and Hesiod, and think that the gods are born as they are, and like them have feeling, voice, and body; and they ascribe to the gods all things that are a shame and disgrace among men - theft, adultery, and falsehood. They do as the oxen or lions would do if they could paint; they would certainly represent their gods in the form of lion or oxen. In place of these imaginary beings, let us adorn the one infinite Being, who bears us in his bosom, and in whom there is neither generation nor corruption, neither change nor origin.

2. Parmenides completes the teaching of his master, and makes them the starting-point for a strictly monistic system. Since there is no change in God, and since God is everything, that which we call change is but an appearance, an illusion and there is in reality neither origin nor decay. The eternal being alone exists: this thesis forms the subject of a philosophical poem, the fragments of which are the most ancient monument in our possession of metaphysical speculation proper among the Greeks. In the first part, dedicated to Truth, he demonstrates by means of specious arguments that our notions of change, plurality, and limitation contradict reason. In the second part, which deals with the merely illusory, he attempts to give an explanation of nature from the standpoint of illusion.

Starting out with the idea of being, he proves that that which is cannot have become what it is, nor can it cease to be, nor become something else; for if being has begun to exist, it has come either from being or non-being. Now, in the former case, it is its own product, it has created itself, which is equivalent to saying that it has not originated, — that it is eternal. The latter case supposes that something can come from nothing, which is absurd. For the same reasons, that which exists can neither change nor perish, for in death it would pass either into being or into non-being. If being is changed into being, then it does not change; and to assume that it becomes nothing is as impossible as to make it come from nothing. Consequently being is eternal. It is, moreover, immovable; for it could move only

in space; now space is or is not; if space is, it is identical with being, and to say of being that it is moved in space is to say that being is moved in being, which means that it is at rest. If space is nothing, there cannot be any movement either, for movement is possible only in space. Hence, movement cannot be conceived in any way, and is but an appearance. Being is a continuous and indivisible whole. There is no void anywhere. There is no break between being and being; consequently these are no atoms. Let us suppose, for the sake of argument, that there existed a void, a break between the assumed parts of the universe. If this interval is something real, it is what being is, it *continues* being, instead of interrupting it; it unites the bodies instead of dividing them into parts. If the void does not exist, then it can no longer divide them. There is then no interval between being and being, and all beings constitute but one single being. Being (the universe) is absolute and self-sufficient; it has neither desires nor wants nor feelings of any kind. If it were relative, it could depend only on that which is or on that which is not. If being depends on being, it depends upon itself or is independent; if it depends on that which does not exist, it is still independent; which excludes from it all desire, all need, all feeling. When one is everything, one has no desires. Finally, being is one; for a second being or a third being would be but a continuation of it, that is, itself. Hence, to sum up: Being can only be conceived as eternal, immutable, immovable, continuous, indivisible, infinite, unique. There is for the thinker but one single being, the All-One, in whom all individual differences are merged. The being that thinks and the being that is thought are the same thing.

In the second part of his poem, Parmenides deals with opinion, which depends on the senses and is concerned with what is merely illusory. The universe, which reason conceives as an indivisible unity, is divided by the senses into two realms or rival elements: night or cold; and light, fire, or heat. The universe, which to reason is without beginning or end, has its apparent origin, its genesis; and this genesis is the successive victory of the principle of light over the principle of darkness. Night is the mother, the luminous principle is the father, of all forms. The world shows the traces of the two elements to which it owes its origin even in its smallest parts. The warm and the cold, the clear and the obscure, are universally combined in constant proportions. The universe is composed of a series of concentric spheres, in which the light and warm spheres alternate with the dark and cold spheres. The outermost sphere, which encloses all the rest is solid, cold, and dark; beneath it lies the fiery sphere of the fixed stars. The central sphere is also solid and cold, but it is surrounded by a sphere of light and life. This fiery sphere which encircles the solid core of the earth is the source of movement (that is, of illusion), the hearth of universal life, the seat of the Divinity, the Queen of the world, Justice, Necessity, the Mother of Love.

These doctrines, which partially reproduce Ionian and Pythagorean speculations, are not offered as the truth, but as hypotheses intended to orient us in the world of illusion. They have not for Parmenides the importance which they have for the Ionians. Inasmuch as he does not grant the existence of motion, but rejects as illusory that which constitutes the essence of nature, he accepts no other science than metaphysics, no other metaphysics than that of a priori reasoning. On account of the opposition which he creates between the real and the intelligible, he is the chief forerunner of Platonic idealism, without, however, being a spiritualist in the modern sense. Spiritualism distinguishes between corporeal substance and soul substance; Eleatic metaphysics makes no such distinction. The being which it affirms is neither body nor soul, neither matter nor spirit; it is being, nothing but being; and everything else is merely an accident, an appearance, an illusion. Nay, if we interpret

the word *matter* in the subtle, metaphysical sense of *substance* or universal *substratum*, we may reckon Parmenides among the materialists, like his modern imitator Spinoza. But it would be a mistake to call him a materialist in the sense in which the term is applied to Democritus and the modern materialists; for materialism, properly so-called, exists only in opposition to spiritualism, which is later than Parmenides. The monism of Parmenides and Heraclitus is like the block of marble which may be formed into a basin or a Jupiter, or like the mother-cell from which, according to circumstances, a Socrates or an Erostratus may come; it is capable of being differentiated and developed into materialistic or spiritualistic monism.

