The Adrenal-Heart Connection

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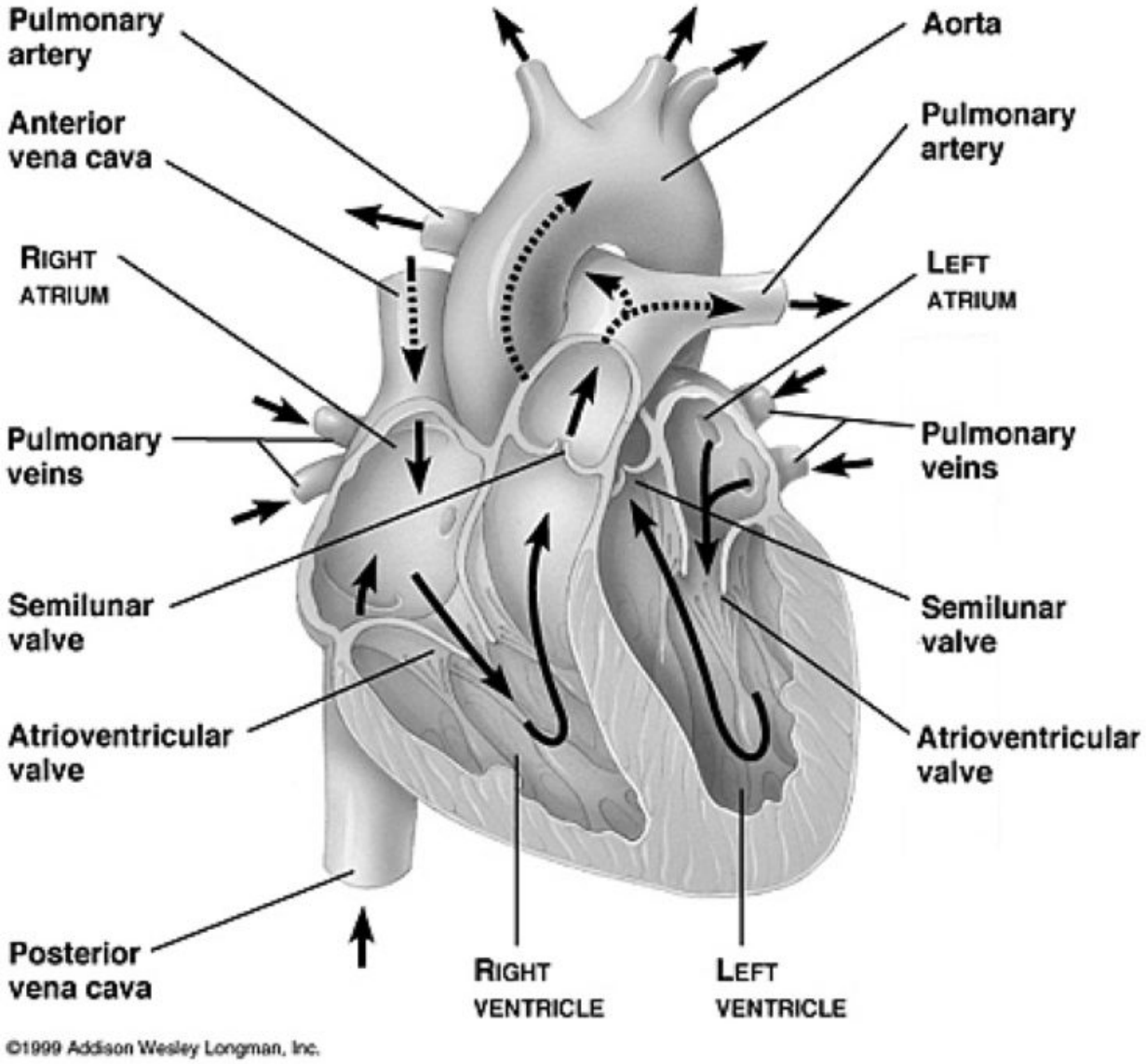
In my first book, *Fourfold Path to Healing,*[1] I said that the heart does not pump the blood. At the time, I thought that I was done with being heretical about the heart. If one accepts the premise that the heart is not a pump, however, then many other interesting questions arise. For example, what is the heart doing if it is not a pump? What moves the blood? What causes heart attacks? Most intriguingly, why have people throughout the ages connected the heart with gold and love?

My new book, *Human Heart, Cosmic Heart*[2] reviews some of the standard explanations of the heart and then explores whether those make sense. If they do not, then what does make sense and what should we do about it?

DIFFERENT PARADIGMS

Let's start by looking at the conventional explanation of a heart attack. I learned in medical school that there are four major coronary arteries leading to different areas of the heart. Interestingly, Wikipedia says that there are only three, and some cardiology books say there are just two. You would think that we would know for certain how many coronary arteries there are. (Actually, nobody disputes the anatomy—two main coronary arteries that branch—but there is a somewhat semantic debate about whether also to count the ones that branch as main arteries.)



At any rate, the explanation for what we call a “heart attack” goes like this. One or more of our two to four major coronary arteries get blocked with plaque over time, which inhibits the flow of blood through the narrowed artery, usually by about 85 to 90 percent. Once someone has a restriction in the blood flow of over 85 percent, the blood has trouble squeezing through the blockage, meaning that part of the heart downhill from the blockage does not have enough blood flow and oxygen. Without enough fuel, the person first experiences chest pain (which we call angina) and then, if the blood flow diminishes even more, eventually the person will have no blood flow through the blocked area and that part of the heart will die.

On its surface, the whole thing seems extremely clear and well- thought-out. About fifteen years ago, however, I came across an intriguing article written by the son-in-law of a Brazilian cardiologist. The article described the myogenic (arising from the muscle) theory of heart disease, disputing the claim that thrombogenic (clot) formation causes coronary artery disease and results in heart attacks. (To clarify, when I talk about “heart disease,” I am referring to unstable angina—chest pain—proceeding to heart attacks. Valve problems, rhythm problems,

and congestive heart failure are separate heart diseases that are not the focus here.)

