47

The Open Court

A MONTHLY MAGAZINE

Devoted to the Science of Religion, the Religion of Science, and the Extension of the Religious Parliament Idea

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CONTENTS:

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PYTHAGORAS.

(569–471? B. C.)

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THE LIFE OF PYTHAGORAS.[1]

BY MORITZ CANTOR.

RESEARCHES in primitive history have shed a flood of light on the genesis of human knowledge. Not only has it been shown that rudiments of art and science which ordinarily are ascribed to later epochs may be traced back to dimmest antiquity, but more important still the origin of many inventions has been proved to be far less simple and sudden than tradition would have us believe. Particularly is this so of mathematics, which in its theoretical no less than in its applied forms, sprang up in widely different localities, making it upon the whole exceedingly difficult to determine whether its results are of independent contemporaneous origin, or were handed over from nation to nation.

That the latter happened is scarcely open to doubt in the case of a man who sojourned long years at many of these cradles of primitive culture and who tarried there largely with the express purpose of acquiring the knowledge they offered. It is not chance if the substance of what he acquired abroad was embodied in his system; on the contrary, we have reason to believe that it was design and necessity. And it would be inexplicable were the experiences so acquired to skirt without impression his mind, or the flood of new ideas which inundated his admiring soul to have passed away without leaving behind them some fertile deposit.

Men of such stamp—men who scatter everywhither the culture which they have absorbed by founding at all points schools and by leaving upon all whom they meet the impression of their genius,

[1] Translated from Cantor's *Mathematische Beiträge zum Kulturleben der Völker*, by T. J. McCormack. Inasmuch as the present article was written a long time ago, a few alterations and omissions have been made at the suggestion of the author, so as to keep the treatment of the subject up to date.

not unlike, though the reverse in their effects, to a travelling bale of cotton which spreads epidemics—such men, forming the intellectual vinculum of races and nations, have existed in all ages. There has never been a time but some man or other, aweary of the constrained quarters of his study and forsaking the crouching attitude at his desk, has donned his "sandal-shoon and scallop-shell," to seek in the wide world fresh sceneries and new knowledge. As journeys of this character gradually became more frequent, the novel prizes awaiting the searcher grew less and less, and so, as the means of communication increased in magnitude, the personal influence of the individual traveller waned.

Pythagoras, if not the first to travel for study and information, was yet one of the earliest, and certain it is that he extended his tours farther than any one before him. I will attempt to portray the life of this intrepid man whose character was distinguished not less by thirst for knowledge and readiness for self-sacrifice than by eminent talents, reflecting his picture as it lives in the traditions of Grecian authors, whether true or not.[1]

Pythagoras's birthplace was the Island of Samos, where his parents, who were held in high esteem, resided at the time the elder despot Polycrates was gathering into his hands the reins of government. His father, Mnesarchus, came originally from the Island of Lemnos, but having succored the Samians during a famine with supplies of grain, had been made the recipient by the latter of the rights of citizenship, and henceforward led in his adopted country a life principally devoted to the furthering of art, but frequently interrupted by commercial voyages to all the harbors of the then known world, on which journeys his wife Pythais was his constant companion, as is the custom to-day among the inhabitants of the Greek Mediterranean isles. On one of these voyages, in the year 569, B. C., at Tyre, Pythagoras was born; and on subsequent voyages to Southern Italy, the boy himself is mentioned as companion of his father. Thus his mind was early nourished by impressions of roving, which foreshadowed the bent of his entire subsequent career. It is not surprising, therefore, that in his eighteenth year and while scarcely more than a school-boy, Pythagoras should have formed the resolve to seek abroad that higher education which had now become the paramount interest of his life.

But the execution of the resolve was not so simple as its conception. Tyrants are ever suspicious, and even then it was sought to prevent the departure of young men from important families, by

[1] See Eduard Röth, *Geschichte unserer abendländischen Philosophie.*

associating with such attempts rumors of treason, and it was only by clandestine flight at night that Pythagoras in 551 was able to reach in safety the shores of Lesbos, where he met with a hospitable reception at the house of his uncle Zoilos.