3. Plato deduces idealism from it, while Melissus of Samos (440) interprets it in an altogether materialistic sense. This philosopher, who was also a brave general and a clever politician, opposes the Ionian cosmogonies with the Eleatic doctrine of the eternity of the world. If becoming is impossible, it is henceforth useless and absurd to inquire into the manner in which the universe originated. Being is infinite in time, and — which is contrary to the view of Parmenides, who conceived it as a sphere — infinite in space. This latter trait, which leaves no doubt as to the materialism of Melissus, gives his system a wholly modern stamp, and distinguishes it from most of the ancient systems, particularly from that of Aristotle. For the Greek, who judges of things artistically, regards the infinite as the imperfect, as without *limitation*; and the universe, which is the acme of perfection, is surely the perfect sphere, one half of which is revealed to us by the sense of sight, and of which the earth is the centre.

4. Zeno, a pupil and follower of Parmenides, is the controversialist of the school, the inventor of the process of demonstration called *reductio ad absurdum*, the father of dialectics and sophistry. The One alone is conceivable; extension, magnitude, motion, and space, cannot be conceived. If there is such a thing as a (limited) magnitude, it must be infinitely great and infinitely small: infinitely great, because, being infinitely divisible, it is composed of an infinite number of parts; infinitely small, because unextended parts, even though multiplied by infinity, cannot produce extension or magnitude.

Movement cannot be conceived; for the line which separates its starting-point from its point of rest is composed of points, and, since the point has no extension, of an infinite number of points. Hence every distance, even the smallest, is infinite, and the stopping-point can never be reached. However near you may imagine the swift Achilles to be to the slow tortoise, he will never be able to overtake it, since, in order to do so, he would first have to pass over one half of the distance, however small, which separates him from the tortoise, and, in order to pass over this half, he would first have to pass over the half of the half, and so on to infinity. The infinite divisibility of the line is for him an insurmountable obstacle. You have an idea that the arrow flies through space. But in order to reach its destination, it must pass over a series of points in space; hence it must successively occupy these different points. Now, to occupy a point of space, at a given moment, means to be at rest: therefore the arrow is at rest and its movement is but illusory.

Furthermore, if movement takes place, it can take place only in space. Now, if space is a reality, it exists somewhere, that is, in a space, which in turn exists in another space, and so on. Motion is, therefore, impossible from every point of view, and we cannot suppose it to be real, unless we are willing to affirm an absurdity. Being alone exists, and this being is immutable matter.

5. Gorgias of Leontinum, the rhetorician, a pupil of Zeno, who was sent by his country

as an ambassador to Athens in 427, deduces the ultimate consequences from the Eleatic principle and ends in nihilism. He is not, like Zeno, content with denying motion and space; as his treatise shows, he negates being itself. Nothing exists, he says; for if a being existed, it would have to be eternal, as was proved by Parmenides. Now, an eternal being is infinite. But an infinite being cannot exist in space or in time without being limited by them. Hence it is nowhere, and that which is nowhere does not exist. And even if, assuming the impossible, something did exist, we could not know it; and even if we could, this knowledge could not in any wise be communicated to others.

Gorgias is the *enfant terrible* of the Eleatic school, whose extravagances turn the tide in favor of the Heraclitean principle: *Being is nothing, becoming is everything*. The *being* of Parmenides and Zeno, which is eternal and immutable, but devoid of all positive attributes, is, in fact, a mere abstraction. It resembles the garment of the king, the fine texture of which everybody pretended to admire, until, at last, a little child exclaimed, in the simplicity of its heart: “Why, the king is naked!”

B. Apotheosis of Becoming

Heraclitus

Heraclitus, who, on account of his love of paradox, was called the Obscure, flourished at Ephesus, near the end of the sixth century. He has left a deeper impress on Greek thought than any of the physicists of the first period, and more than one modern hypothesis is either foreshadowed or expressly formulated in the valuable fragments of his book *On Nature*.

Like the physicists of Miletus, Heraclitus considers all bodies as transformations of one and the same element. But this element is not, as with Anaximenes, the atmospheric air; it is a finer, more subtle substance, which he sometimes calls fire, sometimes warm breath, and which resembles either what physics formerly called *caloric*, or the oxygen of modern chemistry. This original matter extends from the boundaries of the earth to the limits of the world. Everything that exists is derived from it, and strives to return to it; every being is transformed fire; and, conversely, every being may be, and, as a matter of fact, is, eventually changed into fire. Atmospheric air and water are fire in process of extinction or in process of renewal; earth and solids are extinguished fire, and will be rekindled afresh at the hour fixed by Fate. According to an immutable law, the fire of the heavenly regions is successively transformed into vapor, water, and earth, only to return again, in the opposite direction, to its principle; then it thickens again, re-ascends into the heavens, and so on *ad infinitum*. The universe is, therefore, fire in the process of transformation, an ever-living fire, which is periodically kindled and extinguished. It is neither the work of a god nor of a man. It has had no beginning, and it will never end. There is an end of the world in the sense that all things ultimately return to fire; but the world eternally re-arises from its ashes. Universal life is an endless alternation of creation and destruction, — a game which Jupiter plays with himself. Rest, stand-still, in a word, being, is an illusion of the senses. It is not possible to descend twice into the same stream; nay, it is not even possible to descend into it once; we are and we are not in it; we make up our minds to plunge into the waves, and, behold! they are already far away from us. In the eternal whirl, the nothing constantly changes into being, and being is incessantly swallowed up in nothingness. Since non-being

produces being, and *vice versa*; being and non-being, life and death, origin and decay, are the same. If they were not, they could not be transformed into each other.