Initially, there was no way I could buy the Brazilian cardiologist's argument. The son-in-law sent me an entire box of books and articles supporting his father-in-law's theory. Although most were in Portuguese, which I could not read, I was very interested and ended up spending several years looking into this other way of thinking about heart disease. I became convinced that he was right and that the usual way of explaining heart disease was wrong.[3]

Note that we have a trillion-dollar industry based on the conventional theory. All of the bypasses, stents and angioplasties done in this country are based on the theory that says, "You have a blockage in one of your arteries and if you clean the blockage out, you'll be fine." The coronary artery theory of heart disease also has led to a huge and decades-long dietary debate, particularly about fat. The basis for promoting a lowfat diet for the treatment of heart disease was the idea that the plaque in the arteries was from fat that somehow congealed in the arteries. From that perspective, eating a lowfat diet would either prevent heart disease from happening in the first place or possibly reverse it if you already had it. Even in alternative medicine, there really were no other explanations put forth about heart disease, other than the debate about whether to eat a high-fat/low-carbohydrate or a lowfat diet. The only other treatment option that anybody suggested was chelation therapy, which is based on the idea that putting chelating agents into the bloodstream would somehow eat up or dissolve plaque.

Everyone agrees that there is something in the blood that is forming plaque, and they try to reduce that "something in the blood" through diet or statin drugs. Everyone also recognizes that the blood that goes through the coronary arteries is the same kind of blood as the blood that goes through the splenic artery that leads to the spleen or through any other artery. Thus, plaque formation occurs not just in our coronary arteries but also in the splenic artery, the femoral artery, the hepatic artery and so forth. Yet while all of us know someone who has had a heart attack, how many people know someone who has had a "spleen attack?" Nobody. I was an emergency room (ER) doctor for ten years, and I never once saw anybody with a spleen attack. (A spleen rupture from a gunshot is not a spleen attack.) The question then becomes, if plaque is forming in all the arteries, why doesn't the spleen (or another organ) have attacks, too? There is no anatomic or physiological difference between the splenic and coronary arteries.

CAUSE OR CONSEQUENCE?

Most cardiologists did not believe in the coronary artery theory in the forties and fifties, when heart disease first began making its appearance in this country in a significant way. But sixty years later, they all do. A lot of studies in the earlier medical literature were from autopsies of people who died of heart attacks. A website called heartattacknew.com shares an amazing study by an Italian pathologist named Baroldi who spent forty years doing pathological examinations on people with heart disease.[4] He found that many people who had been identified as having a non-cardiac disease like asthma had a more than 90 percent blocked artery in one of the major coronary arteries, yet none of them had any signs of heart disease. Thirty-nine percent of people who had been identified by their doctor as being completely normal also had a greater than 90 percent blockage in one of their major coronary arteries. Baroldi found that there was no relationship whatsoever between the size of a heart attack and the severity of the blockage.

Another study in 1986 looked at people with a documented myocardial infarction who had died

within twenty-four hours of their heart attack. About 19 percent had a blockage in the coronary artery leading to that part of their heart—but most of the people (81 percent) who died of a heart attack did not have a blockage in the coronary artery leading to the part of the heart that had the heart attack.

Most people who have a heart attack actually live for a week, a month or longer. As far as I can tell from the medical literature, the percentage of people who have a blocked artery leading to the relevant part of the heart varies from a low of about 20 percent if they die right away to about 78 percent if they die some time later. This raises two questions. First, even if it's as high as 78 percent, what happened to the other 22 percent who do not have a blocked artery but had a heart attack anyway? If you go see a cardiologist and you have clear coronary arteries, the cardiologist will say, "You're fine, you don't need therapy," but we know that at least 22 percent of the people who die of a heart attack do not actually have a blockage in that part of the heart. Second, these studies indicate that the longer you live after a heart attack, the greater the percentage of blockages you're going to get, which raises the question of whether the blockage is a *consequence* of the heart attack and not the cause. If blockages are the consequence of a heart attack, that's a whole different story.

Some years ago, I gave a talk at a holistic heart symposium. The head of cardiology at a large hospital spoke just before me. Speaking for a holistically inclined audience, he knew that he needed to talk about something other than bypasses and stents, so he talked about a study he had been involved in in rural Alabama in the early 1960s. They took poor black men who showed up at the hospital with chest pain and did an angiogram, which involves squirting dye into the coronary arteries and watching to see whether there are blockages. The investigators identified men with severe stenosis (meaning greater than 95 percent blockage) in just one coronary artery and then sent the men home. They wrote a note in the chart predicting that if Joe so-and-so came back some day with a heart attack, it would obviously be in the part of the heart supplied by the blocked artery.

Over the next ten years, some of the men came back with heart attacks and some did not. When they ran the ten-year data, fewer than 10 percent had suffered a heart attack in the area of previously identified blockage. This is a really important finding, because nearly all of the coronary bypasses, angioplasties and stents done in this country today are for people who have stable blockages of over 90 percent. What this and many other studies show is that you are extremely unlikely to have a heart attack because of that blockage.

Consider this scenario. A seventy-five-year old person has noticed in the last three months that he has more shortness of breath or is more tired walking up the hill. He's got a little tension in his chest, so things aren't right. He goes to a cardiologist for evaluation where they do a coronary angiogram. They find a vessel that is 97 percent blocked that requires an emergency stent or bypass "or he is going to die." People come to me with stories like that all the time. (Note that F. Mason Sones, who invented the technique of doing coronary angiography, has said on record that this is not a good way to assess who is at risk for heart attacks or heart disease.)

Let's dissect this scenario a little bit. First of all, when a cardiologist shows a patient a diagram of the heart, it shows the four major coronary arteries going to the heart. All cardiologists show patients the same diagram of the heart with these four blood vessels. They show the stenosis and say, "It's 97 percent blocked, you're only getting 3 percent squeezing through the bottleneck."

