

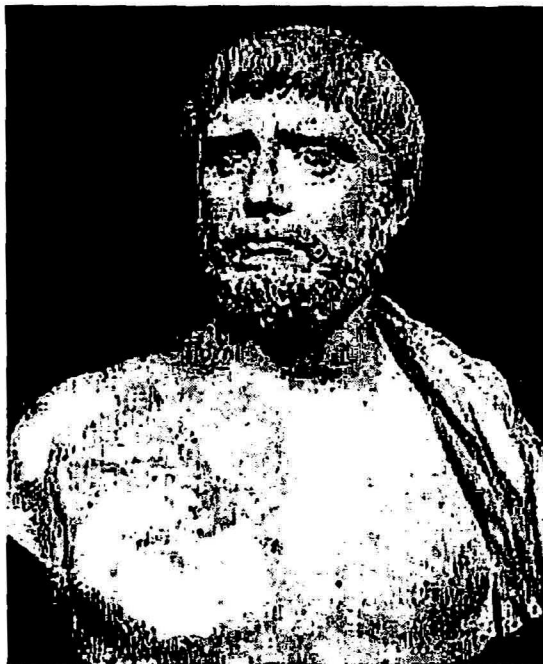
TELEPOLIS

Pythagoras, Subcultures, and Psycho-Bio-Circuitry (570-399 b.c.)

Howard Bloom 16.03.1999

History of the Global Brain XVI

There had been little room for a sensitive, vulnerable, and inward-looking male in a tribal community. Should he be sufficiently determined, he might become a shaman. If he was shy to the point of panic and had the rare luck to be in a tribe which allowed such a thing, he might seek refuge as a berdache[1], a man/woman who dresses like a female and becomes a wife. However if he was in a tribe like Brazil's Yanomamo, he'd end up shunned for his cowardice, have no wives, and hence no progeny. As a result, his genes would disappear from his group entirely.



Thales von Milet

"All the world is queer save me and thee; and sometimes I think thee is a little queer."
Attributed to a Quaker, speaking to his wife

"My school yard was like something out of Lord of the Flies. The bully ruled."
Reed Konsler

"I'll probably regret saying this, but... for me kin have always been bad news. Warmth and hope came from strangers as they became friends, mentors, allies etc. while family is the shared trait of those who diminish my happiness and augment my griefs. I know in my bones that blood is not thicker than water."
David Berreby

"People who were suffering silently found that they were not suffering alone."
Melody Beattie

But there was a new slogan in the urban fifth century b.c.: "know thyself." [2] On the surface, it seemed to imply rugged self-sufficiency. However its subtext preached a hunt for connectivity. "Somewhere," it whispered between the words, "is a subculture into which you fit. Seek it and adopt it as a home for your identity." Fugitives from the normal, driven by off-kilter brain settings and the disdain of others, had what researchers call "low stakes in conformity." [3] They could ferret out a freakish idea, then use it to declare their independence

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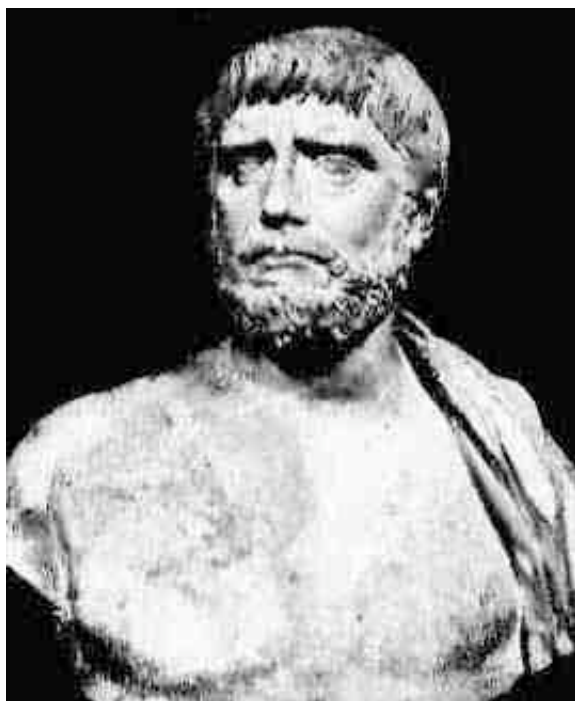
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In the interurban web, you could for the first time choose a group which fit the contours of your neurology. But while the culture which had spat you out was probably local, the new form of subculture which sucked you in was probably a vortex of transnationality. To see these psychobiological currents spiralling in the greatest number we'll have to find the right city. And Athens was the rightest one in sight. Foreigners like Zeno - who laid out what would be recognized for thousands of years as the three basic areas of philosophy - logic, ethics, and physics - arrived in Athens from Italy's Elea[4] carrying the seeds of an intellectual sport for thrill-seeking underexcitables, those whose perpetually parched limbic systems thirsted for neural pandemonium. This was the mental rough-and-tumble Aristotle - a century or so later - called the Dialectic.[5] Zeno's gift was later given a local twist as the Socratic method[6] within whose social confines some

convention-piercers found abode. Meanwhile other cosmopolites wafted into town from the Italian colonies carrying Pythagoreanism,[7] a refuge for limbically bruisable introverts and others of the contemplative sort.

Athens' haven for extrovert daredevils came from the Sophists, who peddled swash-buckling in politics, the law, in public duels of rhetoric, and in the hornswoggling of international diplomacy. (Sophists also offered the best all-around education of their day. But that's a matter for another time and day...or better yet, for the endnotes.)[8] The word sophist actually meant a knowledge carrier, [9] and was equivalent to our "professor." Adepts like the Abderan travelling-seminar-inventor Protagoras and the touring Leontinian lecturer Gorgias charged tidy sums for their public presentations, but would also make themselves available to visit your home and give you private lessons for a mere \$100,000 or so.[10] They equipped you to argue your case persuasively before audiences which would have made an introvert cringe. Then there were the homeboys - Athenian-born Cynics, magnets for those drawn to self-denial, pain, and the desolate caverns of the soul. Like most bands of social rejects, the Cynics offered a belief system with which their followers could turn the tables on their tormentors, [11] damning the high-and-mighty who had mocked their childhood sensibilities. They preached purgation from the "deformations" of the preppies' modern state and urged return to nature's purity.

But we're getting ahead of our tale. In our previous chapter, we glimpsed the manner in which the diversity generator cranks out neurological extremes. Now it's time to see how the conformity enforcer hooks together the resulting irregularities - creating networks whose connecting pins punch through the housing of the ancient polis or the modern state.

At heart is the fact that like is attracted to like - which amounts to a good deal more than common sense. Thanks to the findings of mid and late 20th century science, it is now apparent that our itch to be with those who seem simpatico goes far back in evolutionary time. For example, it shows up in sponges, creatures which first arose roughly 550 million years ago. Sponge cells, like most organisms, live in structured communities. Normally the amoeba-like creatures hunk together indivisibly. But run a sea-fresh sponge through a sieve into a bucket of water, and you jolt the inhabitants from their fastenings, forcing them to wander homeless and alone. Despite this drastic dislocation, the animalcules will clump together again. Now sieve one red sponge and another of a yellow hue into the same bucket. The differently colored refugees will spurn desegregation and frantically seek out others of their kind. Bigoted red cells will shun yellow and vice versa. Within three days, the reds will have reassembled with their fellow ruddies in one clump and the yellows with their lemony sisters in another.[12]

We too are steered by this microorganismic legacy. Put cells from the eye and the liver in water. The liver cells will gang up with other liver cells, the eye cells will chill with others from the eye.[13] Bodies continue to operate in this "ethnocentric" manner even when they're not puréed. In the growing brain of an embryo, neurons reach for partners with whom they'll spend a lifetime in embrace. Each scouts out those which share its electrical rhythms, then taps into a clique which pulsates to its clannish beat.[14] (Reggae fans in one corner, please, rappers, rockers, and classical fogies in another.) And so it goes on up the bio-chain. Little as exterior pigmentation means to the muscle-power, swiftness, or brainpower of a cichlid fish, the color-conscious swimmers congregate according to their tone of physio-body-paint.[15] Chimp mothers raising youngsters clot with other toddler-moms, and adult males hang out with other male adults.[16] Sapient humans still follow this primitive rule. A Detroit survey of 1013 men showed that whites chose whites as best friends, Protestants chose Protestants, Catholics chose Catholics, Republicans chose Republicans, and working class chose working class.[17]

Individuals, especially those with temperaments which defy the norm, are pulled together by two handles of similarity - their emotional wiring and an important byproduct, the extent to which they see things eye to eye. Experiments show that humans are drawn to those who share their attitudes on religion, politics, parents, children, drugs, music, ethnicity,[18] and even clothes.[19] They'll do everything from standing closer to their brethren-in-belief[20] to marrying[21] them in preference to someone current gene-theory tags as a more likely target for matrimony.[22]

Attitudes are not just rallying flags, but symbols of emotionality. Misery wants company. Social psychologist Stanley Schachter told one group of college girls they'd receive a painful shock. He explained to another how enjoyable the electrical surge would be. Then he gave the girls a choice of spending the time before their voltage-dose in a waiting room with a bunch of other young women about to undergo the same amps and watts or in a room by themselves. Twice as many of those who thought they were about to be tortured wanted to nestle in the comfort of a sympathetic gathering.[23]

We mammals are uncannily good at gravitating toward those who share our hidden joys and woes. This talent for emotional homing crops up among beavers, wolves, and even deer[24]. In the rhesus monkeys Harry Harlow studied, it's particularly astonishing. When it came to mating, those who'd been raised in isolation fell for others brought up in quarantine. Those who'd spent their days in cages made woo to other victims of captivity. Now here's the topper. Some of the rhesus had been lobotomized. Though none were handed pictures of each others brains, those with similar neurosurgery managed to sniff each other out. So subtle were the differences detected by the simians that even researchers couldn't spot without a careful study of medical and rearing charts.[25]

Humans are much the same.[26] Children whose gifts or disabilities make them seem bizarre, for example, manage to find each other and to congregate.[27] Among our kind it's called validation. Without others on our wavelength the strangeness of our feelings can make us feel we're going insane. Jerome Bruner explains one of the prime reasons we despair.[28] Some cultures, he says, forbid discussion of experiences which others wallow in quite heartily.[29] Should we be stranded in a milieu which taboos the moods we live from day to day, our essence is expelled from permissible reality. Those like us can offer a nest of others who will finally make us feel worthwhile. But more goes on than mere emotional rescue. Once gathered, those of us who are akin escalate our similarities, aping each other until we've feedback-looped our common thread into an insignia of our group's superiority.[30] Drop these psychosocial filaments into the solvent of a multi-urban stew - et voila, you have the formula for a boundary-breaking subculture-glue.