The *perpetual flow* of things is not, as the expression might lead one to think, an easy process, like the gliding of a brook over a bed of polished stones. Becoming is a struggle between contrary forces, between opposing currents, one of which comes from above and strives to transform the celestial fire into solid matter; while the other re-ascends into the heavens, and strives to change earth into fire. It is this continuous battle between two contrary currents that produces all vegetable, animal, and intellectual life on the surface of the earth. Everything arises from the strife of opposites. Organic life is produced by the male and the female; musical harmony, by sharp and flat notes; it is sickness that makes us appreciate health; without exertion, there can be no sweet repose; without danger, no courage; without evil to overcome, no virtue. Just as fire *lives* the death of air, air, the death of fire, water, the death of air, earth, the death of water; so, too, the animal *lives* the death of the vegetable, man, the death of the animal, the gods, the death of man, virtue, the death of vice, and vice, the death of virtue. Hence, good is a destroyed evil, evil, a vanished good; and since evil does not exist without the good, nor the good without the evil, evil is a relative good, and good a relative evil. Like being and non-being, good and evil disappear in the universal harmony.

The emphasis which Heraclitus lays on the perpetual flux and the absolute instability of things, on the vanity of all individual existence, the impossibility of good without evil, of pleasure without pain, of life without death, makes him the typical pessimist of antiquity, as opposed to the optimist, Democritus. His negation of being likewise implies scepticism. Inasmuch as truth is the same to-day, to-morrow, and forever, there can be no certain and final knowledge if everything perceived by the senses constantly changes. The senses, however, are not our only means of knowledge; in addition to them we have reason. The senses show us what passes away, and knowledge that is based on sensation alone is deceptive; reason reveals to us what is stable: the divine law, the only fixed point in the eternal flow of things. But the most enlightened human reason is still as far removed from divine reason as the ape is removed from human perfection. By distinguishing between the sensible phenomenon and the noumenon, as Heraclitus did, Ionian philosophy emerges from the state of innocence, as it were; it begins to suspect its methods, to distrust itself, to ask itself whether the ontological problem can really be solved at all; in a word, it foreshadows the critical question.

Anthropology cuts loose from general speculation and begins to form a prominent part in the system of Heraclitus. The soul is an emanation of the celestial fire, and can live only by remaining in contact with this source of life. It is constantly renewed by means of respiration and sensation. Generation is the transformation of the liquid seed into dry breath. Hence the latent fire of the earth passes through the liquid state and returns to its original condition in the human soul. The driest breath constitutes the wisest soul, but woe to the drunkard who prematurely causes his soul to pass back into the liquid state! In death the breath of life or the soul gradually returns to earth. An individual's energy will depend upon his more or less constant communion with the celestial fire, the supremely intelligent and wise soul of the world.

Here we have the first feeble beginnings of physiological psychology, and they are naively materialistic. The philosophy of this period speaks of mind as popular chemistry speaks of spirits and essences; but though materialistic, it is so little aware of the fact that

it does not even possess a technical term for matter. We are not conscious of ourselves except in opposition to what we are not. Hylozoism does not become materialism until it is opposed by the spiritualism of the Pythagoreans.

To sum up: All things proceed from a dry and warm principle and eventually return to it; everything is in a state of perpetual change, and there is nothing immutable in the eternal process but the Law which governs it and which neither gods nor men can modify.

C. Explanation of Becoming

The Pythagorean Speculation

Do the metaphysical doctrines of Pythagoreanism go back, in part at least, to Pythagoras himself? Are they the teachings of the members of the Pythagorean order, of men like Philolaus, who was exiled from Italy in the first half of the fifth century, and Archytas, who flourished at Tarentum during the second half of that century? The mystery in which the order was enshrouded from the very beginning makes it altogether impossible to answer this question. Aristotle himself seems to be in doubt in the matter; he never speaks of the teachings of Pythagoras, but only of the *Pythagoreans*. However that may be, one thing is certain: the first impetus towards arithmetical speculation known under the name of Pythagorean philosophy was given by the great mathematician of Samos, and even though direct and positive proofs are wanting, nothing can hinder us from proclaiming him as the originator of the doctrines set forth in this section.

Pythagoras, like Thales, of Ionian origin, was born at Samos during the first half of the sixth century. He was at first the pupil of the theologian Pherecydes and perhaps also of Anaximander, the physicist. According to a tradition which, it must be confessed, has nothing to warrant it among the ancients, he visited Phoenicia, Egypt, and Babylon, where he was initiated into the Eastern theological speculations, and introduced to the study of geometry, which had already attained a high degree of perfection on its native soil. Returning to Greece about 520, he realized his ideals of religious, social, and philosophical reform at Crotona in Magna Graecia, by founding a kind of brotherhood, the members of which entertained the same opinions concerning morality, politics, and religion.