They just told this person who's sitting there looking totally fine that he's got 3 percent blood flow to one of the major parts of his heart. Think about that. How is he even sitting there? If that's the only way he gets blood to his heart, how did the patient walk up the hill, albeit with some difficulty? Moreover, the cardiologist says that if another 2 percent gets blocked (so that he is down to 1 percent blood flow), he's a goner. Is there any meaningful difference between 3 percent and 1 percent? How do you explain the fact that this guy is even alive? When you put all those pieces together, you start thinking that there is something about the conventional explanation that does not make any sense.

NATURE IS SMART

If the conventional explanation does not make sense, what is the answer to the riddle? When you go to the heartattacknew.com website, you will see a picture of a normal heart with the blood vessels. What that picture shows is not just the four major blood vessels but a whole fine cascading network of smaller blood vessels, which are called the collateral circulation. The collateral circulation is in place soon after birth because nature is not so stupid as to put all of her eggs in just three or four baskets. The cascading network is interconnected such that if one part does not work, then another part will. Interestingly, if you take a rabbit and suddenly ligate its coronary artery, it will have a heart attack, but if you do it more slowly over three to four days, the rabbit will build up enough collateral circulation to not have a heart attack. The body is prepared for contingencies.

Paying attention to the collateral circulation is important because of an interesting anomaly in the theory that plaque causes angina and heart attacks. That anomaly is that some of the risk factors for heart attacks, such as diabetes and smoking, concern the small blood vessels, not the large blood vessels. People with diabetes end up with amputated feet not because they have trouble with their femoral artery but because the small blood vessels in their body are inflamed and stop functioning properly. The same thing goes for smoking. Nicotine is a direct poison of the small blood vessels, which is why you see smokers with broken blood vessels all over their face. The fact that diabetes and smoking are risk factors for heart attacks makes no sense from the perspective of the plaque-major artery theory, but it makes perfect sense from the standpoint of the small blood vessels.

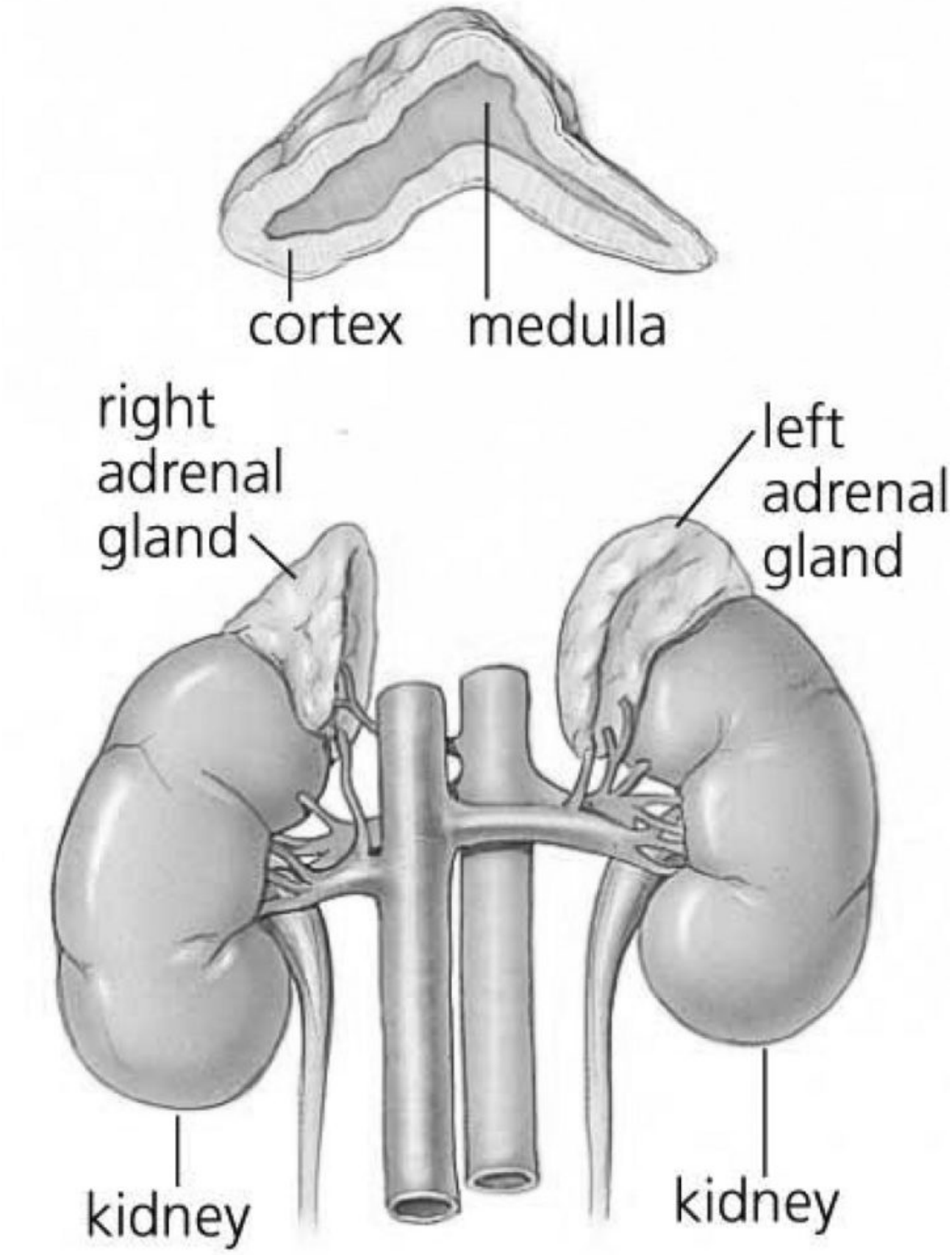
It's foolish to base a therapy on a theory that does not fit the facts (although insisting on unsubstantiated theories seems to be a national pastime). With regard to heart attacks, there are numerous facts that we have to explain. Why are the brain and heart the only organs to have "attacks?" Why do beta blockers decrease the incidence of heart attacks, when they have no relation to plaque formation and in fact raise your cholesterol and increase your tendency to get diabetes? Why does nitroglycerine help people who are having a heart attack or chest pain? Why do statin drugs give people brain-fog, and why does chronic ingestion of statin drugs cause people to lose on average 3 to 5 percent of their IQ? We have to account for all of these effects.