The big fastener-fest hit in roughly 600 b.c., when prophets and philosophers took advantage of the new trans-territorial fluidities. Until then otherworldly notions like religion had been used to demonstrate who was related to whom and who was a member of which gene-based tribe.[31] The house of Jacob in the valley of the Jordan had shown its solidarity by worshipping Jehovah, while the clans of archaic Athens had flaunted their affiliation through fealty to Athena. But, the users of the new mucilage epoxied together trans-continental circuits of humanity with the relics of these old divinities. Their clans were based on neurohormonal fraternity - a solidarity of sensibilities. Among the large-scale-integrated patch-makers were figures like Confucius and Lao-Tzu in China (both were active around 525 b.c.), Zoroaster in

Persia (628-551 b.c.), the Judaeon visionaries who added their own messages (545-500 b.c.) to the words of Isaiah (742-701 b.c.), and Plato in, where else?, Greece (428-348 b.c.). More on Plato in later chapters, since some of the switchworks he set in train spell trouble for the 21st century.

The eminence grise behind Plato, his modern followers and their adversaries was an arch cementer of trans-national subculture. Today we associate him with a trivial theorem, but this future-shaking figure was Pythagoras.

Faustians and Flockers - a Tale from the Crypt of Psychobiology

Introverts are often tossed outside the locked gates of conventional society. The quirks produced by their cerebral oversensitivities turn them into "geeks" - round pegs excluded from the square holes of acceptability. Even when they're toddlers, pre-school teachers shudder at their strangeness, stigmatizing them with terms like "negative" and "loner." [32] Other kids and adults catapult them from their presence or refuse to look their way. [33] Meanwhile extroverts are grabbed in warm embrace. As hard as introverts may campaign for leadership, it's the extroverts who are handed the top slots. [34] The hormonal fuels of power propel extroverts to take out their aggression on those beneath them. And oversensitives become their punching bags. Among lower primates, the savageness of these attacks is particularly visible. [35] Then things go from bad to worse. Introverts are stuck with aiming their aggression at themselves. [36] Among those extroverts who bask in popularity, the wonder-hormone serotonin banishes depression and produces a sense of confidence and mastery. However serotonin backfires in exiles from the favor of society. It slams introverts into nail-biting and timidity. [37] One of the few strategies for overcoming this conundrum is to bail out and find a group or build a philosophy in which you're no longer pushed to the periphery. [38] No one was more in need of an emotional home than were the introverts of the age of urban interface: the free-floating rejects of the Greek city-states.

Introverts break down into two types - the flock-bound and the Faustians. Faustians cross the boundaries of the system [39] and wrestle with forbidden mysteries. [40] Flockers bury themselves in a bevy of others like themselves [41] and follow the certainties preached by an authority. [42] Faustians take off on odysseys, [43] occasionally returning with fresh visions, [44] the Promethean fire around which to shape subcultural societies. [45] Flockers crowd into the warmth provided by the Faustians' discoveries.

One of the pacesetting researchers into introversion and extroversion, Hans Eysenck, paved the way as far back as 1939 [46] for the discovery of the Faustians, introverts who in spite of their inhibitions are surprisingly good adventurers. The vast majority of pilots are extroverts. And many introverts freeze at the idea of rudder-and-sticking an aircraft. However Eysenck's followers discovered a pocket of introverts whose success in pilot training outdid that of every other group. [47] These were introverts Eysenck had previously called "stable." Their opposites he'd dubbed "neurotics." [48] As research progressed, the Faustian nature of the "stable" types emerged. The clincher came in 1972, when Jeff B. Bryson and Michael Driver found that some introverts shy away from complexity and others dive into it. [49] Or it would have been the clincher, if someone had been looking. In 1998, I subjected 60 years of research on these topics to reanalysis and finally unearthed the footprints of Faustianism. See if you notice the emergence of their outline.

The star players on China's championship women's volleyball teams have been, surprise, surprise, introverts, [50] achieving a glory their extrovert teammates envied. Extroverts lust the most fervently for money, status, and power, [51] but it's the less-materialistic introverts, of all the ironies, who make the best businessmen and entrepreneurs. [52] Both these callings involve not only risk, but the building of mini-cultures. Entrepreneurs, in particular, have to craft micro-societies of employees who champ at the bit to challenge giants...and who can pull it off. There are good reasons complexity-seeking introverts make such potent social engineers. First off, they dive eagerly into theory, penetrating the surface to root out cause and effect. [53] They also have a flair for left-field solutions to problems which stump the more conventional. [54] And they tend to think with both mind and emotionality. Imaging of their brains shows that when they're pondering, the cerebral web of feeling called the striatum lights up [55] like Tokyo's **Ginza** (1) district at midnight.

Their opposites, extroverts, tend to flee emotion, barricading themselves into the left-brain's abstractions and externalities. [56] By freezing consciousness out of their emotional right hemisphere, extroverts blind themselves to the unusual. They turn their backs on exploratory reconnoitering. [57] The extroverts' left-cortical tyranny - which strengthened its hold via the cultural innovations of fourth century Greece [58] - throttles [59] access to areas which house emotional [60] and hunch-based abilities. But it's the wedding of the non-rational with the intellect which modern studies show produces the most accurate anticipation of upcoming traps and openings. [61]

What's more, complexity-seeking introverts embrace those potentially useful strangers [62] whose alien nature tosses their fellow citizens into a tizzy. They can also calm the rhythms of their brain at times when others panic [63] - a gift that puts them among those charismatic heroes who keep their heads when all others about them are losing theirs. [64] But the bottom line of complexity-seeking introverts' success is probably their tenacity. Extroverts jump into diversions glittering with excitement, run through them quickly and make a slew of mistakes. Introverts are slow and steady. They take on long and monotonous tasks, but make few missteps and plow through to the bitter (or sweet) end. [65] Studies show persistence is the raw stuff of greatness. [66] And greatness is something Faustian introverts achieve. [67]

Pythagoras - the Faustian

Pythagoras (560-480 b.c.) was the ultimate Faustian. His father was a gem-engraver [68] in a day when artisans were near the pinnacle of society. [69] Like most introverts, Pythagoras did not feel particularly welcome in his home island of Samos. One reason may have been a common introvert trait - he was a bookworm [70] in a city where single-minded intellectuals were, at best, an oddity. [71] Another may have been that as a child Pythagoras was admired by adults for his precocity [72] - a form of attention which can make you highly unpopular among your merely normal peers.



The regime which came into power when Pythagoras turned eighteen wanted to beef up what Thucydides called "a powerful navy" so it could trounce the Persians and "reduce many an island." [73] Pythagoras left town, certain "that under such a government his studies might be impeded, as they engrossed his whole person." [74] Those studies would have been more than just impeded if Pythagoras had been drafted to man an oar in a battle galley. So the young thinker began a 37-year journey in search of fellow knowledge addicts, including two citizens of Miletus who took a shine to him, Anaximander, father of astronomy, and our old friend Thales, [75] known today as the father of a nameless discipline to which Pythagoras would later give a title - *philosophia*. [76] If Pythagoras resembled the crosscountry hitchhikers of the mid-20th century scrutinized by psychologist Stephen L. Franzoi, [77] he was intuitive, emotionally open, impulsive, independent, enjoyed complexity and change, and had a strong interest in diving into others' souls: the perfect type to dredge the essence from the sages of faraway lands. Like a 1960s hitchhiker, Pythagoras is said to have spent nearly four decades travelling the width of the Mediterranean from Gaul to Phoenicia [78] sucking knowledge from mystics and from priests. He touched on the African realm of Egypt - famed for the secret knowledge of its sacerdotes - then dove into the shamanic realms of Asia, [79] hitting Persia (and its magi), Arabia, and ultimately India [80] - the country where the founder of Jainism, Vardhamana, was piecing together a new monastic religion that abjured violence toward animals, where Goshala Maskariputra was piecing together the self-denying Ajivika sect, where two new Upanishads [81] had just been "discovered" in the forests, and where Buddha, 20 years younger than Pythagoras, [82] was, like the Greek tourist, soaking up the zeitgeist. Both the founder of a religion which would someday permeate the East and the visitor whose ideas would saturate the West drank deeply of Brahminic [83] mysticism, reincarnation, vegetarianism, asceticism, and, in Pythagoras' case, political elitism.

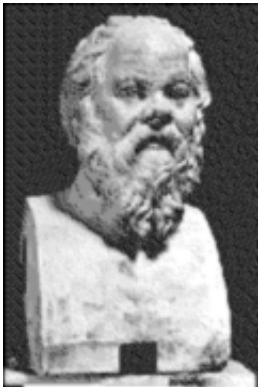
When he returned to his hometown at 56 with an almost fully-developed philosophy, Pythagoras' old fans among the elders gathered eagerly to hear his exploits. However, says Iamblichus, "Not one proved genuinely desirous of those mathematical disciplines which he was so anxious to introduce among the Greeks." In fact, the folks back home absolutely refused "to learn" the lessons with which the intellectual adventurer had returned. [84] So Pythagoras took off for religion-saturated Delos and for authoritarian Sparta "to learn their laws." [85] Then he went back to Samos and demonstrated the depth of his introspective propensities. According to Iamblichus, "He fashioned a cave...in which he spent the greater part of the day and night, ever busied with scientific research, and meditating" until he had "unfolded a complete science of the celestial orbs, founding it on arithmetical and geometric demonstrations." [86] Still, no one would listen. His townsmen ignored his theories and sent him off on diplomatic missions or buried him in bureaucratic natterings. [87] So once again the master of the hidden worlds which introverts best know escaped his mother-polis. "Disgusted at the Samians' scorn for education," says Iamblichus, [88] Pythagoras set down roots in the Italian Greek colony of Croton, where he hung out his shingle as a guru and soon attracted roughly 600 dedicated disciples and another 2,000 devotees who attended his orations in the city's auditorium. [89]

Pythagoras turned his school into exactly what flock-seeking introverts most need - the haven of a tyranny. Ambiguity is a tension-provoker [90] - and the sheep among the introverts go bonkers at the strain. Indecisive grays savage the flockers' limbic systems, so they desperately need the tranquilizer of a world spelled out in black and white. [91] Pythagoras' cult was a cleaver slicing ebony from ivory. It severed those who were in from out with the axe of a loyalty oath. [92] It sheared away uncertainty and squabbles over internal status through the sharing of all earthly goods, the wearing of clonish clothes, the adoption of an unvarying manner ("never yielding to laughter," [93] among other things), and a monastic prohibition against consuming meat, wine, eggs or beans. [94] To enter, one endured an initiation ritual of purification via abstinence, massive study, and best of all for those who needed to deactivate their overexcitability, five years of silent obedience to every command, no matter how seemingly ridiculous. [95] Once this half-decade of self-smothering was ended, one could enter the inner sanctum of "esoterica" - students permitted to sup "the secret wisdom of the Master himself." [96] Ironically, for a sheepish introvert this final headlock in the fold is exactly what it takes to make her formerly-smothered sense of freedom and achievement bloom. [97]