Nothing certain is known of the end of the philosopher. His work prospered. The Pythagoreans were the possessors of all the sciences known in their time, — geometry, astronomy, music, and medicine, — and consequently acquired an overpowering influence among the Doric people, who were less advanced than the Ionians. They preponderated at Crotona, at Tarentum, and in the Sicilian republics, until the middle of the fifth century, when the victorious democracy partly expelled them. The exiles repaired to Thebes or to Athens. Here their influence counteracted that of the Sophists, and brought about the spiritualistic reaction of Socrates and Plato against the materialism and scepticism which had, in the same epoch, been imported from Sicily, Thrace, and Ionia.

Ionian metaphysics springs from physics; Pythagorean metaphysics is grafted on mathematics, and is consequently totally different from the former at the very outset. What interests the philosophers of Miletus is matter and its perpetual movement; what impresses Pythagoras and the Pythagoreans is the immaterial in matter, the order which prevails in the world, the unity, proportion, and harmony in its contrasts, the mathematical relations

underlying all things. In geometry, in astronomy, and in music, everything is ultimately reduced to number. Hence number is the principle and innermost essence of the world; and things are sensible numbers. Every being represents a number, and the final goal of science is to find for each being the number for which it stands. The infinite series of numbers, and consequently of things, is derived from unity. As number is the essence of things, unity is the essence of number. Pythagoreanism distinguishes two kinds of unities: (1) the Unity from which the series of numbers (beings) is derived, and which therefore contains and comprehends them all; the absolute and unopposed unity, the Monad of monads, the God of gods; and (2) the One, the first in the series of derived numbers, which is opposed to the numbers *two*, *three*, and every plurality, and consequently limited by the two, the three, and the plurality; it is a relative unity, a created monad, The opposition between the *one* and the *many* is the source of all the rest. All the contrasts of nature, the dry and the moist, the warm and the cold, the clear and the obscure, the male and the female, the good and the evil, the finite and the infinite, are but varieties of the the odd and the even. Plurality as such is without consistency and may be divided into unities; the even number is reducible to the odd unit. The absolute unity is neither even nor odd; or rather, it is as yet both even and odd, singular and plural, God and the world. It is to Pythagoreanism what the Apeiron is in the system of Anaximander: the neuter being that is superior and anterior to sexual contrasts, the absolute indifference which precedes and creates the dualism of forces and elements. But the Pythagoreans guard against calling it Apeiron since the Apeiron is, according to them, opposed to the *πέρας*, as passivity to activity, or matter to the workman, or form, or plastic principle. Inasmuch as everything is, according to them, reduced to number, numerical relations, and ultimately to Idea, the matter and *motion* of the Ionians are, in their opinion, merely negative, the absence of ideal unity. Concerning the question of movement and origin, the conclusions of the Pythagoreans do not differ from the Eleatic doctrines. Movement and origin seem to be incompatible with their idealism. Although they have their own cosmogony, like the other schools of the period, they do not assume that the universe had a beginning in time, and consequently that there was a time when the universe did not exist. The world has existed *ἐξ αἰώνος καὶ εἰς αἰώνα* and the cosmogony simply aims to explain the order, law, or series, according to which things *eternally* emanate from their principle.

Pythagorean physics therefore accommodates itself to human *sensualism*, just like the physics of Parmenides. It makes what is in itself immutable, variable. It places itself on the sensualistic standpoint held by the novices among its followers, and represents the eternal unity as a sphere, as a compact sphere, in which the parts are not distinguished, and which floats in the infinite. The ideal opposition between the even and the odd, the one and the many, becomes the real opposition of the full and the void. At the origin of things, the full was without the void, or, at least, the void was external to it. The formation of the cosmos begins by the void breaking in upon the full. This process is like a perpetual breath which agitates the world. The void penetrates the *σφαῖρα* and establishes itself in it, thereby breaking it up into an infinite number of infinitesimal particles, reduced images of the *σφαῖρα* (the *ἄτομα* of the atomists). Since, from the geometrical point of view, quality is reduced to quantity and form, these particles differ only in quantity and in figure. They form either cubes or pyramids (tetrahedrons) or octahedrons or icosahedrons or dodecahedrons. The unity reacts against this endless separation, and the particles are joined together again according to their geometric affinities and form elementary bodies: earth, fire, air, water,

and ether. Fire is the element *par excellence*, being formed of tetrahedric particles. It is the symbol of the divine principle in nature and is concentrated into a central sun, the hearth of the universe and the abode of the Supreme God, around which revolve (1) the Ouranos, embracing the counter-earth and the earth; (2) the Cosmos proper, consisting of the moon, the sun (?) and the planets; (3) the Olympus with the fixed stars. Pythagoras substitutes for the earth a central fire (which is invisible because the earth keeps facing it with the part that is opposite to the one we inhabit), and makes the earth revolve around this centre. But this does not mean, of course, that he advanced the *heliocentric* theory; he merely foreshadowed the system which his school formulated during the following centuries without succeeding in having it accepted by the majority of scientists. The distances separating the spheres are proportional to the numbers which express the relations that exist between tones and the respective lengths of vibrating strings; and the result of their revolutions around the axis of the world is a divine harmony which the musical genius filone can perceive. This harmony is the soul of the universe. The different beings form an ascending scale according to the degree of perfection with which they reflect the universal harmony. The motion of the elementary being, the physical point, produces the line; the line moves and produces the plane, the plane produces the body, from which sensation, perception, and intelligence gradually arise (emanation).