PARASYMPATHETIC NERVOUS SYSTEM

There is a connection here with stress and the adrenal glands. Adrenaline is the main stress hormone. Having been an ER doctor, I know that if you inject adrenaline into the tissue, it constricts the small blood vessels, which is convenient if you are trying to sew up a wound, because it doesn't bleed and has no effect on large blood vessels. There is no theory that connects stress or adrenaline in any way with increased plaque in the major coronary arteries.

Yet every study shows that one of the main risk factors for people getting heart disease is severe and chronic emotional, physical or psychological stress. This does not make any sense from the point of view of plaque formation, but again, it makes perfect sense from the perspective of the small blood vessels.

Remember that we have two nervous systems. One is the central nervous system and the other is the unconscious or autonomic nervous system. The autonomic nervous system in turn is divided into two branches, the sympathetic and parasympathetic. The sympathetic ("fight or flight") branch is centered, chemically speaking, in the adrenal medulla, which is in the center of the adrenal gland. It has cells that make adrenaline and other neurotransmitters. Being in a "flight" situation or experiencing physical, emotional or psychological stress activates your sympathetic nervous system and increases your production of adrenaline. This has a number of biochemical effects, including constricting the small blood vessels and increasing the breakdown of glucose through a process called glycolysis. These effects provide short-term energy that presumably allow you to run away from the bear. The parasympathetic ("rest and digest") part of the autonomic nervous system is centered in the adrenal cortex, which is the outer region of the adrenal gland. It makes cortisone one of the central neurotransmitters that mediate the function of that part of the nervous system.



Let me point out here that a healthy heart is like the conductor of a band or orchestra. Imagine

you have a drummer in the band. You can't replace the drummer with a metronome because the music would sound mechanical, but if you have a drummer who can't keep the beat, that messes everyone up, too. There is flexibility within the beat, and it has to do with the drummer listening and varying the beat almost imperceptibly to keep everyone together. What you need is a strong beat-to-beat variability. The same is true of the heart, and that is called heart rate variability, which we can measure. The heart should not be either a metronome or a drummer who can't keep a rhythm.

In a sense, this beat-to-beat variability represents the integrity or strength of the parasympathetic nervous system. Whenever you see the heart rate variability decrease either in the direction of becoming more mechanical like a metronome or becoming completely chaotic, it means that the other organs in the body don't have a conductor anymore and they go their own way, which is the source of disease. We now know that over 95 percent of people who have a heart attack have decreased heart rate variability in one or the other direction. Some are metronomes, and some have no rhythm whatsoever. Decreased heart rate variability is actually the central event in the evolution of a heart attack and is usually happening for a long time before the patient has any symptoms. High blood pressure, diabetes, chronic stress, nicotine use and everything else linked to heart attacks have all been shown to decrease heart rate variability and parasympathetic tone.

The parasympathetic nervous system has a varied menu of neurotransmitters, and these help explain some of the effects of statin drugs, nitroglycerine and beta blockers. One of the neurotransmitters is acetylcholine. It turns out that statin drugs temporarily increase the production of acetylcholine in the parasympathetic nervous system, which may account for the small albeit toxic benefit of statin drugs. Nitric oxide is another potent neurotransmitter of the parasympathetic nervous system. Nitroglycerine liberates nitric oxide in the nerve endings. Beta blockers block the sympathetic nervous system and therefore inadvertently increase the parasympathetic nervous system. These major interventions—statins, nitroglycerine and beta blockers—all work by increasing the parasympathetic tone, which may explain their mildly beneficial effect with heart patients. None of these pharmaceuticals reduce plaque formation to any significant degree.

Diabetes, poor diet, smoking, high blood pressure and chronic stress—all the things that account for the majority of heart attacks—decrease the tone in the parasympathetic nervous system. When a sympathetic nervous system stressor comes along—it could be emotional, physical or psychological stress, walking too far, doing too many push-ups or even holding your breath—it can exacerbate pre-existing parasympathetic nervous system imbalances. On the other hand, when human beings have economic security, meaningful work, attractive surroundings, peace on earth, good fats, low carbohydrates, no diabetes, communication, connection with the earth, sunlight, happy sexual encounters and the loving touch of another human being, all of these things help support a fully and optimally functioning parasympathetic nervous system. If you don't have these sources of balance and you are faced with a sympathetic nervous system stressor, you're in trouble. We are meant to have bears chasing us sometimes, but if our parasympathetic nervous system is functioning well, this stress won't cause a heart attack.

GLYCOLYTIC SHIFT

The heart and brain are the two organs with the most mitochondria, using the most energy. Their preferred fuels are fats, particularly fatty acids. Under a situation of parasympathetic tone

decrease and sympathetic tone insult, however, the metabolism shifts from using fats in the mitochondria to using glucose inside the cytoplasm. This mode of energy generation is called glycolysis, otherwise known as fermentation. When you start fermenting sugar for fuel, two things happen. First, it's much less efficient. Second, you start building up lactic acid in the cells. Everyone knows that this happens because if you run farther than you can tolerate, you will build up lactic acid in the cells in your legs, and you will feel a cramp and pain because of the lactic acid build-up.

The same thing happens in your heart and brain, but there is one key difference compared with other organs such as the spleen or liver. Your brain and your heart can never rest, and they have huge energy needs, each using 40 percent of total body energy. Because they can't stop, they keep on with glycolytic fermentation and build up lactic acid in the tissues, which promotes a progressive acidification. By everybody's estimation, this acidification is the final common pathway for necrosis—breakdown or death—of those cells. The pain that we call angina comes first, followed by full-blown destruction of the tissue, called a heart attack.