Pythagoras' philosophy is frequently tossed into the same vat as Greek mystery religions and the occult practices surrounding Egyptian gods.[98] Classical historian Michael Grant calls Pythagoreanism "weird," "occultist," "irrational," and just plain "crack-brained." [99] Socrates, the favorite of historians like Grant, was the Athenian alternative - a magnet for extroverts whose thoughts were disconnected from introspective emotionality. One of the most famous of Socrates' followers (and possibly lovers)[100] was Alcibiades, a thrill seeker (meaning an underexcitable extrovert) to the nth degree. He was known for breaking what Will Durant swears was "a hundred laws" and injuring "a hundred men,"[101] for pursuing every pleasure one could wring from the pool of Athenian excess, for his stable of Olympian-race-winning horses,[102] his house stacked high with luxuries, his overdrawn finances, his unparalleled popularity among Athens' high-priced prostitutes, and for his wisecracks to men of power. (An example: Athens' preeminent man of political command, Pericles, tried to put Alcibiades in his place by remarking that he, too, had been able to roll supposedly witty remarks off his tongue when he was young. Snapped back the unchastened youth, "Too bad I couldn't have known you when your brain was at its best.") [103]

Then there was Alcibiades' most infamous act of hooliganism - knocking the noses,[104] ears, and prominently-displayed penises off of nearly every sacred statue of Hermes in town, and completing the entire deed in just one night. As Alcibiades grew older, he grew bolder. He and his sidekicks started a war with Syracuse...which Athens promptly lost.[105] The national humiliation got Alcibiades tossed out of town. So he signed up as a military leader for Athens' arch-enemy, Sparta, and made the citizens back home tear their hair out by the roots.[106] They also eventually tore out the root some felt had caused this whole fiasco - the old philosopher Socrates himself. This was one of the main reasons the quizzical codger was hemlocked into the afterlife.[107]



St. Augustine managed to nail down the difference between Socrates and Pythagoras when he wrote: "wisdom consists in action and contemplation...Socrates is said to have excelled in the active part of that study, while Pythagoras gave more attention to its contemplative part..."[108] Pythagoras was a magnet for introverts who melded sense-beyond-reason with the intellect. He focused on obsessions with which introverts are blessed - theory, mystery, study,[109] and creativity.[110] While Socrates' centered his attention on left-brain hair-splitting, [111] Pythagoras' specialized in such right cortical gifts as music, [112] on whose study he left indelible marks. Musical talent comes, in part, from those abnormal prenatal ablutions in which some the fetuses of future introverts are bathed[113] - pre-natal hormones which produce men and women who don't fit the standard gender molds. [114] These are the very sorts of personalities which conformity-enforcing normals pummel to the outskirts of society. And they are the kinds of introverts who, with "low stakes in conformity" and a good education, seek out the sympathetic pocket of a culture-bucking mini-society. [115]

In fact, if Iamblichus is correct, Pythagoras administered a virtual personality test to make sure his followers were introverts. He "was much more anxious that they should be silent than that they should speak." In other words, he sought shyness[116] - the major hallmark of introversion. He also looked for an overexcitable limbic-alarm which would render his followers "astonished by the energies of any immoderate desire or passion," and which would spark an instant aversion to such qualities of thrill-seeking under-excitable as "ferocity," "intemperance," and "savage manners." What's more, Pythagoras wanted a swift but unrebelling mind able to grasp his teachings readily. In short he demanded high IQ accompanied by the prime flock-seeking-introvert qualities of "gentleness and mildness"[117] - to wit, an

absolute docility. [118] His followers didn't question his commandments, but tranquilized their wills with a phrase borrowed from slaves: "autos epha ipse dixit," [119] generally translated as "he himself has said it." In other words, "it's true because Pythagoras said so."

In blinding white robe and Asian trousers,[120] Pythagoras preached reincarnation[121] - the Indian reason for avoiding meat (swallowing an ancestor might prove deleterious to the soul) [122] and for another Indian-style proscription, never killing an animal unless it posed a danger to one's fellow man. Pythagoras' sect had the additional appeal of opening its doors to women - a rarity in the Greece of that day, and reportedly downright illegal in Croton. Yet Timon of Athens called Pythagoras a fisher of men, a phrase that would take on a powerful resonance later on in history.

The syllabus at Pythagoras' spiritual boot-camp seems sound enough: mathematics, astronomy, and music. But geometry and arithmetic were used as yet more means of regimenting minds - by giving them Spartan calisthenics in discerning the dictatorial forms beneath the surface of reality. If a single Greek ever designed a philosophical hideout for those attempting to flee the painful spikes of exterior corporeality, it was Pythagoras. Little wonder that he's credited with inventing the word "kosmos," whose derivative, cosmic, would become popular with those seeking refuge from externality in the 20th century.

However once he'd enclosed a mass of members in his social cocoon Pythagoras set out to impose his totalitarian system on the entire Croton state. Iamblichus claims the sage "liberated...Croton, Sybaris, Catanes, Rhegium, Himaera, Agrigentum, [and] Tauromenas," establishing "laws which caused the cities to flourish" while rooting out "partisanship, discord and sedition [in other words, disagreement]...from all the Italian and Sicilian lands." [123] Some say Pythagoras and his disciples managed to hi-jack all of Southern Italy. Unfortunately (or perhaps very fortunately indeed), Pythagoras picked the losing side in a battle between Croton's aristocrats and the adherents of a relatively new movement[124] called democracy. The democrats rioted, burned down the headquarters in which Pythagoras' disciples were hived, murdered a few, then chased the rest beyond the city's walls. Pythagoras himself soon perished, though whether at the hands of angry citizens or by starving himself to death is a matter of uncertainty. However his movement lived on vigorously, for Pythagoras had pioneered many things of critical importance, among them a subculture supplantable to any society.

Despite the looting of Pythagoras' personal command center, communities and brotherhoods dedicated to the Master's teachings continued cropping up in Greek territory for the next 300 years, first in southern Italy, then in Athens.[125] Thebes and Phlius. Pythagorean trailblazers developed advanced mathematical and scientific concepts based on those which Pythagoras had introduced - the notions of odd and even numbers, prime numbers, an early algebra, a round earth, an eclipse which occurs because the earth slides between the moon and sun,[126] and many more foundation stones for those who would later conquer the outer world by withdrawing from it: scientists. Aristotle reports that Pythagoreans like Philolaus, through a path of dubious reasoning, even concluded, among other things, that the earth revolves around the sun and not vice versa. [127]

Pythagoras' Faustian followers were renowned as social and political leaders throughout the Mediterranean and the Aegean. Pausanias, in his Description of Greece, describes how the battle-turning third century b.c. Theban leader Epaminondas was sent to study with "Lysis, a Tarentine by descent, learned in the philosophy of Pythagoras the Samian." [128] Herodotus felt that the Lacedaemonia custom of not wearing wool in the temples or using it in burial ceremonies had been borrowed from the Egyptians and the Pythagoreans. [129] The Greek historian Diodorus[130] refers in passing to Prorus of Cyrene as a Pythagorean. The stamp of Pythagoreanism is all over Euclid's geometry[131] (written in the Alexandria of roughly 300 b.c.). Plutarch attributes many of the ideas of Rome's second king, Numa Pompilius (circa 700 b.c.) to the Pythagoreans. [132] And the Pythagorean politician Archytas (whom we shall meet again in our next chapter) was elected "strategos" (dictator) of Taras seven-times running. Despite the dedication with which he handled his political duties, [133] Archytas also found time, according to Will Durant, to write in depth treatises on Pythagorean philosophy, on the mathematical underpinnings of music, on mechanics, and (according to Aristotle) to invent two devices which would change humans' ability to engineer their world - the pulley and the screw. No wonder Diodorus praises the Pythagoreans as "the cause of so great blessings" not just to a few, but to all "the states of Greece." [134]

Finally there came the series of stepping stones which would lead to the Pythagoreans of modernity. Pythagoreanism revived in the Roman Empire during the second to fifth century a.d.,[135] popped up afresh during the Renaissance, wound its way through everything from Montaigne, Shakespeare, Milton and current literature to modern mathematics, [136] and thrives in the form of philosophical, religious, and "pagan-revival" movements at the street level, in the academy, and even on the Internet today. [137]

Some have considered Pythagoras a mystic sage, others a founding father of secular inquiry. Copernicus swore his solar-centric system was sturdily planted in Pythagorean tradition (it was).[138] Galileo was called a Pythagorean by his fellow Italians. And Leibniz openly dubbed himself a devotee of the Pythagorean heritage.

But Pythagoreanism's most important contributions to the 20th and 21st century would be: its impact on Plato and through him on a religion called Christianity; and the barb in an otherwise brilliant heritage - Pythagoras' creation of a method for indoctrinating those of many lands into a cult of absolute authority.

Literaturangaben

[1] A.L. Kroeber. "Psychosis or Social Sanction," in A.L. Kroeber, The Nature of Culture. Chicago: University of Chicago Press, 1952: 313; Charles Winick. Dictionary of Anthropology. New York: Philosophical Library, 1956: 19, 67-68, 265; Torrey E. Fuller. Witchdoctors and Psychiatrists. New York: Harper & Row, 1986: 51; Ruth Benedict. Patterns of Culture. 1934. New York: New American Library, 1950: 243.

[2] The source of the directive to know oneself is that master of wisdom who keeps cropping up whenever we nose around in ancient Greece: Thales of Miletus. (Diogenes Laertius. Lives of Eminent Philosophers. Gregory R. Crane, editor, The Perseus Project (2), August, 1998.; Pausanias. Description of Greece. Gregory R. Crane, editor, The Perseus Project, August, 1998). Thales' maxim got around. Diodorus in his Historical Library (9.10.1. Gregory R. Crane, editor, The Perseus Project, August, 1998), Xenophon in his Memorabilia (4.2.24. Gregory R. Crane, editor, The Perseus Project, August, 1998), and Pausanias all report that Milesian's aphorism was engraved on a column at Delphi, where pilgrims flocking from the far corners of the continents were walloped by it. Plato quotes the apothegm at least eight times. Within two hundred years of Thales' death, "Know thyself" had become what Aristotle calls one of "the most popular sayings" in existence. (Aristotle. Rhetoric. Gregory R. Crane, editor, The Perseus Project, August, 1998.)