The individual is mortal in so far as he springs from the temporary union of corporeal elements, according to a ratio that varies within certain limits. When these limits are passed, proportion becomes disproportion, an unequal struggle, disease, decay, and death. But the ideal contents of the broken vase are secure against destruction. The soul is a fixed number in the eternal scale of things, a portion of the world-soul, a spark of the celestial fire, a thought of God. In this respect it is immortal; at death it enters upon a state that is superior or inferior to our present life or like it, according as the soul has lived for God, for the world, or for itself (metempsychosis and palingenesis).

Although the Pythagoreans, like Parmenides and Heraclitus, accentuate one of the constitutive elements of reality and eventually negate concrete existence in order to exalt the Idea, they none the less introduce into Greek thought one of the most important factors in the solution of the Eleatic-Heraclitean problem: What is becoming or the process of perpetual change affirmed by the philosopher of Ephesus, and how can it be reconciled with the conception of the permanence and immutability of matter, which is advanced, no less authoritatively, by the school of Elea? We mean their theory of monads: the infinitesimal particles or physical points of which matter is made up. The subsequent systems all attempt to reconcile Elea and Ephesus by means of the physico-arithmetical theory of elementary units. Thought discovers in the atomistic hypothesis the middle term that unites Parmenides, who denies the great empirical fact of generation and change, and Heraclitus, who sacrifices being and its permanence to becoming, — thereby combining the two rival systems into a higher synthesis, — and lays the foundation for every rational explanation of the process of becoming. Henceforth philosophy no longer regards matter as a continuous mass, the essential properties of which are incessantly transformed. It breaks them up into parts that are in themselves immutable, but which continually change their relative positions. As a consequence, there can be both perpetual change in the aspects of matter (bodies) and permanence in the essence and properties of matter. All change is reduced to change of place: mechanism. Empedocles, Anaxagoras, and Democritus, who hold this theory, differ from each other as Heraclitus, Pythagoras, and Anaximander differ

among themselves; that is to say, the first makes motion, the second, the Idea, the third, matter, the keystone of his system.

Empedocles

Empedocles, of Agrigentum, in Sicily (450), who in consequence of his knowledge of medicine, the cures which he effected, and the mystery with which he loved to surround himself, was regarded as a magician and a god, is the author of a grand philosophical poem, the fragments of which seem to place him in an intermediate position between the Eleatics and the Ionians.

He sides with the Eleatics in his denial of becoming, as Heraclitus understands it; and approaches the Ionians in assuming the reality of motion. Matter is immutable in its essence, but bodies are in a state of constant change; their constituent elements are combined and separated in different proportions. We cannot conceive how fire as such can become air, air, water, and so on; but it is conceivable that the thousand different combinations of these elements should produce an infinite variety of bodies. Hence we must abandon the notion of elementary unity; we must cease deriving air from ether, water from air, earth from water, and consider these four elements as equally original.

Have the *four elements* movement of their own, or have they received it from a distinct principle, from a higher force? It is hard to separate the thought of the philosopher from his poetical phraseology, encumbered as it is by images and contradictions. We may, it seems, conclude from his poem that he no longer assumes hylozoism, the eternity of motion, and the original vitality of matter in the same sense as the Ionian physicists. He appears to explain movement by an immaterial principle, or rather, by two distinct immaterial principles, one of which unites the elements, while the other separates them: Love or the principle of union, and Discord, the principle of separation. These two motive causes, which the imagination of the poet interprets as opposing divinities, alternately rule the elements. Love first unites them and forms them into a single spherical body. Discord ensues and divides them; as a result, the earth, the ocean, the atmosphere, the heavenly ether, and the stars arise. This period of primitive creation, which is the work of Discord, is followed by an epoch of struggle between Discord and Love, during which plants, animals, and men originate. Discord has, in separating the elements, prepared for each class of beings the habitation adapted to them, but it could not form the organisms themselves, which are a mixture of the four elements and consequently the work of the unifying principle, the product of Love reacting against the exclusive sway of Antipathy. Although the two principles are now at war with each other, Love will ultimately gain the victory, and the four spheres of the world, which are at present separated, will, on the last day, be combined into a new chaos. This alternation between periods of separation and periods of union is a fatal necessity, and will go on forever.