I said the heart is not a pump, but I didn't say it wasn't a muscle. When there is acidification in the tissue, calcium will be unable to get into the muscle to cause it to contract. When the muscle is unable to contract, you will have an area of your heart that doesn't move. That is the hallmark of heart disease. Once you have an area that is not moving like it should, the blood vessel embedded in that area is under tremendous pressure. If you subject the artery to sheer pressure, you are going to start throwing little pieces of clots off from that artery, even if the artery isn't particularly blocked in the first place. The longer you are in that situation, the more clots will happen. Again, the clots are a consequence of the pressure but not the cause. If you ask cardiologists about this, they have no explanation or ability to predict why this happens, even though it is clear that if you subject the artery to sheer pressure, you're going to start throwing pieces off. In the rare situation where a stent or bypass helps after a heart attack, it is probably because they have cleared out debris that was a consequence, not the cause.

FROM EXPLANATION TO THERAPY

A number of factors are involved in heart disease. Although it is important to get away from simplistic thinking about causation, it is crucial to pay attention to the collateral circulation. If you have poor collateral circulation, that's not good. I'm not saying that having plaque in your arteries is a great thing either, but the main issue is the build-up of lactic acid and the decrease of the parasympathetic tone. That is the central pathophysiology.

Obviously, understanding the role of the parasympathetic nervous system has major implications for the selection of appropriate therapies. The Africa explorer David Livingstone first identified a plant called *Strophanthus* that is native to Madagascar and a few other places. The native Africans dipped their arrows in heavy doses of *Strophanthus* seed extract. Livingstone happened to dip his toothbrush in it, and when he brushed his teeth, his heart rate increased. In Germany for about three decades it was the principal medicine for the prevention and treatment of heart disease.

The *Strophanthus* plant is a huge vine with seeds. The active chemical in the seed is called g-strophanthin, which we call ouabain in America. It turns out that ouabain is a copy of an endogenous hormone made in the adrenal cortex. It's made from cholesterol by the part of the adrenal gland that controls the parasympathetic nervous system. We know it's endogenous

because you can take cholesterol and radioactively tag it, and when you assay for ouabain in the blood six hours later, you will find trace amounts of radioactively tagged ouabain in the circulation.

What does this substance do? It goes to the heart. It has the specific action of converting the lactic acid into pyruvic acid, which is the main fatty acid fuel for the mitochondria in the heart. By converting the lactic acid into the primary fuel for the heart, the whole cycle is broken and the heart can relax. It decreases the oxygen consumption in the heart cells themselves, putting the heart in a relaxed state. What an amazing gift! This plant out in nature supports all the parasympathetic neurotransmitters and even makes the red blood cells more flexible so they can move more easily through the circulation. It also has an anti-platelet effect like aspirin.

The range of dose of g-strophanthin/ouabain depends on what form of *Strophanthus* you use. Right now, there is only one compounding pharmacy in Germany that makes pharmaceutically active g-strophanthin, but you cannot import it. The dose is between three and six milligrams, one to three times a day. The other form is an herbal extract from *Strophanthus* seeds, which I prefer to use because it is made from the whole seed, which is intensely bitter. I have tested the *Strophanthus* extract for ouabain content and found that it has a known amount of ouabain. The dose of extract varies between two and twenty drops (about 0.2 to 2 milligrams), two to six times a day. (People who think this medicine might help them should find a health practitioner to work with. The health practitioner can call me and I will explain how to use it and where to get it.)

My work with *Strophanthus* does not negate the importance of addressing diet. There is an excellent new documentary called “The Big Fat Fix” by a British cardiologist.[5] The film traces the history of the diet-heart connection and says you have to eat a certain amount of butter, olive oil and other good fats. It also talks about the importance of movement and stress reduction. A nourishing diet can go a long way toward helping someone come off of medications, even after a stent or heart surgery.

NOT A PUMP

Rudolf Steiner, the early twentieth-century thinker whose ideas led to the development of anthroposophical medicine, biodynamic farming, and Waldorf education, made an enigmatic statement to the effect that one of the most important things needed for the development of humanity is to understand that the heart is not a pump. I heard that statement as a young anthroposophical doctor thirty-two years ago, and I have spent over two decades reflecting on it.

William Harvey introduced the notion that the heart is a pump in 1628 in his book called *De Motu Cordis* (“On the Motion of Heart and Blood”). Harvey declared that the reason the blood moves in the body is because it is pumped by the heart. For some fourteen hundred years before Harvey, physicians had said that some force generated through water moves the blood. Harvey came along and said, “That’s nonsense.”

I think one of the reasons that Steiner thought this was so important is that Harvey’s pronouncement marked the end of vitalism as a theory. What this means is that we stopped believing that there is any difference between death and life, or between living organisms and non-living entities. We came to believe that we could study human beings or other living systems through dissection and that we could learn everything we needed to know about the life of the human being by studying biochemistry and physics, as if we were inanimate objects. Nowadays,

if you dare to mention something about “life forces” or “souls” or anything of that kind, you will be derided by the medical community. In fact, we have enshrined a particular view of science (“that which can be measured and quantified”) as a national religion, although the true definition of science is “the search for truth.”

So is the heart a pump? Here are the details. You have this one-pound organ. In some parts, it is seven muscle layers thick, but at the apex it is one muscle layer thick, which means it is so thin that you could almost stick your finger through it. The heart has four chambers—two upper atria and two lower ventricles. The left ventricle is the chamber that supposedly “pumps” the blood through the rest of the body. Let me define what I mean by a pump. A pump is a pressure propulsion device. This means the movement of the blood comes from a squeezing of the muscle walls of the left ventricle. In other words, the blood comes into the left ventricle, the left ventricle squeezes which pushes the blood around the circulation and back to the right atrium, and then it goes to the lungs and so on.

Remember that the heart—a one-pound somewhat thin-walled muscle—has to squeeze the blood through a lot of really small blood vessels. If you laid all the blood vessels end to end, they would encircle the earth three times. How can this thin-walled organ, with one push, squeeze highly viscous blood containing white and red blood cells even just one time around the earth? For a majority of their travels, these white and red blood cells are approximately the same diameter as the blood vessels that they’re traveling in.

Think about this, too. The blood exits the heart very rapidly. It goes through the aortic arch, out and down, and then gradually slows until it reaches the capillaries. The capillaries are the junction where the blood stops and does a little shimmy and then gets going again. Although some people say that it does not stop but keeps moving, the blood can’t breeze through the capillaries because they are too small. Moreover, this is the stage in the process where the blood offloads oxygen and food—which is the whole point of the blood flow—and picks up carbon dioxide and waste products.