- [3] Chris Bader, Alfred Demaris. "A test of the Stark-Bainbridge theory of affiliation with religious cults and sects." *Journal for the Scientific Study of Religion*, September 1996: 285-303.
- [4] Zeno popped up in Athens in 450 b.c. Will Durant. *The Story of Civilization: Part II - The Life of Greece*. New York: Simon and Schuster, 1939: 351.
- [5] Aristotle. *Rhetoric*. In *Library of the Future*, 4th Edition, Ver. 5.0. Irvine, CA: World Library, Inc., 1996. CD-Rom; Aristotle. *Topics*. In *Library of the Future*, 4th Edition, Ver. 5.0. Irvine, CA: World Library, Inc., 1996. CD-Rom; Roland Hall. "Dialectic." In *The Encyclopedia of Philosophy*, edited by Paul Edwards, New York: Macmillan Publishing Co., Inc., 1967: Volume 1 and 2: 385-389.
- [6] The third century Greek historian of philosophy Diogenes Laertius disagreed with Aristotle and proclaimed that it was not Zeno, but the king of the Sophists, Protagoras, who was "the first to invent that sort of argument which is called Socratic." (Diogenes Laertius. *Lives of Eminent Philosophers*. Translated by R.D. Hicks. [1925] Cambridge, MA, 1972.),
- [7] Despite the trivialization of their role in the narratives of modern historians, Pythagoreans and their ideas saturated Athens in the fourth and third century b.c. Plato's dialogues tell us several of them were friends of Socrates. Among these were Simmias and Cebes, who appear in the *Phaedo*, and Timaeus, whom Diodorus numbers as one of "the last of the" great Pythagoreans. (Diodorus. *Historical Library*. Gregory R. Crane, editor, *The Perseus Project*, (3), August, 1998.) Others in Diodorus' list include: "Archytas,... Xenophilus, Phanton, Echecrates, Diocles, and Polymnastus." (Diodorus. *Historical Library*: 8.4, 79.) Timaeus' alleged importance in the life of Athens' first great homegrown philosopher was sufficiently important that an entire dialogue, *Timaeus*, is devoted to a debate with this eminent follower of the mystic master. (Plato. *Timaeus*. In *Library of the Future*, 4th Edition, Ver. 5.0. Irvine, CA: World Library, Inc., 1996. CD-Rom.) In addition, Plato puts words about the Pythagoreans constantly upon the tongue of Socrates in *The Republic*. (Plato. *Republic*. In *Library of the Future*, 4th Edition, Ver. 5.0. Irvine, CA: World Library, Inc., 1996. CD-Rom.) Plato also has Socrates and Glaucon hinting strongly at the general influence of Pythagorean ideas in Athens when the sage speaks thusly: "We may venture to suppose," I said, "that as the eyes are framed for astronomy so the ears are framed, for the movements of harmony, and these are in some sort kindred sciences, as the Pythagoreans affirm and we admit, do we not, Glaucon?" "We do," he said...." (Plato. *Republic*. 530d. Gregory R. Crane, editor, *The Perseus Project*, August, 1998.) Aristotle goes even further, citing the Pythagoreans a minimum of 42 times. (In his *Heavens*, *Metaphysics*, *Meteorology*, *Nicomachean Ethics*, *Physics*, *Posterior Analytics*, and *Sense and the Sensible* - all in both *Library of the Future* and *The Perseus Project* versions.) By virtue of such tidbits and the pervasiveness with which their thought flooded Athens' philosophical atmosphere, it's easy to see that the Pythagoreans attracted a slew of Athenians who found fulfillment in their points of view. (See also: Kenneth Sylvan Guthrie, David Fidler. *The Pythagorean Sourcebook and Library: An Anthology of Ancient Writings Which Relate to Pythagoras and Pythagorean Philosophy*. Grand Rapids, MI: Phanes Press, 1987: 38.)
- [8] The Sophists have been given a bum rap by history, largely due to Plato, who was jockeying with them for influence. Sophists were among Plato's favorite bad guys in his write-ups of the Socratic dialogues. He went so far as to call them intellectual "prostitutes." (Xenophon. *Memorabilia*. Gregory R. Crane, editor, *The Perseus Project* (4), August, 1998.) However the great Sophists - of whom there were many - were walking universities. They taught a full curriculum of fields from science, literature, and philosophy, to government, diplomacy, and, of course, oratory. Here's how Protagoras, a superstar Sophist whose visits to Athens sent the town into a pop-star-style tizzy and whose ideas made substantial contributions to Western thought, sums up the Sophist curriculum and his variation on it: "If Hippocrates comes to me he will not experience the sort of drudgery with which other Sophists are in the habit of insulting their pupils; who, when they have just escaped from the arts, are taken and driven back into them by these teachers, and made to learn calculation, and astronomy, and geometry, and music (he gave a look at Hippias as he said this); but if he comes to me, he will learn that which he comes to learn. And this is prudence in affairs private as well as public; he will learn to order his own house in the best manner, and he will be able to speak and act for the best in the affairs of the state." (Plato. *Protagoras*. *Library of the Future*, 4th Edition, Ver. 5.0. Irvine, CA: World Library, Inc., 1996. CD-Rom.)
- [9] The term "Sophist" came from the Greek "sophia" - meaning skill, wisdom, or knowledge. (Diodorus. *Historical Library*). Plutarch was a bit more cynical in his definition. His take: "what was then called 'sophia' or wisdom...was really nothing more than cleverness in politics and practical sagacity." (Plutarch. *Themistocles*. Gregory R. Crane, editor, *The Perseus Project* (5), August, 1998.) Others saw sophia as mystic knowledge, so this was a word of many meanings.
- [10] The Sophists' opponents made much of their high fees. However another bit of pricing information which was less publicized: the Sophists offered sliding scale tuitions based on a student's income, occasionally provided virtual scholarships for the deserving, and sometimes allowed a student to decide how much to pay after the course was over, judging on the basis of what the pupil felt his instruction had been worth.
- [11] For more on the use of belief systems to turn the hierarchical ladder upside down, see Howard Bloom. *The Lucifer Principle: a scientific expedition into the forces of history*. New York: Atlantic Monthly Press, 1995: 250-257. Valerius Geist, a specialist in large mammalian evolution, including that of humans, calls this approach the "flip." (Valerius Geist. *Life Strategies, Human Evolution, Environmental Design: Toward a Biological Theory of Health*. New York: Springer-Verlag, 1978: 110.)
- [12] Lewis Thomas and Robin Bates "Notes of a Biology Watcher." Produced and directed by Robin Bates. Nova program #818, tv script. Boston: WGBH, 1981: 3-4; Eric Jantsch. *The Self Organizing Universe: Scientific and Human Implications of the Emerging Paradigm of Evolution*. Oxford: Pergamon Press, 1980: 128.
- [13] Eric Jantsch. *The Self Organizing Universe: Scientific and Human Implications of the Emerging Paradigm of Evolution*: 129.
- [14] Rodolfo Llinás. "'Mindfulness' as a Functional State of the Brain." In *Mindwaves: Thoughts on Intelligence, Identity and Consciousness*. Edited by Colin Blakemore and Susan Greenfield: 347-348. Oxford: Basil Blackwell, 1989.
- [15] G.W. Barlow, R.C. Francis. "Unmasking affiliative behavior among juvenile Midas cichlids (*Cichlasoma citrinellum*)." *Journal of Comparative Psychology*, June 1988: 118-23.

- [16] Michael Patrick Ghiglieri. *The Chimpanzees of Kibale Forest: A Field Study of Ecology and Social Structure*. New York: Columbia University Press, 1984: 128-134; F.B.de Waal, L.M. Luttrell. "The similarity principle underlying social bonding among female rhesus monkeys." *Folia Primatologica*, 46:4, 1986: 215-34.
- [17] E.O. Laumann. "Friends of Urban Men: An Assessment of Accuracy in Reporting Their Socioeconomic Attributes, Mutual Choice, and Attitude Agreement." *Sociometry*, 32, 1969: 54-70.
- [18] Robert B. Cialdini. *Influence: How and Why People Agree on Things*. New York: William Morrow and Co., 1984: 170; M. Claes, L. Poirier. "Characteristics and functions of friendship in adolescence." *Psychiatrie de l'enfant et de l'adolescent*, 36:1, 1993: 289-308. Human sociobiologist Daniel Freedman observes that San Francisco kids of different ethnic backgrounds play together until they're ten, then separate and cluster with their own kind. (Daniel G. Freedman. *Human Sociobiology: A Holistic Approach*. New York: The Free Press, 1979: 138.)
- [19] Robert B. Cialdini. *Influence: How and Why People Agree on Things*: 169-170.
- [20] G.W. Evans and R.B. Howard. "Personal Space." *Psychological Bulletin*, October, 1973: 334-344.
- [21] K.R. Truett, L.J. Eaves, J.M. Meyer, A.C. Heath, M.G. Martin. "Religion and education as mediators of attitudes: a multivariate analysis." *Behavior Genetics*, January 1992: 43-62; C.R. Cloninger, J. Rice, T. Reich. "Multifactorial inheritance with cultural transmission and assortative mating. II. a general model of combined polygenic and cultural inheritance." *American Journal of Human Genetics*, March 1979: 176-98; C.T. Nagoshi, R.C. Johnson, G.P. Danko. "Assortative mating for cultural identification as indicated by language use." *Behavior Genetics*, January 1990: 23-31; M.E. Procidano, L.H. Rogler. "Homogamous assortative mating among Puerto Rican families: intergenerational processes and the migration experience." *Behavior Genetics*. May 1989: 343-54.
- [22] An extremely interesting study has shown that many of the attitudes on which folks gang together have a genetic basis. In other words, to some extent, outlooks are markers for gene-based rational predispositions. (J.P. Rushton, C.H. Littlefield, C.J. Lumsden. "Gene-culture coevolution of complex social behavior: human altruism and mate choice." *Proceedings of the National Academy of Sciences of the United States of America*, October 1986: 7340-3.)
- [23] Stanley Schachter. *The Psychology of Affiliation*. Stanford CA: Stanford University Press, 1959; I. Sarnoff and P.G. Zimbardo. "Anxiety, fear, and social affiliation." *Journal of Abnormal and Social Psychology*, 61, 1962: 356-363. The Sarnoff study reveals the utility sorters of the previous chapter at work. Fear is the alarm which mobilizes individuals who feel they can control what's about to hit them. The fearful seek the company of those who share their terrors so they can confront their crises as a team. Anxiety, on the other hand, is the paralysis of those who feel that overcoming danger is impossible. While the fearful band together, the anxious isolate themselves, sending out repulsion signals which increase their loneliness. Internally, the anxious are torpedoed by such self-destruct mechanisms as chronic and corrosive stress hormones. These are the tools the utility sorter uses to deactivate an individual who no longer feels he or she's of social use. With ruthless efficiency, utility sorters impel a dysfunctional module to toss itself away.
- [24] Harry F. Harlow. *Learning To Love*. New York: Jason Aronson (publisher), 1974: 85.
- [25] Harry F. Harlow. *Learning to Love*: 142-3; S.J. Suomi, H.F. Harlow, J.K. Lewis. "Effect of bilateral frontal lobectomy on social preferences of rhesus monkeys." *Journal of Comparative Physiology*, March 1970: 448-53.
- [26] C.R. Cloninger, J. Rice, T. Reich. "Multifactorial inheritance with cultural transmission and assortative mating. II. a general model of combined polygenic and cultural inheritance." *American Journal of Human Genetics*, March 1979: 176-98; F.H. Farley, C.B. Mueller. "Arousal, personality, and assortative mating in marriage: generalizability and cross-cultural factors." *Journal of Sex and Marital Therapy*, Spring 1978: 50-3.
- [27] T.A. Rizzo, W.A. Corsaro. "Social support processes in early childhood friendship: a comparative study of ecological congruences in enacted support." *American Journal of Community Psychology*, June 1995: 389-417.
- [28] We do more than passively lose hope - an approach which by itself is biologically crippling. Research indicates we slip into actual self-punishment. (For self punishment, see: Earl Rubington. "Deviant Subcultures." In *Sociology of Deviance*, edited by M. Michael Rosenberg, Robert A Stebbins, Allan Turowitz. New York: St. Martin's Press, 1982: 68. For the consequences of losing hope, see: R. Anda, D. Williamson, D. Jones, C. Macera, E. Eaker, A. Glassman, J. Marks. "Depressed affect, hopelessness, and the risk of ischemic heart disease in a cohort of U.S. adults." *Epidemiology*, July 1993: 285-94; S.A. Everson, G.A. Kaplan, D.E. Goldberg, R. Salonen, J.T. Salonen. "Hopelessness and 4-year progression of carotid atherosclerosis. The Kuopio Ischemic Heart Disease Risk Factor Study." *Arteriosclerosis, Thrombosis, and Vascular Biology*, August 1997: 1490-5; H. Uncapher, D. Gallagher-Thompson, N.J. Osgood, B. Bongar. "Hopelessness and suicidal ideation in older adults." *Gerontologist*, February 1998: 62-70; S.A. Everson, D.E. Goldberg, G.A. Kaplan, R.D. Cohen, E. Pukkala, J. Tuomilehto, J.T. Salonen. "Hopelessness and risk of mortality and incidence of myocardial infarction and cancer." *Psychosomatic Medicine*, March-April 1996: 113-21.)
- [29] Jerome Bruner. *Actual Minds, Possible Worlds*. Cambridge, MA: Harvard University Press, 1986: 66.
- [30] T.M. Newcomb. "Stabilities underlying changes in interpersonal attraction." *Journal of Abnormal and Social Psychology*, 66, 1963: 393-404; T.M. Newcomb. "Interpersonal constancies. Psychological and sociological approaches." In *Perspectives in Social Psychology*, edited by O. Klineberg and R. Christie. New York: Holt, Rinehart and Winston, 1963: 38-49. The tendency to feedback-loop our likeness into a jingoistic earmark has such a profound impact on geopolitics that cultures have historically borrowed each other's technologies while outwardly shunning each others badges of in-group similarity and out-group separateness - their religions and philosophies. (A.L. Kroeber. *The Nature of Culture*. Chicago: University of Chicago Press, 1952: 155.) As we've already discussed, in reality they do borrow ideas from their enemies, and, in fact, devour them greedily. But not without first disguising them as an aspect of their "own" beliefs. Meanwhile each group concocts a system in which outsiders are somehow inferior. This is even true among subcultures of prostitutes and alcoholics. (Earl Rubington. "Deviant Subcultures." In *Sociology of Deviance*, edited by M. Michael Rosenberg, Robert A Stebbins, Allan Turowitz. New

