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PYTHAGORICS.

BY C. S. PEIRCE.

The catholic kindness of the philosopher who conducts *The Open Court* gives me a hearing before its bar, to present the claims of certain ideas. I accordingly purpose to submit some reflections upon various methods of reasoning,—as well methods in vogue which I undertake to show faulty, as methods neglected or decried the use of which I shall advocate. These pleadings will make up a series of briefs, or articles, to be entitled "The Critic of Arguments," the word *critic* here meaning an art, like *logic*, etc. But I shall beg leave to intersperse among these essays others relating to points in the history of human reason, treated mostly with special reference to the practical lessons they suggest.

"Many loved Truth, and lavished life's best oil
Amid the dust of books to find her,
Content at last, for guerdon of their toil,
With the cast mantle she hath left behind her."

So sang James Lowell. But he knew, as well as anybody, that no dryasdust could ever have expected anything more from his plodding than the "cast mantle" of truth. The individual scholar looks upon himself as only one of a vast army of ants who are collectively building up something which no one of them can comprehend in advance or is destined ever to see, but which is to be the solace, stimulus, and strength of future generations. The student's life would lack something of its proper dignity if he did not well know, at the outset, that, in embracing it, and thus surrendering the ordinary joys of life, he has to look forward to no personal compensation, whether material or sentimental. I mean this of the American student, only, for of course all is very different in continental Europe, where learned men are sought after by universities, and have an honorable status, instead of being counted as cranks. What is a bit discouraging in his prospect, to a young man who contemplates devoting himself to intellectual affairs, is the assurance that all his life long he will be prevented from doing his work thoroughly well, and from competing with European rivals, owing to the impossibility of procuring the necessary books. True, there are a few great libraries in the expensive cities, open at stated hours.

But to study one must burn the midnight oil, and must have many books always at hand. No poor grub will, in any of the dreams that inanition brings, ever fancy that, among all the rich Grolier clubs, a single bibliophile could be found who would deprive himself of half a dozen rare volumes, in order, with the proceeds of their sale, to purchase a thousand works of value to be loaned to one who would actually use them for the world's good!

In these days, we have seen all sorts of artisans and manual laborers associating themselves to enforce the respect of those with whom they deal; but it was only a little while ago that I heard of the actual existence of a secret society of scientific students, called the Pythagorean Brotherhood.

It is a beautiful name. I would it were given to me to write the life of Pythagoras; for it is not only the sublimest of all human biographies, but the task would also afford a unique opportunity of showing how a true logic would deal with a great mass of weak testimony, and of putting in a clear light the futility of the canons which historical critics are now in the habit of applying to such cases. Open any modern history of philosophy and you will find that the story of Pythagoras,—except in a few colorless outlines,—is erased altogether, on the ground that it rests upon very late authorities, to follow whom would not be "safe." Can anybody explain what that word means? The Latin *salvus sum* means: I have come out without loss; and so when an insurance company judges a risk "safe," they mean that they will take a thousand like it and that what they lose on some of them will be made good on others. If this is the sense in which historical beliefs are said to be "safe" or otherwise, one essential factor in determining whether they should be so regarded must be their value to us in case they are true. One would risk more for the sake of knowing that the ideal Pythagoras lived, than he would for the sake of knowing that the Platonic Socrates lived. The best of the story should be true, to judge by the elevated character of all the Pythagoreans we hear of; and when we remember how intensely secretive they were, and how they refrained from so much as naming their master, the late divulgement of

the facts is noway surprising. But be the story true or false, it remains one of the most precious of biographies; because it inspires and inflames the heart of the reader with a great and lofty ideal of humanity. In this light, the suppression of it in modern books shows the queer earth-worship of our day. Are ideals unembodied of no account? I wot they must be reckoned with, even in computing the active forces of this world.