So the left ventricle is “pumping” the blood through the aortic arch, which is pointing the wrong way. If you’re going to go around the earth you have to pump pretty hard. Also, this arch is flexible. Picture a spigot outside of your house, and a flexible garden hose attached to the spigot shaped into an arch. This is like the aortic arch. What happens to the aortic arch when you turn the “spigot” on full blast? It bends in. The harder you push, the more the aortic arch bends in. That makes no sense at all. There is no pump on earth that does anything like that.

FOURTH-PHASE WATER

To understand the pump, you also have to understand something about water. Here’s another old grandmother’s tale: “Matter exists in three states and only three states.” With copper, for example, you have solid copper, liquid copper and gaseous copper. According to this tale, all matter—every atom—exists only in these three states, and that’s all there is to it.

What about water? It is solid in ice form, liquid in water, and steam in gas form. We are told that human cells are 70 percent water, and you can prove that with a spectrophotometer. Which state of water is this intracellular water in? If it were liquid, you could take your leg and squish it with a big press and get a puddle of water on the floor. Having been an ER doctor and seen many people cut open, do you know how many people spout water out of their cells? Zero. So where is

the water? There is no water, yet we know we are 70 percent water. Here is another question. Which state of water is gelatinous bone broth in? Ninety-seven percent water and 3 percent collagenous protein.

It turns out that the fundamental tenet of science about three states of water is wrong. There are actually four states. The fourth state is called the plasma state, gel phase, exclusion zone or structured water. Dr. Gerald Pollack wrote a book about this called *The Fourth Phase of Water*.[6] This state of water forms whenever you put a hydrophilic surface like a protein in a beaker of water. As the water becomes structured, it also becomes negatively charged. If you roll this hydrophilic surface up into a tube, you will have a negatively charged gel phase lining the tube, and in the middle where the bulk (liquid) water is, you will have positive charges floating in the water. Because of the separation of charges, they repel each other and start to flow (and it must be true because you can see it on YouTube). The positively charged water starts to flow because of this repulsion, and it will flow indefinitely as long as there is a charge to this water system, for example, from sunlight or the earth's electromagnetic field. Those things charge up the hydrophilic surfaces, making a more robust gel phase, which makes for more robust separation of charges, which puts more positive ions in the middle—which makes more flow.

The fourth phase of water explains a scientific anomaly called the barometric limit. If you take a column of water, no matter how thin the column is, at a certain height—thirty-three feet—gravity prevents the water from going up anymore. In other words, water can't flow up any tube higher than thirty-three feet before the weight of the water causes it not to be able to go up any further. Given this barometric limit, how is it possible for there to be trees more than thirty-three feet high? Maybe there could be trees that are about forty feet high because of transpiration, evaporation from the leaves, the pull of the sun, and so forth. But how do we explain trees that are three hundred feet high? The problem here is that we have been taught not to believe our own eyes or our own experience of the world. The answer is that the xylem sap that transports water from the roots to the aerial parts of plants is a hydrophilic tube. It makes a gel phase with positive ions squished in the middle. The sap can't go into the ground so it starts flowing up, and it will go up practically forever because of this hydrostatic pressure.

What is a capillary made of? It is made of a hydrophilic tube with a protective gel coating. All the vessels have a protective coating in them, which is very convenient because the coating is negatively charged and repels most poison while protecting the lining so it doesn't get inflamed or corroded. The positively charged protons formed during the creation of the gel layer are pushed into the inner fluid part of the blood. These protons repel each other (as do any positive charges when they meet) and this causes the blood to begin moving up the venous tree. No energy is required except exposure to sunlight, earth energy and human touch—all that charges up our cells and starts the flow moving. The blood then goes faster and faster until it gets to the heart.

In short, the blood pumps the heart, not the other way around. The blood rushes in and expands the heart, the gate (valve) opens, the blood is suctioned out, the aortic arch collapses because of the suction, the blood essentially falls down with some spiral action of the arteries to finally reach the capillaries. There the blood cells come to a brief stop before hydrostatic pressure begins moving the blood back up to the heart through the veins. That's how the circulation works.

SEVEN-SIDED FORM

When you read Rudolf Steiner, it's like having the answers to the test before the test. Steiner said the heart is a seven-sided regular form that sits in an imaginary box in the chest. A "seven-sided regular form" means a three-dimensional form, and the "regular" part means the surface areas are all identical.

Plato described the five platonic solids, and said the earth was created as permutations on these five regular platonic solids. Steiner said that there is a sixth one, but nobody discovered that until Frank Chester, a geometrician from San Francisco, began looking into the subject. He spent fifteen years trying to figure how to sculpt a seven-sided regular form and then finally he did it. The form, called a chestahedron, has four sides that are equilateral triangles and three sides that are kite-shaped quadrilaterals, all with equivalent surface areas.

That discovery was a huge achievement in and of itself because the chestahedron had never previously existed as far as we know. Even more interestingly, when Chester made a model of the chestahedron and rounded off the edges, it fit right into the cavity of the left ventricle. Moreover, fitting the seven-sided form snugly in a cube, Chester found that the chestahedron sits at an angle of 36 degrees off of center and to the left, which is exactly the same angle at which the heart sits within the chest. (Rudolf Steiner said that this is the same angle the earth tilts its axis on to the left although science says it is 23 degrees.) The normal human temperature in centigrade is 36 degrees, and ancient physicians said the heart is the generator of warmth. Most people have a low body temperature, which means they have a weak heart.