He also found in Lesbos Pherecydes, the youngest but not the least of the teachers of the day, who shared with the two Milesians Anaximander and Thales, the world's fame for philosophic wisdom. And yet Pherecydes, so far as appears from the writings transmitted to posterity, was not an original thinker. He was merely the interpreter of Egyptian science, which he had acquired in Egypt itself, as before him his intellectual superior, Thales, had done.

The scientific journeys to Egypt, which at this juncture and by a rather sudden turn in affairs were becoming the vogue with Grecian scholars, are explained by the political situation of the latter country. Psammetichus, having overthrown the Dodecarchs, had consolidated his power by the assistance of Ionic auxiliaries, and as a token of a gratitude to his old allies had granted them many privileges. He even went so far, in fact, after 630 B. C., as to cede to them permanent places of settlement in Egypt, whereby this country, formerly so hostile to foreigners, was opened up to traffic and commerce, a circumstance which before long was turned to the profit of science, when individuals who had gone thither for mercantile purposes began to study the superior learning and civilisation of Egypt.

Pythagoras enjoyed the personal instruction of Pherecydes for two years, during which time he applied himself more particularly to the latter's religious doctrines. Afterwards, in 549 B. C., he betook himself to Miletus in quest of Anaximander and Thales. The fact that the latter sage, now a nonagenarian, admitted the young student to his confidence, is striking proof of the promise which Pythagoras gave of future greatness and of the excellent soil upon which the seeds of exact science fell, as hitherto cultivated by Anaximander and Thales.

We are concerned here with the beginnings of cosmical physics. Whilst Thales conceived the earth as a sphere floating in an immense body of water which was forced up in the form of oceans by the pressure between the walls of the earth and the vaults of heaven, Anaximander, in developing Thales's doctrine, reverted in a measure to the ancient Grecian view which conceived the earth as a flat disc. According to Anaximander's conception, the earth was a short, broad cylinder, the upper transverse section of which was

inhabited by living beings. On the other hand, Anaximander took a decided step forward in enunciating the doctrine that the earth hung suspended and at rest in the centre of the celestial sphere, because there was no reason why a body situated in the centre of a hollow ball should move towards either one side or the other.

Further, history has associated certain astronomical and mathematical theorems with the names of these two sages. It is known that Thales brought from Egypt the knowledge of the solar year, that he predicted eclipses of the sun and moon, that he calculated the heights of pyramids by the length of their shadows, and finally that he enunciated geometrical theorems of wide theoretical import, such as that of angles in semi-circles being right-angles, and of the equality of the angles at the base of equilateral triangles. It is related of Anaximander that he was the first to construct celestial globes and to draw upon them great circles for determining celestial phenomena, that he was acquainted with the properties of the gnomon, which is not of Egyptian but of Babylonian origin, that he employed the same for determining the altitude of the sun, that he even made use of it as a sun-dial for subdividing time, that he was the first to teach geography as a science, and the first to draw on metal geographical maps.

Of general interest, further, is the fact that Anaximander was the first prose writer. Prior to his time the custom was universal among the Greeks, as it was among the Indians, of writing scientific works in verse. Even Thales conformed to this onerous practice in composing his didactic poem upon the solstices and equinoxes.

The subjects of instruction which Pythagoras naturally enjoyed in Miletus, therefore, were astronomical and physical in character, supplemented by other, more purely philosophical and theological studies, for which he had been amply prepared by Pherecydes. Before long Thales directed the eyes of the aspiring young genius towards Egypt, and the sage's advice was eagerly acted upon. The Phœnician sacerdotal academy at Sidon was chosen as a fitting place for the young philosopher's sojourn of transition, and Pythagoras accordingly repaired thither in 548. He passed an entire year at Sidon, engaged in studying the sacred rites of the priestcraft, and not until he had fully mastered these, and so was fittingly prepared, did he place foot in 547 on Egyptian soil, probably at the port of Naucratis.