York: St. Martin's Press, 1982: 46-50.)

[31] Howard Bloom. *The Lucifer Principle: a scientific expedition into the forces of history*. New York: Atlantic Monthly Press, 1995: 97-106.

[32] M.R. Gunnar, K. Tout, M. de Haan, S. Pierce, K. Stansbury. "Temperament, social competence, and adrenocortical activity in preschoolers." *Developmental Psychobiology*, July 1997: 65-85.

[33] A.W. Harrist, A.F. Zaia, J.E. Bates, K.A. Dodge, G.S. Pettit. "Subtypes of social withdrawal in early childhood: sociometric status and social-cognitive differences across four years." *Child Development*, April 1997: 278-94; Jerome Kagan. *Unstable Ideas: Temperament, Cognition and Self*: 208-9, 215.

[34] Thomas J. Young. "Judged political extroversion-introversion and perceived competence of U.S. Presidents." *Perceptual & Motor Skills*, October 1996: 578.

[35] J.D. Higley, S.T. King ST Jr, M.F. Hasert, M. Champoux, S.J. Suomi, M. Linnoila. "Stability of interindividual differences in serotonin function and its relationship to severe aggression and competent social behavior in rhesus macaque females." *Neuropsychopharmacology*, January 1996: 67-76.

[36] A.L. Clair, T.P. Oei, L. Evans. "Personality and treatment response in agoraphobia with panic attacks." *Comprehensive Psychiatry*, September-October 1992: 310-8; Svend Erik Moller, E.L. Mortensen, L. Breum, C. Alling, O.G. Larsen, T. Boge-Rasmussen, C. Jensen, K. Bennicke. "Aggression and personality: Association with amino acids and monoamine metabolites." *Psychological Medicine*, March 1996: 323-331; Harry F. Harlow and Margaret Kuenne Harlow. "Social Deprivation in Monkeys." *Scientific American*, November, 1962: 138; Harry F. Harlow and Gary Griffin. "Induced Mental and Social Deficits in Rhesus Monkeys." In *Biological Basis of Mental Retardation*, edited by Sonia F. Osler and Robert E. Cooke. Baltimore, MD: The Johns Hopkins Press, 1965: 99-105; Harry F. Harlow. *Learning To Love*: 113.

[37] Forgive me, oh ye gods of science, for I have extrapolated from work done with crayfish, who share our hormones of inclusion, social expulsion, confidence, and "emotional" paralysis. The findings of A.L. Clair, T.P. Oei, L. Evans in their study of human "Personality and treatment response in agoraphobia with panic attacks" tends to support the hormonal and behavioral continuity between crawdads and humans strongly, as do numerous examples from history. For the crayfish case, see: Shih-Rung Yeh; Barbara E. Musolf; Donald H. Edwards. "Neuronal adaptations to changes in the social dominance status of crayfish." *Journal of Neuroscience*, January 1997: 697-708. For a good crayfish dinner, see your local Cajun restaurant.

[38] Valerius Geist, a specialist in large mammalian evolution, including that of humans, calls this approach the "flip." (Valerius Geist. *Life Strategies, Human Evolution, Environmental Design: Toward a Biological Theory of Health*: 110.) See also: Chris Bader and Alfred Demaris. "A test of the Stark-Bainbridge theory of affiliation with religious cults and sects." *Journal for the Scientific Study of Religion*, September 1996: 285-303.

[39] Yvonne Walsh, Robert Bor. "Psychological consequences of involvement in a new religious movement or cult." *Counselling Psychology Quarterly*, 9(1), 1996: 47-60.

[40] Jeff B. Bryson and Michael J. Driver. "Cognitive complexity, introversion, and preference for complexity." *Journal of Personality & Social Psychology*, September 1972: 320-327.

[41] Joel Cooper, Charles J. Scalise. "Dissonance produced by deviations from life styles: The interaction of Jungian typology and conformity." *Journal of Personality & Social Psychology*, April 1974: 566-571. Though it may seem otherwise on the surface, introverts secretly hanker for the kind of inclusion only extroverts seem to know. (Steven R. Brown, Clyde Hendrick. "Introversion, extraversion and social perception." *British Journal of Social & Clinical Psychology*, December 1971: 313-319.) By fashioning tools for creating societies around themselves, some manage to very successfully get what they want. (Hans J. Eysenck, Michael W. Eysenck. *Personality and Individual Differences: A Natural Science Approach*. New York: Plenum Press, 1985: 328.)

[42] Some introverts lock the unfamiliar safely into judgmental boxes, avoid the fuzziness of intuition, and show a strong tendency to anchor themselves within the crowd perception. In technical terms, ISFJs on the Myers-Briggs Type Indicator tend to be field-dependent. Others use their intuition and look at oddities for what they're worth. These are INFPs (introverted, intuitive, thinking, perceiving) on the Myers-Briggs. Perceiving in these terms is the alternative to "judgmental." So it tends to mean accepting differences in others and in events rather than clamping them into decisive categories. INFPs tend to be field-independent, meaning they form their own perceptions rather than cleaving to conclusions handed to them by others. (C.P. Schmidt, J.W. McCutcheon. "Reexamination of relations between the Myers-Briggs type indicator and field dependence-independence." *Perceptual and Motor Skills*, December 1988: 691-5.)

[43] Tests done with the Strong Interest Inventory tend to indicate that high IQ introverts are explorers. A.S. Kaufman, S.E. McLean. "An investigation into the relationship between interests and intelligence." *Journal of Clinical Psychology*. 54(2), 1998: 279-95. John Price and Anthony Stevens hypothesize that during our hunter-gatherer days, extroverts joined the crowd, taking on the common perceptual scheme and banding together for hunting and warfare. Meanwhile, according to Price and Stevens, introverts went off to homestead and start single-family units of their own; and schizotypal folks, those with extraordinarily vivid, inward-oriented imagination, started cult groups. (John S. Price, Anthony Stevens. "The human male socialization strategy set: Cooperation, defection, individualism, and schizotypy." *Evolution & Human Behavior*, January 1998: 57-70; Anthony Stevens, John Price. *Evolutionary Psychiatry: A New Beginning*. London: Routledge, 1996.) Other studies indicate that refuge-seeking introverts tend to settle into long and stable marriages, while the adventure-hunters escape from standard social boundaries may turn them into criminals or drug abusers. (Gerald D. Otis, John L. Louks. "Rebelliousness and psychological distress in a sample of introverted veterans." *Journal of Psychological Type*, 40, 1997: 20-30.)

[44] For a synthesis of additional research on the solitary, stress-tinged ontogenetic origins of genius, see: Valerius Geist. *Life Strategies, Human Evolution, Environmental Design: Toward a Biological Theory of Health*: 374-376.