At any rate, it is certain that Pythagoras really lived, and that in the sixth century before Christ, the Tarquins then reigning in Rome, he established in the great city of Crotona, at the southernmost point of the Gulf of Tarentum, a scientific secret society, one main purpose of which was to control the policy and conduct of the government, and to sway the minds of the citizens.* There is no reason to doubt that full members of this brotherhood surrendered their property; and they must have supported themselves by means of their superior knowledge, probably in mathematics. This was not publicly understood; for only the initiated, by means of secret signals, could tell who were and who were not Pythagoreans. That they made great advances in mathematics is an established fact. If there are those who disbelieve their master's having discovered the forty-seventh proposition of the first book of Euclid (which commonly bears his name), and the thirty-first proposition of the third book, their disbelief comes from the use of canons that embody a sceptical temper, but not a sane logic. Indeed, there are men who seem to conceive that the less they believe the more highly scientific they are. The Pythagoreans attached significance to numbers. They had a number of justice, 4 or, perhaps 3, or 5; a number of health, 6 or 7; a number of marriage, 5, 3, or 6; and a number of light, 7 or 6. One was the origin; two, stalwart resistance; three, mediation and beauty; four, the key of nature; five, color; six, life; seven, the lucky time; eight, the Cadmean number; etc. But pre-eminent above all was ten, the sacred number, the principle and guide of human life, the number of Power. There was some great secret attached to ten, and the Pythagorean oath made special reference to it. The testimony of antiquity is unequivocal that the Pythagoreans kept their mathematical discoveries secret. But the sapient modern critic sees fit to reject this statement. Do you ask why? Simply, because it is not "probable." But since I do not myself carry about in my breast any such unerring and heaven-born sense of the "probable," there is nothing for me to do

but to believe that the Pythagoreans did keep their mathematical discoveries to themselves; and all the testimony there is in favor of this fact fails to rouse in me an impulse to deny it. That is where, I suppose, I am wanting in the true critical spirit. But since they must have earned their living by the practice of the mathematical arts,—computation, book-keeping; mensuration, surveying, etc,—it would plainly be to the interest of the guild that this *mystery* should remain a *mystery* to outsiders. When Boethius, about A. D. 500, gives an account of a sort of abacus, consisting of a table ruled in columns for the decimal places, in which columns characters substantially the same as our Arabic figures, 1, 2, 3, 4, 5, 6, 7, 8, 9, were written, he says that this table and these digit-characters were used by the Pythagorics. True, the genuineness of this passage has been much disputed, notwithstanding one of the manuscripts dating from the tenth century, long before the introduction of the Arabic notation into Europe. But these doubts are now given up, at any rate by the best authorities. Still, I hardly need say that every self-respecting critic rejects the statement of Boethius that these figures were used by the Pythagoreans. For how could Boethius, A. D. 500, know anything about the secrets of a club, of which *we*, *we* ourselves, even *WE*, hear little, subsequent to A. D. 200? Yet certain singular facts call for explanation. The figures which we have seen were known to a few persons in Rome A. D. 500, but had never before been publicly spoken of throughout the widest limit of the Roman Empire, (unless perhaps in Egypt, where some hieratic characters are fancied to resemble them,) are modifications of the letters of an old Bactrian alphabet, at that time for centuries disused. Nor, after that time, were these figures heard of again until Muhammad ben Musa brought them once more from Khiva in the ninth century, at the summons of the Arabian Khalif. When, in the twelfth century, they first appear again in Europe, they are strangely attributed, not to Arabians, Turks, Parthians, Bactrians, Egyptians, nor Pythagorics, but to the Chaldees; and they bear these outlandish names:

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| 1. Igin. | 6. Caltis. |
| 2. Andras. | 7. Zebis. |
| 3. Ormis. | 8. Temenias. |
| 4. Arbas. | 9. Celentis. |
| 5. Quimas. | 10. Sipos. |

M. Lenormant, the Assyriologist, recognised five of these words as corruptions from the Shemitic speech of Babylonia, viz.—igin = ishtin; arbas = arba; quimas = khamsa; zebis = shibit; temenias = shumannu. The other 5 do not at all resemble any numerals of the old Turanian language of Babylonia, so far as now known; but two of them are like the allied Magyar, in which tongue 3 is *harum*, a little like *ormis*, and 9 is *kalentz*, like *celentis*. At any rate, if we were to

* Critics pronounce the statement that he publicly exhibited his golden thigh as an absurd fiction. But Aristotle is the witness to it; and his testimony cannot be lightly put aside. Crotona was a commercial city; and probably the Crotonates were so eager for gold that at the sight of it they lost their reason, and Pythagoras deemed it wise to turn that madness to the service of philosophy.

EVOLUTIONARY ETHICS.

BY THOS. C. LAWS.

[CONCLUDED.]

suppose that the use of these figures was known to Chaldean priests, and communicated by them to Pythagoras, who in ancient times was always held to have been a great traveller, and to have spent many years in Babylon, and if we suppose that it was by means of the use of these figures that the Pythagoreans gained their livelihood, then we can understand how the knowledge of them, though not general, crops out here and there, at distant times and places, with wonderfully little change.

I have been led into this chiefly to illustrate the fact that, sincerely devoted to pure science as Pythagoras and his school assuredly were, yet their secret association by no means neglected practical objects, nor failed to pursue them in a thoroughly practical way.