The political attitude of Egypt at this time was, as regards foreigners, scarcely different from what it had been toward the

close of the reign of Psammetichus, when Thales was visiting this country. Psammetichus had been followed by Necho, the circumnavigator of Africa (616–601), by Psammis (600–595), and Apries (594–570), and during the reigns of these monarchs Egyptian civilisation had reached the acme of its grandeur, although outwardly the power of the country, shattered by Nebuchadnezzar's defeat of Necho, was on a swift decline. Finally, an unfortunate campaign conducted by Apries against Cyrene gave rise to an insurrection which cost the king his life and placed Amasis, a man of plebeian extraction, upon the throne. Necessity compelled the upstart—it was the second time the thing happened in Egyptian history—to secure his unlawful dominion by foreign arms and alliances. He filled his capital, Memphis, with Ionic mercenaries, concluded by the seal of marriage a peace with Cyrene, and entered the sacred relation of hospitality with Polycrates of Samos.

It lay in the immediate interest of Pythagoras, therefore, to seek a reconciliation with the ruler of his native isle. And it appears that the reputation of the young man, now only in his twenty-second year, had, since his sojourn in Miletus and Sidon, already risen to such a pitch that the political scruples aroused by his early flight vanished before his scientific fame. Polycrates recommended the young scholar to King Amasis in an autograph epistle. Even with his powerful support, however, trying obstacles were to be overcome before Pythagoras could accomplish his aim of being admitted among the esoteric students of the Egyptian sacerdotal philosophy. For he was not satisfied, as his teachers Pherecydes and Thales had been, with the superficial knowledge of Egyptian civilisation that came from polite intercourse and the occasional communications of the priesthood. He already knew this in great part. What he longed for was to be admitted as a foreigner, as a person unclean, into the innermost, profoundest secrets of sacerdotal science, to conquer the prejudices of a caste which in all ages was the most jealous defender of its privileges, and which concealed its sanctities even from the born Egyptian when not of its tribe.

To this end the mightiest engines had to be set in motion, and King Amasis himself was obliged to present the stranger as a candidate for priestly honors. The application was made at the ecclesiastical college in Heliopolis. To reject outright an applicant bearing a mandate from the King would have been impossible; so recourse was had to a subterfuge, which seems to have been as widely practised then as now. A plea of insufficient jurisdiction was made, and the suitor was referred to a more ancient college at

Memphis. Here the same trick was again resorted to, and Pythagoras was obliged to repair to Thebes, where a still older college existed. Further reference being impossible, it was decided out of regard to the mandate of the King to allow the aspirant conditional admittance to the order. But extremely trying conditions were imposed upon the knowledge-seeking youth,—conditions that would have intimidated any ordinary mortal. Ablutions, shaving of the entire body, and particularly an operation practised by all Oriental nations, including the Jews, which is as painful as it was regarded indecent by Hellenic peoples.

And yet Pythagoras submitted to all these indignities. His courage and perseverance triumphed over the narrow exclusiveness of the Egyptian priests, and his instruction began under the direction of the arch-prophet Sonchis. It appears his powerful intellect soon mastered the difficulties of the curriculum, and the sacerdotal caste speedily came to esteem him as highly as before it had contemned him. His sojourn in Egypt was, as a result of these successes, prolonged from year to year, and it is possible his great knowledge might have been lost forever to Europe had not opportune political events intervened which were in every respect significant for his career.

During the twenty-one years that Amasis ruled subsequently to the arrival of our philosopher, Pythagoras assimilated not only all of Egyptian science, but he had by his assiduity wrested from the sacerdotal class its highest honors and was now counted among its high priests. In 527 Amasis died, and his son Psammenitus ascended the throne, only to lose it with his life shortly thereafter. Cambyses in 526 threw his conquering hosts into Egypt, completely subjugated the country, and vented with truculent sagacity the full weight of his wrath upon the priesthood from whose powerful caste he expected the stubbornest resistance. Nearly all the members of the priesthood were transported to remote regions of Asia, and the report goes that Pythagoras also now suddenly found himself a prisoner in the walls of Babylon.