- [45] Nietzsche declared that these climbs from the valley of the ordinary led to the mountain-peak-dances of the ubermenschen, the exuberant visions achieved by those liberated from the narrowness of conformity. (Friedrich Wilhelm Nietzsche. Also Sprach Zarathustra. Translated by Thomas Common. New York: Heritage Press, 1967.)
- [46] H.J. Eysenck. "Primary Mental Abilities." *British Journal of Educational Psychology*, 9, 1939: 26-265.
- [47] Hans J. Eysenck, Michael W. Eysenck. *Personality and Individual Differences: A Natural Science Approach*. New York: Plenum Press, 1985: 327.
- [48] Hans J. Eysenck, Michael W. Eysenck. *Personality and Individual Differences: A Natural Science Approach*. New York: Plenum Press, 1985: 327.
- [49] Jeff B. Bryson and Michael J. Driver. "Cognitive complexity, introversion, and preference for complexity." *Journal of Personality & Social Psychology*, September 1972: 320-327.
- [50] Richang Zheng, Yijun Qiu. "A study of the personality trend of the players in the Chinese first-rate women's volleyball teams." *Information on Psychological Sciences*, 3, 1984: 22-27.
- [51] Hans J. Eysenck, Michael W. Eysenck. *Personality and Individual Differences: A Natural Science Approach*. New York: Plenum Press, 1985: 325.
- [52] Hans J. Eysenck, Michael W. Eysenck. *Personality and Individual Differences: A Natural Science Approach*: 328.
- [53] M.M. Marinkovic. "Importance of introversion for science and creativity." *Analytische Psychologie*, Vol 12(1), 1981: 1-35; Hans J. Eysenck, Michael W. Eysenck. *Personality and Individual Differences: A Natural Science Approach*. New York: Plenum Press, 1985: 325.
- [54] Among other things, introverts seem to process information in a manner all their own and are slow to knuckle under to the collective perception of the mainstream. Extroverts, on the other hand, are quicker to see things in the "normal" way. (Michael W. Eysenck; Christine Eysenck. "Memory scanning, introversion^extraversion, and levels of processing." *Journal of Research in Personality*, September, 13(3): 305-315.) For more on the manner in which outsiders come up with vital solutions others just can't see: Thomas Kuhn. *The Structure of Scientific Revolutions*. 2nd ed. Chicago: University of Chicago Press, 1970; and Dean Keith Simonton. *Greatness: Who Makes History and Why*. New York: Guilford Press, 1994.
- [55] Hakan Fischer, Gustav Wik, Mats Fredrikson. "Extraversion, neuroticism and brain function: A PET study of personality." *Personality & Individual Differences*, August 1997: 345-352.
- [56] Sally J. Power, et. al. have concluded that extroverts are left-brain oriented. They quote Ned Herrmann, inventor of the Hermann Brain Dominance Instrument, who states that "a preference for the left cognitive style represents a positive predisposition for order, organization, and following the rules." (Sally J. Power, Lorman L. Lundsten. "Studies that compare type theory and left-brain/right-brain theory." *Journal of Psychological Type*, 43, 1997: 23; Sally J. Power, personal communication, July 28, 1998.) Psychologist Steve E. Hartman disagrees, feeling that there is no simple correlation between extroversion and hemispheric dominance. (Steve E. Hartman, personal communication, July 28, 1998; Steve E. Hartman, Jaime Hylton, Ronda F. Sanders. "The influence of hemispheric dominance on scores of the Myers-Briggs Type Indicator." *Educational & Psychological Measurement*, June 1997: 440-449). However Hartman's work does support the popular notion that thinking and feeling show up in separate hemispheres. In addition, I suspect that Hartman and Power disagree primarily because they are looking at different nuances of introversion, which is a complex of many traits. For a study which Hartman points out does indicate a difference in left and right hemispheric activity between introverts and extroverts, see D.L. Crossman and J. Polich. "Hemispheric and Personality Differences Between 'Left-' and 'Right-brain' Individuals for Tachistoscopic Retrieval and Spatial Tasks." *Personality and Individual Differences*, 10, 1989: 747-755. However as Hartman points out, this experiment measured only one very limited form of functioning, and can't be taken as a measure of over all mental process.
- [57] Darren R. Gitelman, Nathaniel M. Alpert, Stephen Kosslyn, Kirk Daffner. "Functional imaging of human right hemispheric activation for exploratory movements." *Annals of Neurology*, February 1996: 174-179.
- [58] John R. Skoyles (6) "Alphabet and the Western mind." *Nature*, 309, 1984: 409-410; John R. Skoyles. "Did ancient people read with their right hemispheres? A study in neuropalaeography." *New Ideas in Psychology*, 1985, 3: 243-252; John R. Skoyles. "The origin of Classical Greek culture: The transparent chain theory of literacy/society interaction." *Journal of Social and Biological Structures*, 13, 1990: 321-353; John Skoyles. "Motor perception and anatomical realism in Classical Greek Art." *Medical Hypothesis*, 51, 1998: 69-70; John R. Skoyles, personal communications, November 1997-August 1998.
- [59] The socially and verbally oriented left cortex of the brain is able to inhibit the motor areas of the right cortex by taking control of the communication lines which connect the two. (J. Netz, U. Ziemann, V. Hömberg. "Hemispheric asymmetry of transcallosal inhibition in man." *Experimental Brain Research*, 104:3, 1995: 527-33.)
- [60] .C. Borod. "Interhemispheric and intrahemispheric control of emotion: a focus on unilateral brain damage." *Journal of Consulting and Clinical Psychology*, June 1992: 339-48.
- [61] A. Bechara, H. Damasio, D. Tranel, A.R. Damasio. "Deciding advantageously before knowing the advantageous strategy." *Science* 1997, Feb 28: 1293-5; Gretchen Vogel. "Scientists Probe Feelings - Behind Decision-Making." *Science*, Feb 28 1997: 1269; Bruce Bower. "Hunches pack decisive punches." *Science News*, March 22, 1997: 183.
- [62] Sonia Ancoli, Kenneth F. Green. "Authoritarianism, introspection, and alpha wave biofeedback training." *Psychophysiology*, January 1977: 40-44.
- [63] Sonia Ancoli, Kenneth F. Green. "Authoritarianism, introspection, and alpha wave biofeedback training."

- [64] A paraphrase of the Kipling poem "If." Rudyard may fairly be counted among the Faustian introverts. He began as a pudgy, unathletic little fellow picked on by everyone in sight, including the children of the woman to whom he'd been sent in England for raising while he attended a proper school instead of remaining among the heathens his parents were herding like cattle back in India. In full adulthood, Kipling galvanized England during preceding World War I with heroic visions wrenched from the solitary adventures of his teens. (Frederick Winston Furneaux Smith, Earl of Birkenhead. Rudyard Kipling. New York: Random House, 1978.) Another pudgy, unathletic little wimp was Winston Churchill, who managed to cow several small armies in his early manhood (first at the Battle of Omdurman in the Sudan, then the following year when he escaped a prisoner of war camp in South Africa), and became famous for these seemingly impossible accomplishments. Later Churchill mobilized Britain for a far larger impossibility, winning the Second World War. (William Manchester. The Last Lion, Winston Spencer Churchill: Vol. I, Visions of Glory, 1874-1932. New York: Dell Publishing Company, 1984.)
- [65] Hans J. Eysenck, Michael W. Eysenck. Personality and Individual Differences: A Natural Science Approach. New York: Plenum Press, 1985: 274.
- [66] Psychologist Dean Keith Simonton has examined the many factors behind monumental achievement in Greatness: Who Makes History and Why. His conclusion: persistence is the one quality without which all other endowments seem to end in nothing.
- [67] Jerome Kagan. Unstable Ideas: Temperament, Cognition and Self: 214-15. For similar conclusions, see: Kazimierz Dabrowski with Andrzej Kawczak and Michael M. Piechowski. Mental Growth Through Positive Disintegration. London: Gryf Publications, 1970.
- [68] Diogenes Laertius. "The Life of Pythagoras." In Kenneth Sylvan Guthrie, David Fideler. The Pythagorean Sourcebook and Library: 141.
- [69] Oswyn Murray. "Life and Society in Classical Greece." In The Oxford History of the Classical World: Greece and the Hellenistic World, edited by John Boardman, Jasper Griffin, Oswyn Murray. New York: Oxford University Press, 1988.
- [70] Pythagoras was "a youth devoted to learning," as Diogenes Laertius put it. (Diogenes Laertius. "The Life of Pythagoras." In Kenneth Sylvan Guthrie, David Fideler. The Pythagorean Sourcebook and Library: 141.) For a tendency toward bookishness and high scholastic achievement among introverts, see: Abd El Baset, Mahmoud El Aziz. "Impact of advance organizers of interaction and extraversion/introversion on scholastic achievement for middle college female students." Derasat Nafseyah, January, 1994: 119-151; Hans J. Eysenck, Michael W. Eysenck. Personality and Individual Differences: A Natural Science Approach: 321. Introverts tend to love reading. And, as you might expect, the reading they do is more literary and less action-packed than that of extroverts. (Sing Lau, Sau M. Cheung. "Reading interests of Chinese adolescents: Effects of personal and social factors." International Journal of Psychology, 23(6), 1988: 695-705.)
- [71] When it came to digesting intellectual complexities, says Iamblichus, the Samians "lacked endurance." Iamblichus. The Life of Pythagoras or On the Pythagorean Life. In Kenneth Sylvan Guthrie, David Fideler: The Pythagorean Sourcebook and Library: 61.
- [72] Iamblichus. The Life of Pythagoras or On the Pythagorean Life. In Kenneth Sylvan Guthrie, David Fideler. The Pythagorean Sourcebook and Library: 59. It's hard to know when and when not to believe Iamblichus. He was a philosopher/theologian of the third and fourth century a.d. doing battle with an upstart group named the Christians. While the followers of the cross promoted one form of divinity, Iamblichus propagandized for another. So he labored mightily to portray Pythagoras in a manner that would outdo the saintliness of Jesus, the opposition's candidate for holiness. This may explain why, just as the Christian gospels claimed that the Nazarene was awing adults as a mere child, Iamblichus made a similar boast for the figure he calls "the prince and father...who promoted the welfare of all mankind...a child of the divinity." (Iamblichus. The Life of Pythagoras or On the Pythagorean Life: 57-63.)
- [73] Thucydides. History of the Peloponnesian War. Translated by Richard Crawley. In Library of the Future, 4th Edition, Ver. 5.0. Irvine, CA: World Library, Inc., 1996. CD-Rom.
- [74] Iamblichus. The Life of Pythagoras or On the Pythagorean Life. In Kenneth Sylvan Guthrie, David Fideler. The Pythagorean Sourcebook and Library: 59.
- [75] Iamblichus. The Life of Pythagoras or On the Pythagorean Life. In Kenneth Sylvan Guthrie, David Fideler. The Pythagorean Sourcebook and Library: 59.
- [76] Diodorus. Historical Library: 10.10.1.
- [77] S. Franzoi. "Personality characteristics of the crosscountry hitchhiker." Adolescence, Fall 1985: 655-68.
- [78] Precisely which lands, aside from Egypt and Persia, Pythagoras did or did not hit is a matter on which scholars, both ancient and modern, disagree. My account relies on Pythagoras' adventurous nature and assumes he reached all those destinations credited to him by his various chroniclers. Feel free to subtract from the list. However it would be wise to remember that Pythagoras managed to imbibe knowledge from many territories he didn't visit personally. For example, he may or may not have reached India, but it is certain that he studied its philosophies.
- [79] Grant feels that Pythagoras picked up knowledge from the shamans of Scythia and Thrace, then popularized them within the Greek world. Michael Grant. The Rise of the Greeks. New York: Charles Scribner's Sons, 1987: 229.
- [80] Will Durant. The Story of Civilization: Part II - The Life of Greece: 161.
- [81] The Brihadaranyaka and the Chandogya.
- [82] Buddha - Siddhartha Gautama, otherwise known as Sakyamuni - would have been in his mid 30s when Pythagoras ended his travels at the age of 56 and set about creating his school of philosophy.
- [83] Thomas Bulfinch. The Age of Fable. In Library of the Future, 4th Edition, Ver. 5.0. Irvine, CA: World Library, Inc., 1996. CDRom. Even

Michael Grant, a skeptic about all things Pythagorean, is convinced that Pythagoras was influenced by the Hindu Upanishads. Michael Grant. *The Rise of the Greeks*: 229.

[84] Iamblichus. *The Life of Pythagoras or On the Pythagorean Life*. In Kenneth Sylvan Guthrie, David Fideler. *The Pythagorean Sourcebook and Library*: 61.