Like Anaximander and Heraclitus before him, Empedocles explains the origin of beings by the process of evolution, but he explains it in his own way. Their organs, he believes, first arose as shapeless and disconnected rudiments, then disappeared and reappeared, separated and reunited, until, at last, they were adapted to each other and joined together for good. The first formation of these beings was the result of chance; but their preservation, proficiency, and development were due to the fitness which they ultimately attained. Our philosopher

also regards individual existence as a doubtful good. He is, therefore, the precursor of Schopenhauer as well as of Darwin. With Heraclitus and Hippasus, he identifies the soul with the fiery principle. Discord detached it from the σφαῖρος, in which it originally existed, mixed with all the other beings. Like the rest, it will eventually return thither. Life is the expiation of the soul's desire for a separate existence. Passing through the stages of plant, animal, and man, it rises by degrees, and, by abstinences, fasts, and continent living, finally again becomes worthy of returning to God. The propagation of the human species is an evil, since it perpetuates the actual state of things and retards their return to the original unity. Man is the image of the σφαῖρος. The four radical elements are represented in him: the earthly element, by the solid parts of the body; water, by its liquid parts; air, by the vital breath; fire, by the spirit. He is likewise affected by Love and Hate. His intellectual superiority follows from the fact that all the cosmical elements are concentrated in him. He perceives everything, because he is everything; he perceives solids because he is earth; liquids, because he is water; and so on. We have here a theory, or let us rather say, the beginnings of a theory of sensation that might be called homeopathic as distinguished from the allopathism of Anaxagoras. The latter derives sensation from the coming-together of contraries; according to Empedocles, sensation results from the contact of similars. The blood, in which the four elements are most closely mingled, is the seat of sensation and of the soul. This is proved by the fact that when we withdraw all the blood from the body we deprive it of sensation, consciousness, life, — in a word, of soul. The health of a man depends on the composition of his blood. We are healthy and good when our blood is normally composed. The blood is sacred, and ought not to serve as nourishment. In these doctrines, which remind us of Egypt, Moses, Buddha, and Zoroaster, we see the dawn, as it were, of modern physiology.

In his theology, Empedocles conceals his naturalism under the traditional forms of mythology. He deifies — in name only, not actually, like popular belief — the four elements, which he calls Zeus, Hera, Orcus, and Nestis, and the two motive principles, Love and Discord. But we find in Empedocles, alongside of his theological atomism and naturalized polytheism, Eleatic monism and the tendency to reduce elements and principles to a higher unity, which is the only true God. Love is the principle of principles; the four elements are merely its agents, and Discord itself its indispensable accomplice: it is the ineffable, invisible, incorporeal God, flashing through the whole world with rapid thoughts. The leading thought in the teaching of Empedocles, freed from its theological shell, meets us again in the system of the Ionian Anaxagoras. Anaxagoras is the founder of corpuscular physics, and, by his hypothesis of the ordering nous, anticipates the teleology of Plato and Aristotle.

Anaxagoras

Anaxagoras was born at Clazomenae in Ionia, of an illustrious family. He seems to have emigrated to Athens about 460, and to have been, for thirty years, the central figure in this new intellectual centre of Greece. His friendship for Pericles, Euripides, and Protagoras, and his profound contempt for the official religion made it necessary for him to retire to Lamj^sacus towards the close of his life. Here he died about 429 B. c. Like the majority of the great of antiquity, he left a book, a few fragments of which are still extant.

Anaxagoras opposes Heraclitus in two essential points:

1. He opposes his dynamism with a mechanical cosmogony.
2. He substitutes dualism for liylozoistic monism, assuming the existence of an unintelligent, inert substance and of an intelligent principle, the cause of motion.

1. The Materials of the Cosmogony. — Matter cannot be reduced to a single element[^] to a homogeneous substance, like water, air, or fire, that may be transformed into other substances. It is inconceivable how a substance can become another substance. Hence there are several primitive elements, and not only four, as Empedocles teaches ; nay, there is an infinite number of them. These germs of things are infinite in number and infinitely small uncreated, indestructible, and absolutely unchangeable in essence. The quantity of these first principles is always the same; nothing can be destroyed or added; they change neither in quality nor in quantity. Nothing comes into being or passes away. Our usual notions of birth (coming-into-being) and death (passing-away) are absolutely wrong. Nothing is produced and nothing is lost ; things are formed by the combination of pre-existing germs, and disappear by the disintegration of these germs, which still continue to exist. Hence it would be better to call coming into being, mixture and passing away or deaths separation, There is no other change except change of place and grouping, external metamorphosis, movement ; the notion of change of essence or transubstantiation is a contradiction.

2. Efficient and Final Causes of the Cosmogony. — Anaxagoras no longer regards the motion which produces and destroys things as an original and eternal reality, inherent in the very nature of the elements. The latter are inert and incapable of moving by themselves. Hence they cannot account for the movement in the world and the order which rules it. In order to explain the cosmos, we must assume, in addition to the material, inert, and unintelligent elements, an element that possesses a force and intelligence of its own. This element of elements is absolutely simple and homogeneous ; it is not mixed with the other elements, but is absolutely distinct from them. The latter are wholly passive ; the however, is endowed with spontaneous activity ; it is perfectly free, and the source of all movement and life in the world. The inferior elements have no consciousness of their own ; the mind knows all things past, present, and future; it has arranged and organized everything with design and according to its teleological fitness; it is the eternal governor of the universe, more powerful than all the other elements put together.