Sorrowful as was this change of affairs for the philosopher personally, thus wrested from the serenity and contemplativeness of priestly life, it was yet of incalculable advantage to science, for Pythagoras was now virtually compelled to master the knowledge of the Chaldeans. That there was sufficient material there needs no special emphasis. Babylon had long since been the centre of a world-wide traffic, the common mart of Bactrians, Indians, and Chinese. And it quite accords with these facts that Pythagoras

met at Babylon, Jews, Brahmans, and Calatians, and became acquainted with priests of the Persian religion Mazdaism.

The sceptic may justly doubt whether Pythagoras, as a prisoner of war, could ever have had the opportunity of occupying himself with Chaldean science. We have only to think of the mural sculptures and terra cotta paintings which have been unearthed from the wondrous rubbish-heaps of Nineveh and Babylon, to appreciate the force of such a scruple. We see on these the wretched prisoners of war dragging, under the goading whips of native masters, stones, statues, and building material of all kinds, which can hardly be described as occupations of an intellectual character. But it is questionable whether the *priestly* prisoners were forced to perform such menial tasks, especially in a country which itself possessed a mystic ritual. In such a country the priestly order has always great influence and is always held in great esteem—distinctions which in a certain measure are transferred to the priestly representatives of other religions. These either die as martyrs of their religion, or they are highly venerated. Furthermore, the captivity of Pythagoras was of long duration, and it is scarcely possible that his mighty genius should not have risen from any position however low. Of his twelve years' compulsory sojourn in Babylon we know next to nothing, and we are only told of the romantic manner in which in the year 513 he regained his liberty.

At the court of Darius, who came to the Persian throne in 521 after the brief interregnum of the Pretender Smerdes, the successor of Cambyses, there lived a physician, a native of Croton, by the name of Demokedes, who, himself originally a captive, had by his art not only risen to the post of body-physician to the king, but had so insinuated himself into the confidence of Darius that the latter, upon a promise to return, had placed him at the head of a reconnoitering expedition to Greece. In violation of his pledge, Demokedes bent his course for the Southern coasts of Italy, where he landed at Tarentum and placed himself under the protection of its ruler. The Persians were compelled to depart without their leader, suffered shipwreck, and, having been taken captive, became the property of a certain Gillos of Tarentum, who restored them to Darius on certain conditions, among which one of the most important was the liberation of Pythagoras. And now, at the age of fifty-six, and for the first time since boyhood, the exiled philosopher revisits his native land, arriving just in time, during a brief sojourn in Delos, to close the eyes of his old teacher, Pherecydes. But he was far from desiring to enjoy his well-earned rest. On

the contrary, he at once set out on a six months' tour through Greece, whose estranged religious, scientific, and political conditions he was desirous of restudying before making his appearance as an independent teacher.

We here reach the turning-point in Pythagoras's life, for from here on the hero of romantic adventures disappears and the philosopher, the lover of wisdom, as he modestly yet proudly was wont to style himself, steps into the foreground.

The beginning of this second period of his life was far from encouraging. At Samos, where he made his first attempt at instruction, his efforts were so unsuccessful that, for fear of being utterly deserted, he was obliged to resort to bribery to win the attendance of the only scholar left him after his first lectures, a cousin and namesake, Pythagoras, son of Eratocles. Such a trying existence, compared with which the lot of a young lecturer in elective branches at German universities is an enviable one, was unendurable to Pythagoras. It is no cause for wonder, therefore, that he forsook his ungrateful paternal city and in 510 set out in search of a new home in the highly cultivated municipalities of Magna Græcia or Southern Italy.

He betook himself to Croton, and the choice he made was an exceptionally happy one. For he found in this city a state which had already passed the tyrannic stage of government, a state in which neither the despotism of a single ruler nor the tyranny of the mob impeded intellectual advancement and in which neither wealth nor luxury had as yet exerted their baneful and enervating influence, as had been so markedly exemplified in the case of the neighboring town of Sybaris. Not only were the inhabitants of Croton physically sound and athletic, but a healthy scientific activity prevailed in the place. The frequent victories which the Crotonites won at the Olympian games were proof of this, as was also its far-famed academy of physicians, who had gathered about the selfsame Demokedes with whom Pythagoras had become acquainted during his Persian captivity and who had so strangely assisted in his liberation.