[85] Iamblichus. *The Life of Pythagoras or On the Pythagorean Life*. In Kenneth Sylvan Guthrie, David Fideler. *The Pythagorean Sourcebook and Library*: 62.

[86] Iamblichus. *The Life of Pythagoras or On the Pythagorean Life*. In Kenneth Sylvan Guthrie, David Fideler. *The Pythagorean Sourcebook and Library*: 62.

[87] Iamblichus. *The Life of Pythagoras or On the Pythagorean Life*. In Kenneth Sylvan Guthrie, David Fideler. *The Pythagorean Sourcebook and Library*: 62.

[88] Iamblichus. *The Life of Pythagoras or On the Pythagorean Life*. In Kenneth Sylvan Guthrie, David Fideler. *The Pythagorean Sourcebook and Library*: 63.

[89] Iamblichus. *The Life of Pythagoras or On the Pythagorean Life*. In Kenneth Sylvan Guthrie, David Fideler. *The Pythagorean Sourcebook and Library*: 63; Thomas Bulfinch. *Age of Fable*. In *Library of the Future*, 4th Edition, Ver. 5.0. Irvine, CA: World Library, Inc., 1996. CD-Rom; Will Durant. *The Story of Civilization: Part II - The Life of Greece*: 162. Diogenes Laertius, who is not a cheerleader for Pythagoras, lowers the number of core followers from Iamblichus' 600 to a more conservative 300. (Diogenes Laertius. *The Life of Pythagoras*. In Kenneth Sylvan Guthrie, David Fideler. *The Pythagorean Sourcebook and Library*: 142.)

[90] Valerius Geist. *Life Strategies, Human Evolution, Environmental Design: Toward a Biological Theory of Health*: 24-35.

[91] A.G. Smithers; D.M. Loble. "Dogmatism, social attitudes and personality." *British Journal of Social & Clinical Psychology*, June 1978: 135-142. Which dogma flockers dive into for refuge doesn't seem to matter. When it comes to beliefs on economics, aesthetics, politics, and religion, both introverts and extroverts can go either way. (Km. Kamlesh. "A study of the effect of personality on value pattern." *Indian Psychological Review*, January 1981: 13-17.)

[92] Overexcitables (called "trait anxious" subjects in one study and "high worriers" in another) see ambiguity as more threatening than those not afflicted with hypersensitivity. (C. MacLeod, I.L. Cohen. "Anxiety and the interpretation of ambiguity: a text comprehension study." *Journal of Abnormal Psychology*, May 1993: 238-47; R. Ladouceur, F. Talbot, M.J. Dugas. "Behavioral expressions of intolerance of uncertainty in worry. Experimental findings." *Behavior Modification*, July 1997: 355-71.) Aggression against an outsider is one way the master of an authoritarian group can decrease ambiguity's menace. We are good guys, they are bad guys. The world is black and white, not a muzzy murk of who-knows-what. Research indicates that the tactic of inspiring aggression against outsiders dispels the anxieties created by ambiguity best when used on such overexcitables as neurotics and "borderline patients," but that the trick has less impact on normals or schizophrenics. (F. Leichsenring, H.A. Meyer. "Reducing ambiguity: semantic statistical studies of 'normal' probands, neurotic patients, borderline patients and schizophrenic patients." *Z Klin Psychol Psychopathol Psychother*, 42:4, 1994: 355-72.) The leader puts himself in a particularly strong position if he offers a belief system which makes cause and effect seem clear. This works wonders at giving an uncontrollably ambiguous situation the appearance of controllability. Here's the key reason. If a crisis seems indecipherable, its victims sink into anxiety - a utility-sorter-dictated shutdown. But if the causes of a crisis seem explainable, the result is a surprisingly healthier emotion - fear. Fear is a form of arousal. It prepares us to act rather than to give up. This is true even if a solution is nowhere in sight. The leader's ability to create the illusion of a handle on the dilemma matters more than the reality. (F.W. Wicker, E.L. Young. "Instance-based clusters of fear and anxiety: is ambiguity an essential dimension?" *Perceptual and Motor Skills*, February 1990: 115-21.) Most significantly, while anxiety causes a group to fragment, fear brings it together (W.N. Morris, S. Worchel, J.L. Bios, J.A. Pearson, C.A. Rountree, G.M. Samaha, J. Wachtler, S.L. Wright. "Collective coping with stress: group reactions to fear, anxiety, and ambiguity." *Journal of Personality and Social Psychology*, June 1976: 674-9.) - all the more reason a leader should map out clear guidelines for understanding the cause of problems. Having a scapegoat or enemy to blame for every stumbling block in sight seems a leader's ideal solution. It gives the clarity which leads to group cohesion and to that master fog dissipater - hostility. Pythagoras does not seem to have gone to these militant extremes. However some of the studies cited here may explain the appeal of the clear lines he drew in the sand.

[93] Will Durant. *The Story of Civilization: Part II - The Life of Greece*: 162. Durant appears to be quoting Diogenes Laertius.

[94] Diogenes Laertius. *The Life of Pythagoras*. In Kenneth Sylvan Guthrie, David Fideler. *The Pythagorean Sourcebook and Library*: 145-147. Will Durant. *The Story of Civilization: Part II - The Life of Greece*: 162. Among other things, a uniform diet eliminated the use of food as a status symbol...a tool for one-upmanship. For food's use in battles to achieve prestige, see: E.N. Anderson. *The Food of China*. New Haven: Yale University Press, 1988: 155, 211.

[95] Will Durant interprets this silence as meaning that one was simply not allowed to ask questions, to quibble with orders and ideology, or to see "the master" in person. (Will Durant. *The Story of Civilization: Part II - The Life of Greece*: 163.) Bulfinch views the silence as absolute - no talking, period. (Thomas Bulfinch. *Age of Fable*. In *Library of the Future*, 4th Edition, Ver. 5.0. Irvine, CA: World Library, Inc., 1996. CD-Rom.) Diogenes Laertius - who like Durant and Bulfinch wrote hundreds of years after the fact - seems pretty unequivocal - "For five years they kept silence, doing nothing but listening to discourses...." (Diogenes Laertius. *The Life of Pythagoras*. In Kenneth Sylvan Guthrie, David Fideler. *The Pythagorean Sourcebook and Library*: 144.) One way or the other, an exploration of a modern "closed, philosophically oriented group" like that which Pythagoras constructed around himself reveals that even today a socially ostracized person intent on fashioning a social group around himself uses the same methods Pythagoras chose. Researchers have commented on "the covert coercive control through which individual identity is dismantled and the worldview of the group's leader introduced. ... Destruction of autonomy helps ensure dependence on the leader and is accomplished through far-reaching control of the member's life and isolation from outside support. Breaking of the personality offers the leader a malleable soul...." (The authors of this study were apparently reluctant to give their names because they had feigned conversion to gain access to a group's "inner mysteries." Going public with the secrets of a cult into which you've been initiated can have nasty consequences. n.a. "Sex, lies, and grand schemes of thought in closed groups." *Cultic*

Studies Journal, 14(1) 1997: 58-84.)

[96] Will Durant. The Story of Civilization: Part II - The Life of Greece: 163.

[97] Yvonne Walsh, Robert Bor. "Psychological consequences of involvement in a new religious movement or cult." *Counselling Psychology Quarterly*, 9(1), 1996: 47-60.

[98] Bulfinch, for example, titles one chapter of his *Age of Fable* "Pythagoras-Egyptian Deities-Oracles." (Thomas Bulfinch. *Age of Fable*.)

[99] Michael Grant. *The Rise of the Greeks*: 228.

[100] There is no sense in removing the sexual titillation from our scholarship when it is historically legitimate. Speculation that Alcibiades and Socrates shared more than just their dialogs was rife in antiquity and remains a subject still up for grabs today. Allow me to present for your consideration one of the many tidbits fueling this tabloid-style historical debate: Com. Where do you come from, Socrates? And yet I need hardly ask the question, for I know that you have been in chase of the fair Alcibiades. I saw the day before yesterday; and he had got a beard like a man-and he is a man, as I may tell you in your ear. But I thought that he was still very charming. Soc. What of his beard? Are you not of Homer's opinion, who says - Youth is most charming when the beard first appears? (Plato. *Protagoras*.)^^

[101] Will Durant. The Story of Civilization: Part II - The Life of Greece: 445.

[102] Thucydides. *History of the Peloponnesian War*. Translated by Richard Crawley. In *Library of the Future*, 4th Edition, Ver. 5.0. Irvine, CA: World Library, Inc., 1996. CD-Rom.

[103] Xenophon. *Memorabilia*: i. 2. 46.

[104] Thucydides. *History of the Peloponnesian War*.

[105] In Alcibiades' defense, it must be said that he was recalled to Athens to answer charges of impiety before the battles could commence, and was forced to leave the command of his army to others. It's entirely possible that had he been allowed to general the troops himself, the mission to seize Syracuse would have been a rousing success.

[106] Thucydides. *History of the Peloponnesian War*.

[107] The specific charge on which Socrates was "impeached" was that of corrupting Athens' youth. (Plato. *Euthyphro*. In *Library of the Future*, 4th Edition, Ver. 5.0. Irvine, CA: World Library, Inc., 1996. CD-Rom.) And Alcibiades was the most famous of those the philosopher had corrupted.

[108] Saint Augustine. *The City of God*. In *Library of the Future*, 4th Edition, Ver. 5.0. Irvine, CA: World Library, Inc., 1996. CDRom.

[109] Children rejected by others tend to be more academically gifted than the "better-adjusted" sorts who have spurned them. K.R. Wentzel, S.R. Asher. "The academic lives of neglected, rejected, popular, and controversial children." *Child Development*, June 1995: 754-63; Abd El Baset, Mahmoud El Aziz. "Impact of advance organizers of interaction and extraversion/introversion on scholastic achievement for middle college female students." *Derasat Nafseyah*, January, 1994: 119-151; Hans J. Eysenck, Michael W. Eysenck. *Personality and Individual Differences: A Natural Science Approach*: 321.

[110] Introverts distinguish themselves creatively in a wide variety of fields, from architecture, painting, and sculpture to science. (Hans J. Eysenck, Michael W. Eysenck. *Personality and Individual Differences: A Natural Science Approach*: 328.)