3. Cosmogony. — In the beginning, the inert and unintelligent elements were all jumbled together. In this original chaos everything was in everything : gold, silver, air, ether, all tilings which are now separated, formed an indeterminate and inert mass. The intelligent substance alone lived a distinct life of its own. Then it entered the chaos and disentangled it, making the cosmos out of it. The germs, being set in motion by the Nous, were separated and mingled together again according to their inner affinities. From the point where movement is imparted to the chaos, the whirling motion gradually extends over a wider and wider space to all parts of the world ; it continues, as is proved by the rotation of the heavens, and will continue without interruption until the filyfia is completely separated. Our earth is a cylindrical body and is composed of the heaviest germs, which were carried towards the centre of the world by the original motion. The lighter corpuscles, which form water, were deposited upon this solid mass ; higher up, the atmosphere is formed by the germs of air ; at last, in the heavenly regions, the most subtle elements, the

fiery ether, are mixed together again. A second separation of elements takes place, and the original motion parts off from the earth the different solid, mineral, and other bodies which compose it; from the water it parts of the different liquids, and so on, until our central world receives the shape which it now has. The stars are solid masses, which were torn from the earth by the rotatory motion originally possessed by it in common with the rest of the universe, and which were ignited by coming in contact with the celestial ether. The sun is a fiery mass. The moon has mountains and valleys in it, and borrows its light from the sun.

The views which we have just expounded forecast the cosmogonic theories of Buffon, Kant, and Laplace. Anaxagoras also anticipates comparative physiology by advancing the principle of the continuity of beings, by pointing out the unity of purpose in the diverse vegetable and animal types. In spite of all that has been said, however, he is so far from being a spiritualist in the Cartesian sense of the term, that he conceives animals, and even plants, as sharing in the *voik*. If man is more intelligent than animals, it is, he believes, because his mind employs more developed organs. All living things, without exception, are allowed with mind.

How do living beings partake of mind? Does the intelligent principle of Anaxagoras exist outside of these beings, or is it but the sum of all the intelligence, all the purposes, and all the motive forces, whence movement in general results? On the one hand, it is certain that, inasmuch as he knows all things past and future, and knows them before the organization of matter, it in no wise resembles either the Substance of Spinoza or the active Idea of Hegel; for the Substance of Spinoza and the Idea of Hegel know things only through the mediation of the human brain; that is to say, by means of previously-organized matter. Anaxagoras is so decided in his assumption that he is free and conscious of its action, that he regards the word Fate as devoid of meaning. Besides, the very term which he uses to designate the motive principle signifies reason, purpose. He seems to make a transcendent being of it, one that exists independently of other beings, and acts upon them in a purely mechanical way. He even seems to consider these beings, not as intelligent in the true sense of the word, but as automata which appear to be intelligent without really being so. On the other hand, he speaks of the presence of the *voik* in living creatures as though he were a pantheist. The long and short of it is, the thinkers of this remote age never broached the questions of transcendency and immanency, personality and impersonality, conscious intelligence and unconscious intelligence. Heraclitus found nothing objectionable in assuming a primitive substance and a perpetual state of change. Similarly, we may suppose, Anaxagoras maintained both the transcendency and the immanency of the *voik* without even suspecting that he was contradicting himself.

The same may be said in answer to the question whether the *voik* of Anaxagoras is simply less material than other substances, or whether it is an absolutely immaterial entity. It is undoubtedly true, on the one hand, that the attributes of the *voik* are altogether like those of the spirit of spiritualism, and that the *voik* seems to have nothing in common with matter except existence. Yet, on the other hand, there seems to be but a difference of degree between the *voik* and material substances: the *voik* in fact, is the finest, the most mobile thing of all; it is identical with the *imenes*. Hence, it is merely the highest kind of matter and, consequently, not absolutely opposed to it as in spiritualism proper. The dualistic conception is, as yet, only vaguely defined in the system of Anaxagoras, who finds it hard to cut loose from the materialism of the physicists. This is evident from the fact that Archelaus, his disciple, considers the *voik* as the finest kind of matter. Moreover,

Anaxagoras himself fails to apply the notion of finality and his principle that the prime mover is an intelligent being. Aristotle justly censures him for using mind as to account for the movement of matter, and then wholly abandoning it for physical and mechanical causes as soon as it has served his purpose in explaining the origin of the first movement. Nevertheless, Anaxagoras went far enough in spiritualism to cause a reaction in Ionian physics, which became decidedly materialistic in consequence of this opposition.

Diogenes of Apollonia, Leucippus, Democritus

1. Diogenes of Apollonia rejects both the pluralism of elements and the dualism of unintelligent matter and immaterial intelligence. He is a disciple of Anaximenes, and assumes only one original element, air, which is the source of all life in nature, and the essence of all bodies. Mind, which Anaxagoras seems to regard as a separate principle, is wholly dependent on air. This is proved by the fact that the spirit leaves the body as soon as the breath is taken away. Hence we cannot say that air is the product of mind or thought ; nay, the reverse is true, mind is the product of air. Without air there can be no life, no consciousness, no intelligence ; hence air, that is, matter, is the only principle. Intelligence is not a distinct substance, but an attribute of air. It is obvious, says Diogenes, that the principle we assume is both great and mighty and eternal and undying and of great knowledge. It is the opinion of this physicist, whose views are closely akin to those of Melissus and the Eleatics, that dualism is the negation of the fundamental principle of science, I believe, he goes on to say, that all things are differentiations of the same thing, and are the same thing ; and this seems obvious to me. How, indeed, could the so-called elements, earth, water, air, etc., mix with one another, if they were not fundamentally the same ? How could they help or harm each other? How could the earth produce plants, and plants animals ? Let us therefore confess, with the ancient physicists, that all things arise from the same substance, and are destined to return to the same thing . . .