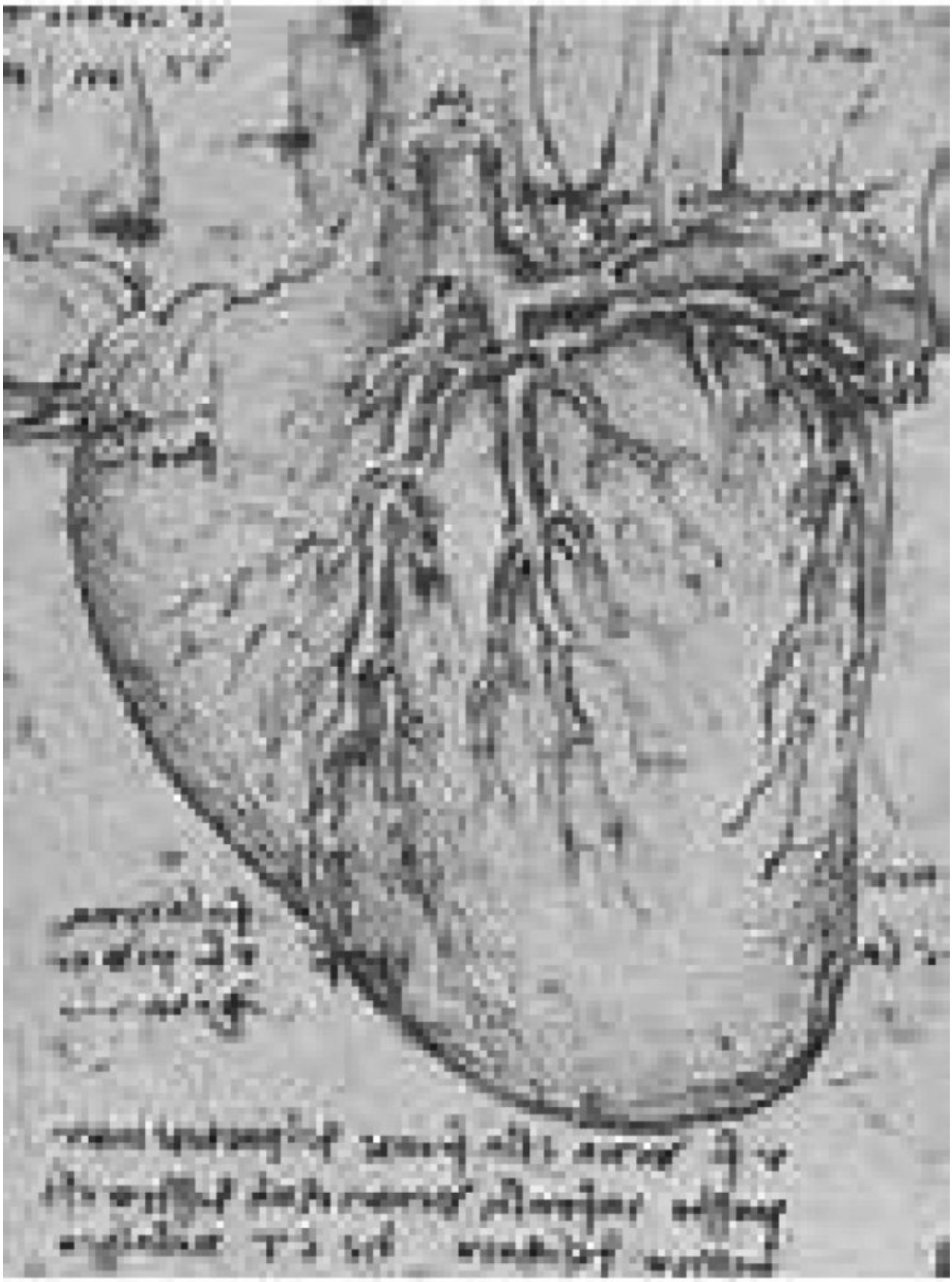
Leonardo da Vinci also drew the heart at 36 degrees off center to the left with the cavity looking like the chestahedron. However, he believed the wall to be the same thickness the entire way around. You can still see da Vinci's anatomy drawing in medical textbooks, and I think most doctors would still say that the heart is the same thickness all the way around, but it isn't.

If the heart is a seven-sided regular form that sits in an imaginary cube-shaped box in the chest, why is that? What is it doing there? Frank Chester made a cast of the heart, put it into a vat of water and spun it to see what would happen. What happens first is that it creates a vortex, a spiral within the chestahedron itself, like the Milky Way. If you do it long enough, you'll see an appendix form that creates its own horizontally shaped vortex off the edge of it. The horizontal vortex closely resembles the shape and attachment of the right ventricle to the left ventricle of a human heart.

Frank Chester was not the first to identify the flow inside the ventricles. Leonardo da Vinci got a cow heart, made a mold of it, blew glass around it, put water through it and found that there is a vortex created in the water in the left atrium and the left ventricle. Da Vinci said that the vortex facilitates the complete closing of the valves. Without the vortex, the valves wouldn't close as crisply as they do. Some cardiologists at Johns Hopkins and a few other places have taken da Vinci seriously. In fact, there are a lot of articles on the heart findings of Leonardo da Vinci, and they have proved within the last twenty years that, in fact, there are two vortices formed, one in the left and one in the right ventricle, which facilitate the closing of the valves. When the vortices don't form properly, that's when blood clots start to form. The vortex closes the valves by the pressure and adds a creative energy momentum to the system that helps the blood to move as well as creating an energetic field around the heart.

Putting these various findings together, we can see that the heart stops the blood flow, creates a hydraulic effect and creates creative energy vortices—which orient the cells that are floating in

the blood so that they go down the central axis, keeping them and all the other stuff away from the walls to facilitate the movement.



HEART OF GOLD

Why do we say someone has “a heart of gold?” Everybody says that, even heart surgeons. People refer to a “heart of gold” or say “the heart is the seat of love.” If you don’t believe me, tell your spouse or loved ones that you love them with all of your left kidney, your spleen or your foot. We say we love people “with all our heart,” yet we are taught that there is nothing but the physical stuff that you can see under the microscope.

When you dissect a cadaver in medical school and you come to the heart, you think you are going to find a Valentine’s heart, but all you see is this lump of muscle. There is no gold in that heart, and there is no love in that heart. If there is no love in a heart, why do we say that? Where does that come from?