[111] For the left brain as our quibbler over the boundaries between conceptual categories - a Socratic specialty - see: S.M. Kosslyn. "Seeing and imaging in the cerebral hemispheres." *Psychological Bulletin*, 94, 1987: 148-175; S.M. Kosslyn, O. Koenig, A. Barrett, C.B. Cave, T.J. Tang, J.D. Gabrieli. "Evidence for two types of spatial representations: hemispheric specialization for categorical and coordinate relations." *Journal of Experimental Psychology: Human Perception and Performance*, November 1989: 723-35; B. Laeng, M. Peters. "Cerebral lateralization for the processing of spatial coordinates and categories in left-and right-handers." *Neuropsychologia*, April 1995: 421-39; F. Doricchi, C. Armati, G. Martorano, C. Violani. "Generation of skeletal and multipart mental visual images in the cerebral hemispheres: a study in normal subjects." *Neuropsychologia*, February 1995: 181-201; S.M. Kosslyn. *Image and Brain*. Cambridge, MA: MIT Press, 1994; M.T. Menard, S.M.^^ Kosslyn, W.L. Thompson, N.M. Alpert, S.L. Rauch. "Encoding words and pictures: a positron emission tomography study." *Neuropsychologia*, March 1996: 185-94; L.C. Robertson, M.R. Lamb. "Neuropsychological contributions to theories of part/whole organization." *Cognitive Psychology*, April 1991: 299-330; P. Servos, M. Peters. "A clear left hemisphere advantage for visuo-spatially based verbal categorization." *Neuropsychologia*, 28:12, 1990: 1251-60; O. Koenig, L.P. Reiss, S.M. Kosslyn. "The development of spatial relation representations: evidence from studies of cerebral lateralization." *Journal of Experimental Child Psychology*, August 1990: 119-30; S.M. Kosslyn, C.F. Chabris, C.J. Marsolek, O. Koenig. "Categorical versus coordinate spatial relations: computational analyses and computer simulations." *Journal of Experimental Psychology: Human Perception and Performance*, May 1992: 562-77.

[112] N.N. Bogdanov; V.G. Solonichenko. "Williams syndrome as a model of genetically determined right hemisphere dominance." *Neuroscience & Behavioral Physiology*, May/June 1997: 264-267; M. Hassler. "Testosterone and musical talent." *Experimental and Clinical Endocrinology and Diabetes*, 98:2, 1991: 89-98.

[113] M.G. Forest. "Role of androgens in fetal and pubertal development." *Hormone Research*, 18:1-3 1983: 69-83; N. McConaghy, R. Zamir. "Sissiness, tomboyism, sex-role, sex identity and orientation." *Australian and New Zealand Journal of Psychiatry*, June 1995: 278-83; F.M. Bentvelsen, M.J. McPhaul, J.D. Wilson, F.W. George. "The androgen receptor of the urogenital tract of the fetal rat is regulated by androgen." *Molecular and Cellular Endocrinology*, October 1994: 21-6.

[114] M. Hassler. "Testosterone and musical talent." *Experimental and Clinical Endocrinology and Diabetes*, 98:2, 1991: 89-98. See also: Barbara M. Yarnold. "Steroid use among Miami's public school students, 1992: Alternative subcultures: Religion and music versus peers

and the 'body cult.'" Psychological Reports, February 1998: 19-24. In this study, students most likely to avoid steroid use were those actively involved in either musical performance or religion, one of many indications that the musically-inclined are outside of the "jock" mainstream and may be those hormonally androgenous individuals other studies indicate are actively rejected by those who insist on suitability to the standards du jour.

[115] Chris Bader, Alfred Demaris. "A test of the Stark-Bainbridge theory of affiliation with religious cults and sects." Journal for the Scientific Study of Religion, September 1996: 285-303. In a study of students in American high schools, the greater the level of participation in sports and other organized high school activities, the greater the level of self-esteem. (A. Holland, T. Andre. "The relationship of self-esteem to selected personal and environmental resources of adolescents." Adolescence, Summer 1994: 345-60.) This implies that those on the outside of the accepted structure have low self-esteem. One way out of this bind not discussed by the researchers is the one this chapter has been stressing: to find or found an alternative social group in which, to use Valerius Geist's term, you can "flip" the values of the group that has shut you out. (Valerius Geist. Life Strategies, Human Evolution, Environmental Design: Toward a Biological Theory of Health: 110.)

[116] The word "shyness" is one Jerome Kagan, the king of this field of study, has used frequently to sum up the temperamental trait which both he and other researchers also call "withdrawal," "limbic sensitivity," "overexcitability," and "introversion." (J. Kagan, J.S. Reznick, N. Snidman. "Biological bases of childhood shyness." Science, 8 April 1988: 167-71; I.R. Bell, M.L. Jasnosi, J. Kagan, D.S. King. "Is allergic rhinitis more frequent in young adults with extreme shyness? A preliminary survey." Psychosomatic Medicine, September-October 1990: 517-25; etc.)

[117] Iamblichus. The Life of Pythagoras or On the Pythagorean Life. In Kenneth Sylvan Guthrie, David Fideler. The Pythagorean Sourcebook and Library: 81.

[118] Unquestioning obedience was one of the qualities Pythagoras seemed to prize the most, at least according to Iamblichus' account of the interviews with which Pythagoras personally screened applicants for admission. Whether Iamblichus' reconstruction was historically accurate or simply his projection of his own desired criterion for fourth century a.d. neo-Platonic followers is hard to ascertain.

[119] Diogenes Laertius. Lives of Eminent Philosophers. Gregory R. Crane, editor, The Perseus Project: 8.1.46. For the use of the phrase "Autos epha ipse dixit" by slaves and another group disciplined with the lash - pupils - to show their absolute subservience, see: Herbert Weir Smyth. Greek Grammar (First Edition), Gregory R. Crane, editor, [The Perseus Project](#) (7), August, 1998. For the employment of corporal punishment in Greek education, see Oswyn Murray. "Life and Society in Classical Greece": 222.

[120] Martin West. "Early Greek Philosophy." In The Oxford History of the Classical World: Greece and the Hellenistic World, edited by John Boardman, Jasper Griffin, Oswyn Murray. New York: Oxford University Press, 1988: 108.

[121] Pythagoras' version of reincarnation was distinctly Hindu: one had to undergo rebirth after rebirth until at last one achieved a virtuous life. (Will Durant. The Story of Civilization: Part II - The Life of Greece: 165). See also Michael Grant. The Rise of the Greeks: 229-230.

[122] Pythagoras justified his vegetarianism with the Indian argument that meat-eating might lead you to accidentally wolf down the reincarnation of an ancestor. (Diodorus. Historical Library: 10.6.1.)

[123] Iamblichus. The Life of Pythagoras or On the Pythagorean Life: 64. Diogenes Laertius, less prone to hyperbole than Iamblichus, agrees that the Pythagorean dominion over Croton was handled "in a most excellent manner, so that the constitution was very nearly an aristocracy." (Diogenes Laertius. "The Life of Pythagoras:" 142.) The aristocrats in charge were almost certainly the philosophical followers of the master - Pythagoras.

[124] Democracy was several generations old back in the Greek homeland, but it was apparently still a novelty in the Italian colonies.

[125] David Fideler. Personal communication. July 15, 1998.

[126] Aristotle. Metaphysics. In Library of the Future, 4th Edition, Ver. 5.0. Irvine, CA: World Library, Inc., 1996. CD-Rom; Aristotle. Heavens. In Library of the Future, 4th Edition, Ver. 5.0. Irvine, CA: World Library, Inc., 1996. CD-Rom.

[127] "Pythagoreans... At the centre, they say, is fire, and the earth is one of the stars, creating night and day by its circular motion about the centre." (Aristotle. Heavens.)

[128] Pausanias. Description of Greece.

[129] Herodotus. Histories. Gregory R. Crane, editor, [The Perseus Project](#) (8), July, 1998: 2.80.1.

[130] Diodorus. Historical Library: 10.4.1.

[131] Euclid. The thirteen books of Euclid's Elements. Translated by Sir Thomas L. Heath. Gregory R. Crane, editor, [The Perseus Project](#) (9), July, 1998. Heath's commentaries, cite a swarm of Euclid's Pythagoreanisms.

[132] Plutarch. Numa Pompilius. In Library of the Future, 4th Edition, Ver. 5.0. Irvine, CA: World Library, Inc., 1996. CD-Rom. Plutarch's conviction that Pythagoras influenced one of Rome's founding fathers gives more of an idea of the power of Pythagoras' ideas in Plutarch's day (around 100 a.d., which is when Plutarch wrote his most famous work, Parallel Lives) than of Pythagoras' sway during the early era of Rome. Numa Pompilius was active in approximately 700 b.c. Pythagoras was functioning at full throttle some 200 years later.

[133] Demosthenes calls Archytas an administrator of remarkable ability. (Demosthenes. Erotic Essay 46. Gregory R. Crane, editor, [The Perseus Project](#) (10), August, 1998: 61.46.

[134] Diodorus Historical Library: 10.12.3.

[135] Already in the first century b.c., Diodorus, writing from Roman Sicily, just below the Italian boot, says of the Pythagoreans that "mankind speaks of them as if they were alive today." Diodorus. Historical Library.

[136] Pythagoreanism provided a potent legacy for western moderns. Gushing through the pipeline of neo-Platonism, Pythagoras' concepts saturated Christianity, shaping a host of central Church doctrines which would have seemed extremely alien to Jesus. The social system designed by Pythagoras for his community of followers was echoed in the Christian monastery movement, which began during the fourth century a.d. Pythagoreanism flared to life in the secular philosophy of Europe from the middle ages onward. Montaigne, writing in the 1500s, refers to "the Pythagoreans" as a living presence. (Michel Eyquem de Montaigne. Essays. In Library of the Future, 4th Edition, Ver. 5.0. Irvine, CA: World Library, Inc., 1996. CD-Rom.) Bulfinch shows the rivulets of Pythagoreanism running through Shakespeare, Dryden, Milton, Longfellow, and many others. (Thomas Bulfinch. Age of Fable.) The legacy of Pythagoras lives in modern mathematics through such things as "Pythagorean triples" and "Pythagorean numbers." See also: Michael Grant. The Rise of the Greeks. New York: Charles Scribner's Sons, 1987: 227.

[137] For a rich harvest of Pythagorean cyber-cultists, see such sites as: [The School of Pythagoras](#) (11), August, 1998, [The Pythagorean Pagan - The Delphic Oracle Site](#) (12), July, 1998, and [The Indigenous Nativity & Philosophical Foundations of that which is deemed Classical Western Science](#) (13), July, 1998.

[138] Pythagoreanism influenced Copernicus via the aforementioned sun-centered concepts of the Pythagorean Philolaus and through the preservation of Philolaus' ideas in the works of Aristotle. (Aristotle. Heavens.)

Links

- (1) <http://www.sony.co.jp/soj/CorporateInfo/SSPA98/map/ginza.htm>
- (2) <http://hydra.perseus.tufts.edu>
- (3) <http://hydra.perseus.tufts.edu>
- (4) <http://hydra.perseus.tufts.edu>
- (5) <http://hydra.perseus.tufts.edu>
- (6) <http://www.users.globalnet.co.uk/~skoyles/index.htm>
- (7) <http://hydra.perseus.tufts.edu>
- (8) <http://hydra.perseus.tufts.edu>
- (9) <http://hydra.perseus.tufts.edu>
- (10) <http://hydra.perseus.tufts.edu>
- (11) <http://members.aol.com/areoasis/Reviews/pythagoras.html>
- (12) <http://www.aros.net/~eriugena/pita.htm>
- (13) <http://magna.com.au/~prfbrown/pythagor.html>

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