The year in which Pythagoras took up his abode in Croton, the year 510 B. C., was a year of revolutions. Almost on the same day Tarquin fled from Rome and Hippias was driven from Athens, whilst in Sybaris unsuccessful insurrections were on foot aiming at the overthrow of the tyrant Telys, who, as was the wont in Southern Italian states, based his power on the plebeians. The contemplation of contemporary history, which alone discloses the

right points of view in such matters, everywhere betrays symptoms of the same movement which at this time was universally affecting Italo-Grecian civilisation. Even localities whose political stability admitted of no possible disturbance of the governmental fabric, were set intellectually agog, and the impulse so given could not help making strongly for ideal ends, and may even have directly tended to the religious mysticism which was politically in store for them. At any rate, the trend of affairs was such that pure science was not likely to appeal to the ruling minds, and Pythagoras, if he desired to gain a hearing, was perforce obliged to adopt methods harmonising with either one of the tendencies mentioned.

In the light of these facts his conduct during the first weeks succeeding his arrival in Croton becomes intelligible. He apparently waives the realisation of his real object, the founding of a rigorous scientific school, in order the more surely to accomplish it. His very first appearance is a public oration to the young men of the city, in which he expounded so gravely and attractively the duties of youth that the fathers of the city besought him to deliver an address to them. And when in his second oration he emphasised obedience to law and purity of morals as the solid foundations of state and family, and when, as the consequence of his persistent exhortations, the senate resolved to abolish the growing evil of concubinage, his goal was virtually won, and the two following orations to the boys, and lastly to the women, only served to complete his triumph. His oration to the boys treated pretty much the same theme as that which he had sought to instil in the youth, but was clothed in a form which made it more readily intelligible to juvenile minds. His address to the women is less perfectly preserved, "perhaps," as Röth says, "from being less coherently remembered, as might have been expected from women." Yet we know the outcome of it, for thousands and thousands of costly garments were donated to the Temple of Here because no woman longer ventured to be seen in ornate attire. Even from the meagre relation of the results of his addresses as here recorded one can comprehend the lightning-like power with which he blasted long-standing prejudices and frivolous vice. Stupendous as the sudden reform in morals was, no less universal was the enthusiasm. There was no longer the weary hunting for disciples; a flood of listeners of all ranks and capacities streamed to his lectures. Besides the youths who listened all day to his teachings, nearly six hundred of the most prominent men of the city and many matrons and girls attended his evening

lectures, and among the latter was the young, beautiful, and intellectual Theano, who had the good fortune to become Pythagoras's bride.

The natural result was as already indicated a division of the listeners into *scholars proper*, forming a narrower esoteric school, and into simple *hearers* (the *Acoustici*), forming a less exclusive exoteric school. The first mentioned, the *mathematicians* as they were called, consisted of those students to whom the doctrines of Pythagoras were taught in all their formal rigor as a rounded scientific whole and in their systematic logical connexion from the most elementary mathematics to the subtler speculations of philosophy and theology. At the same time they were taught that only a knowledge of the whole is productive of fruits, that fragmentary knowledge, on the contrary, owing to the miscomprehensions it gives rise to, is frequently dangerous, nay, even fatal; and hence the secrecy and extreme reserve which the *Pythagoricians* as they were styled in later times manifested towards the public at large, and which they so jealously preserved that their writings were unknown even to antiquity until the time of the Ptolemies. The *Acoustici*, or simple hearers, from whom the *Pythagoreans* afterwards proceeded, are to be sharply distinguished from the *Mathematici*, or mathematicians. The former attended only the popular evening lectures where *exact* science was not considered. Carefully selected themes from ethics, morals, the doctrine of immortality and the transmigration of the soul constituted the principal content of these lectures, and the listeners took with them to their homes, mingled and confounded with the information which they had derived elsewhere on the same subjects, such knowledge as their several capacities enabled them to assimilate. The majority belonged to the school of physicians above mentioned, and the enigma of the confounded character of their doctrines and conceptions, which are quite dissimilar and plainly have their origin in contradictory spheres of thought, can only be explained on some such hypothesis.