3. THE ATOMISTS. — That is also, on the whole, the teaching of Leucippus and his disciple, Democritus of Abdera, in Thrace, the most learned of the Ionian physicists and the head of the ancient and modern materialistic school (420 B.C.). His numerous writings have been lost, but important fragments remain. Besides, direct sources being wanting, we may refer to the exposition of atomistic principles in the poem of Lucretius.

The somewhat vague doctrines of Anaximenes, Diogenes, and Anaxagoras, on the nature and organization of matter, are clearly formulated by Democritus. With Anaximenes and Diogenes, he affirms the homogeneity of all bodies; but, with Anaxagoras, he conceives this indeterminate matter as divided into an infinite number of infinitely small molecules, which come together and separate. In that way bodies are formed and destroyed. These molecules are infinite in number and indivisible without, however, being mathematical points, for an unextended thing would be nothing. They are identical in chemical quality, but differ in size and form. They are endowed with perpetual motion, which they do not receive from a transcendent principle, but which belongs to their essence. The force which moves them acts according to necessity and not, as Anaxagoras seems to think, according to design and purpose. Democritus rejects all teleology, but denies chance also. . . . According to him, the word "chance" merely expresses man's ignorance of the real causes of phenomena.

Nothing in nature happens without cause; all things have their reason and necessity.

The Eleatics denied the void and consequently motion. To assume movement is equivalent to affirming the void. If there were no void, the atoms could not even be distinguished from one another; that is to say, they could not exist. Hence the void is the indispensable condition of their existence. It is also the condition of movement, and therefore as important in the formation of things as the full . The void is, as it were, a second principle, which is added to the matter of materialism, and gives the system of Democritus the dualistic turn which the most consistent monistic philosophies have not been able wholly to avoid. ...Democritus regards [the void] as the condition of motion and of matter ; the idealists regard it as the condition of the dialectical movement of thought.

The perpetual motion produces a whirling movement among the atoms, in consequence of which they are combined according to their external affinities, — that is, according to size and form; for since they are all chemically the same, they neither attract nor repel each other. The heaviest atoms naturally move downwards in infinite space, while the lightest form the atmosphere. Some atoms have uneven, rough, sharp, or hooked surfaces. These catch hold of each other and form acid or bitter substances; while atoms with smooth surfaces form substances which impress the senses agreeably. The soul consists of the finest, smoothest, and therefore most nimble atoms. When such atoms exist in isolation, or are mixed together in small quantities, the soul-atoms are insensible; when they are joined together in large masses, they acquire the faculty of sensation. They are scattered over the entire body, but gathered together more numerous in the sense-organs, where sensation is produced: in the brain, the seat of thought; in the heart, the seat of the affections; and in the liver, the seat of desire. Sensation and perception are explained as follows : Effluences go forth from all bodies and enter our organs of sense, where they excite sensation, and the brain, where they produce ideas or images of things.

Sensation is the only source of knowledge, and there is nothing in thought that has not passed through the channel of the senses. Our ideas represent our impressions, that is, the relations existing between ourselves and the external world; they are not direct reproductions of the objects themselves, the inner essence of which is concealed from us. We are self-conscious as long as the soul-atoms remain intact in the body; sleep ensues, and with it loss of consciousness, when a certain number of atoms escape; when nearly all of them escape, and but a few remain, we fall into a state of seeming death; and, finally, when all the psychical atoms are separated from the body at once, we die. Death cannot destroy these atoms, because the atom is indivisible and therefore indestructible; it destroys their temporary union in a body, and, consequently, the individuality formed by such a union. Since feeling does not belong to isolated atoms, but is produced only by a combination of atoms in the brain and in other organs, death puts an end to feeling and destroys the personality.

The gods are more powerful beings than man, but their immortality is not absolute. Since they are composed of atoms, like mortals, they eventually succumb to the common fate of all, though they live longer than human beings. In the eternal universe, no one has any absolute privileges. Since the gods are more powerful and wiser than ourselves, we should venerate them. We may assume that they come into relation with us, — in dreams for example; but we should free ourselves from all superstitious fears concerning them, and not forget that above these beings, however powerful they may be, there is one still

more powerful than they, — Necessity, the supreme, impersonal, and impartial law which governs the heavens and the earth. To this law, which nature imposes upon all beings alike, we must submit with joyous hearts. Our happiness depends upon it.

Atomistic materialism culminates in scepticism in Protagoras of Abdera, the philosophy of Heraclitus in Cratylus, and the Eleatic doctrine in Gorgias. This period forms a fruitful crisis in the history of Greek philosophy. Though temporarily discouraged by the examination of her resources for knowing the truth, philosophy emerged from the darkness, strengthened and exalted, conscious of her powers, and enriched by a series of studies that had, until then, never been pursued; I mean the intellectual and moral sciences.

Alfred Weber. *History of Philosophy*. Trans. Frank Thilly. New York: Charles Scribner's Sons, 1907.

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