This brings me back to the modern Pythagorean brotherhood, the rumor of which has reached my ears. I understand that it is composed of three hundred men and women whose lives are solemnly consecrated to science. They obey implicitly a general. Celibacy is strictly enjoined for the present; although, in the fulness of time, the intention is to recruit their numbers mainly by careful selections from among their own offspring, in the light of biological laws which they hope to make out. But the first forty years of the new life of the Pythagoric rule is regarded by all of them as a probationary period, during which they must practice a degree of self-abnegation and submit to a rigor of discipline which at a later time can be relaxed. Meantime, the corporation will be husbanding its resources and gathering strength for the great work that lies before it. This work, as these people conceive it, is no mere picking up of the "cast mantle" of truth, though that is indispensable, too; it is no less than the reception by man of all that he has to learn. To this end, the first step is to make their own body not only the most exquisitely virtuous society ever on earth, but also, what is far higher in their eyes, the wisest of all the race of men. The next step will be to subject the rest of mankind to the governance of these chosen best. This is to be accomplished by pitting their superior virtue, science, and wisdom, against the wickedness, the vanity, the credenciveness, and the cowardice of the common herd. In this conduct, they will not be handicapped, like the Church, by being committed to a mass of lies.

This is all that I have heard; but I can picture to myself a good many more details. I shall not ask anybody how these devotees will succeed; for me the facts of human nature and of history answer that question, plainly. The movement has been on its way to sure accomplishment, since the day on which three hundred gifted men and women gave up their lives and all their individual hopes to that great end.

Upon a scientific treatment of the subject we may note five phases of moral evolution. We have first *animal* morality; in the second stage the morals may be called *primitively savage*; a collateral phase, developed under certain conditions, is *primitively industrial*; the remaining two are *militant* and *mercantile*. It may be objected to this classification that we have entirely ignored the time-honored division of humanity into savage and civilised. We do so intentionally: we are not able to give sufficiently definite meanings to these words to allow us to make use of them in scientific classification. They resemble greatly the legal term "felony"—a word without a definition. Originally felony was a crime punishable with forfeiture of goods. But other offences have now come to be classed as felonious, and the penalty of forfeiture has, generally speaking, been abolished. One can give merely a negative or a categorical definition. One may say (an assertion of little value, since it applies equally to crimes other than felonious) that a felony is an illegal act, the performance of which is punishable by law; or one may recount the names or natures of all the various deeds reckoned by lawyers as felonious. A civilised nation was originally one possessing civil institutions similar to those of ancient Greece and Rome. All others were heathens or barbarians. But Greece and Rome have long since fallen from their high estate in matters philosophical and political, and the word "civilised" has been left without a definite meaning. We may point to a European, a Hindu, and a Chinaman, and call each and all of them civilised; we may point to a Fion, a Toda, or a Fuegian, and speak of him as savage. These are wide contrasts, and it is to such contrasts that we usually apply the term. It is, indeed, difficult, if not impossible, to use the words in any way which will not give the reader or hearer the idea of contrast. Contrast, however, and classification are very different. Orders of classification merge more or less into one another; objects contrasted must be widely diverse. A way out of the difficulty has been suggested, and that is to use the word "civilised" to denote such peoples as possess a literature. Would those who so strenuously advocate this use of the word regard as civilised the Battas of Sumatra, who, notwithstanding that they have a written language and a literature of their own, yet possess political institutions inferior to those of Dahomey, and still practice cannibalism to some extent? In our use of the word "savage" as above, we shall signify such societies as exhibit normally actions which, judging from the standard of higher races, usually called civilised, would be looked upon as vilest, ferocious, and vicious.

Objection may also be raised to the word "animal" and "primitive" as applied to savage humanity. It may be denied that there exist at present any truly primitive or original races. It may be maintained that the peoples so called are degenerations from a higher order, or that they have been modified by subsequent experience. We do not deny it. Evidence upon either side is extremely scant. But such men in the former case are undoubtedly what Darwin would call "reversions to type." They do not necessarily exhibit the traits of any particular race of early man, but they possess his general characteristics.

Animal morality is exhibited by a few races, for the most part forest-dwellers, such as the Obongos (the dwarf tribes of Equatorial Africa), the Veddahs of Ceylon, the Andamanese, and the Fuegians. The Obongos are in stature about four and a half feet, their legs are short in proportion to their bodies, and their breasts are covered with tufts of hair. They live in caves or on the boughs of trees and wear no clothing. Their food consists principally of roots and herbs. Little is known about them save that they live in triblets or hordes of ten or twelve. They are endogamous, marry