But the political agitation which we mentioned above had not yet passed away. Its undulations still swept the petty States of Southern Italy, and they carried Pythagoras and his school to the loftiest pinnacle of glory. In Sybaris, as we have already learned, the aristocracy had been crushingly defeated by Telys and his supporters. The fugitive and exiled nobles repaired forthwith to Croton, where they were hospitably received, and negotiations in their behalf set on foot. But when the Crotonian ambassadors to Sybaris were treacherously murdered by the Sybarites, what was at first

mere sympathy on the part of the hosts was immediately converted into active espousal of the defeated party's cause. War was declared, and the army sent against the mighty Sybarites was victorious. The hostile city was completely destroyed, 509, and in the allotment of the confiscated territory, a piece of property fell to the share of Pythagoras, whither he retreated with his esoteric school of mathematicians.

It is difficult for persons who have played a conspicuous part in the whirl of politics suddenly to sever themselves absolutely from public life without giving rise to this or that conjecture which is speedily transformed into a suspicion. Such was to be the fate of Pythagoras, and it cannot be gainsaid that appearances were against him. Röth may be right in denying that no scientific doctrine militating against existing political constitutions formed the ultimate keystone and secret of his powerful school; nevertheless, the sharply-marked aristocratic division of his scholars into classes, the monarchical ascendency of their teacher, combined with the haughty reserve of the entire school towards the uninitiated, were all that was needed to foster the development of such a political doctrine, and it was but a necessary result that in the lapse of time contempt of existing institutions should become the prevailing attitude of the school and suspicion of the future the dominant state of mind of the citizens. As yet the crisis was not reached, for, as subsequently to all times of ferment and revolution, so here too there followed a period of quiet and inaction which was not disturbed until the appearance of a new factor of unrest from the East.

In 493 began the formidable onslaughts of the Persian kings on Athens and the allied States of the Grecian peninsula, and the shock spread with irresistible momentum. Sicily and Carthage felt it, and were implicated in the struggle. Nor could the States of Southern Italy escape its influence. Not being drawn immediately into the maelstrom of the war, they vented their agitated feelings in embittered internecine and civil strife. So it was in Croton when Hippasos, who had been ejected from the school as an unworthy aspirant to its honors, placed himself in 490 at the head of the democratic party and appeared with a public and formal accusation against his former associates. The school was dispersed, Pythagoras was exiled, his property confiscated, and he himself again compelled to grasp the wandering scholar's staff. He passed the succeeding sixteen years in comparative quiet at Tarentum, although still the object of persecution. But here, too, in 474, the

populace overthrew the reigning aristocracy, and Pythagoras now in his ninety-fifth year, chose as his last haven of refuge, Metapontum, where he still managed to eke out for four years a miserable existence. When in 471 democracy also gained the upper hand in Metapontum, the house in which the meetings of the school were held was surrounded, set on fire, and most of its inmates burned. Pythagoras himself escaped the flames, but died shortly afterwards in his ninety-ninth year.

Such were the life and fortunes of one of the greatest men of all times, as they have been preserved in the memory of his countrymen. That they are in the main fabulous is contended by many. Nevertheless, two facts remain unshaken—Pythagoras's sojourn in Egypt and his activity as a teacher in Southern Italy. At the same time we must bear in mind that the beliefs of the ancients, whether in themselves correct or not, are also facts. While it is true that Hercules never lived, the ideal of Hercules was an important reality in the mental evolution of Greece. In the same way, the life of Pythagoras, as remembered by his disciples, is intimately associated with his philosophy, and it will, therefore, even though a pure fiction, remain forever an essential part of history.