I have been interested in gold as long as I can remember. I always wanted to know why people wore gold crowns on their head and carried gold scepters. Mosques are gold-coated and there is gold in the Bible. Gold is money. People mine gold. So what is the big deal about gold? You can’t eat it, and you can’t do anything with it. Who made this thing up about gold?

I have been a student of alchemy for twenty-five years. Have you ever seen a list of medieval alchemists? The list includes Galileo, Isaac Newton and Leonardo da Vinci. All the early geniuses of science spent much of their life as an alchemist trying to create gold, including the most revered alchemist of all, Elias Ashmole. Why were they so interested in gold? Ashmole said, “If you know how to prepare gold properly, it is the elixir of immortality.” That’s what all the alchemists said. They devoted their life to preparing gold because it was the “elixir of immortality.” What does that mean, and what does that have to do with the heart?

This gets into my criticism of conventional science and thought. We have a way of thinking about the body and the nervous system that I think is wrong. If you ask any neurologist or any doctor how the nervous system works, they’ll describe a lengthy process involving things like neurons, axons, synapses, neurotransmitters and nerve impulses. But try doing the following experiment. Put your finger out, close your eyes, ask someone to say “right” or “left” and as soon as you hear “right” or “left,” wiggle the tip of that finger in that direction. How long does it take between hearing the word and wiggling your finger? It happens in an instant. (If it takes you a long time, you’ve got a problem. In fact, in people with Parkinson’s disease, Adams-Oliver syndrome and multiple sclerosis, you see that the response is too slow.) The neurologists will tell you that the movement happened because of nerve impulses and neurotransmitters, but those things are just the footprint or the residue of something else that happened.

So the question is, what can go that fast? We have millions of these things happening all at once all the time. Only light can move that fast. It’s the light that transmits impulses down the nerve. We need light in us to move down the nerves to connect us to this “quantum coherent organism,” as it is called in physics. We are a unified organism connected in our entire being through light.

How does this light get generated? It turns out that there is a phenomenon called superconductivity, which happens predominantly through a group of substances called platinum metal substances and gold. The metal gold can actually exist in two states. The first is the normal, physical gold that we all know about. That means it is an atom, which has a nucleus and electrons circling it and free electrons on the outer part that are free to interact with electrons of other substances to make a gold salt, such as gold chloride.

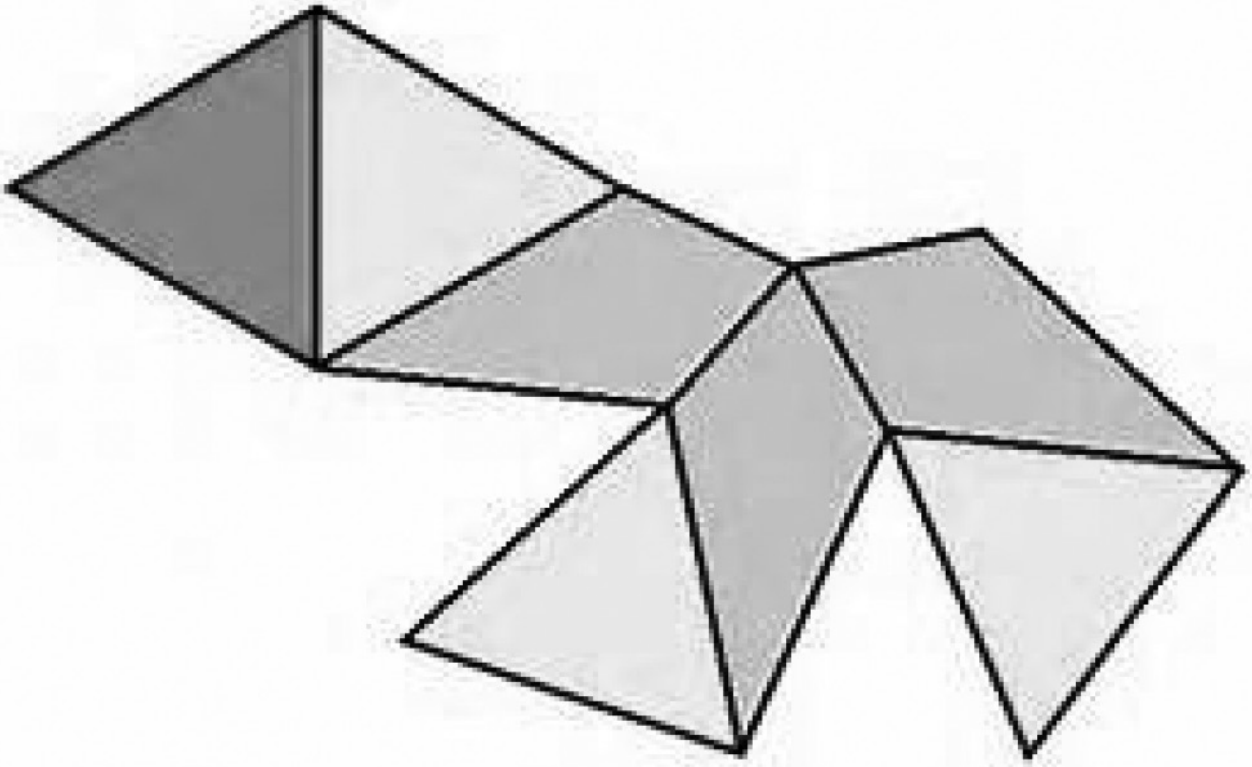
But the alchemists knew that there was another form of gold, called monoatomic gold. You form monoatomic gold by putting earthly gold through some sort of process, and as a result of the process the electrons on the outer coating are sucked into the nucleus and come under the control of the nucleus. It's analogous to when you see a figure skater with her arms out and then she pulls her arms in and goes faster and faster. The arms-out state is when the figure skater can connect with her partner; the arms-in state is where there is no connection with anything else and she goes faster and faster. When the electrons are in the pulled-in state, it is called monoatomic gold, meaning single atoms of gold disconnect from any other atoms, even other gold. This monoatomic gold is more pure than the purest metallic gold. It is "fixed" (non-reactive) and incombustible; its appearance is that of a fine white powder.

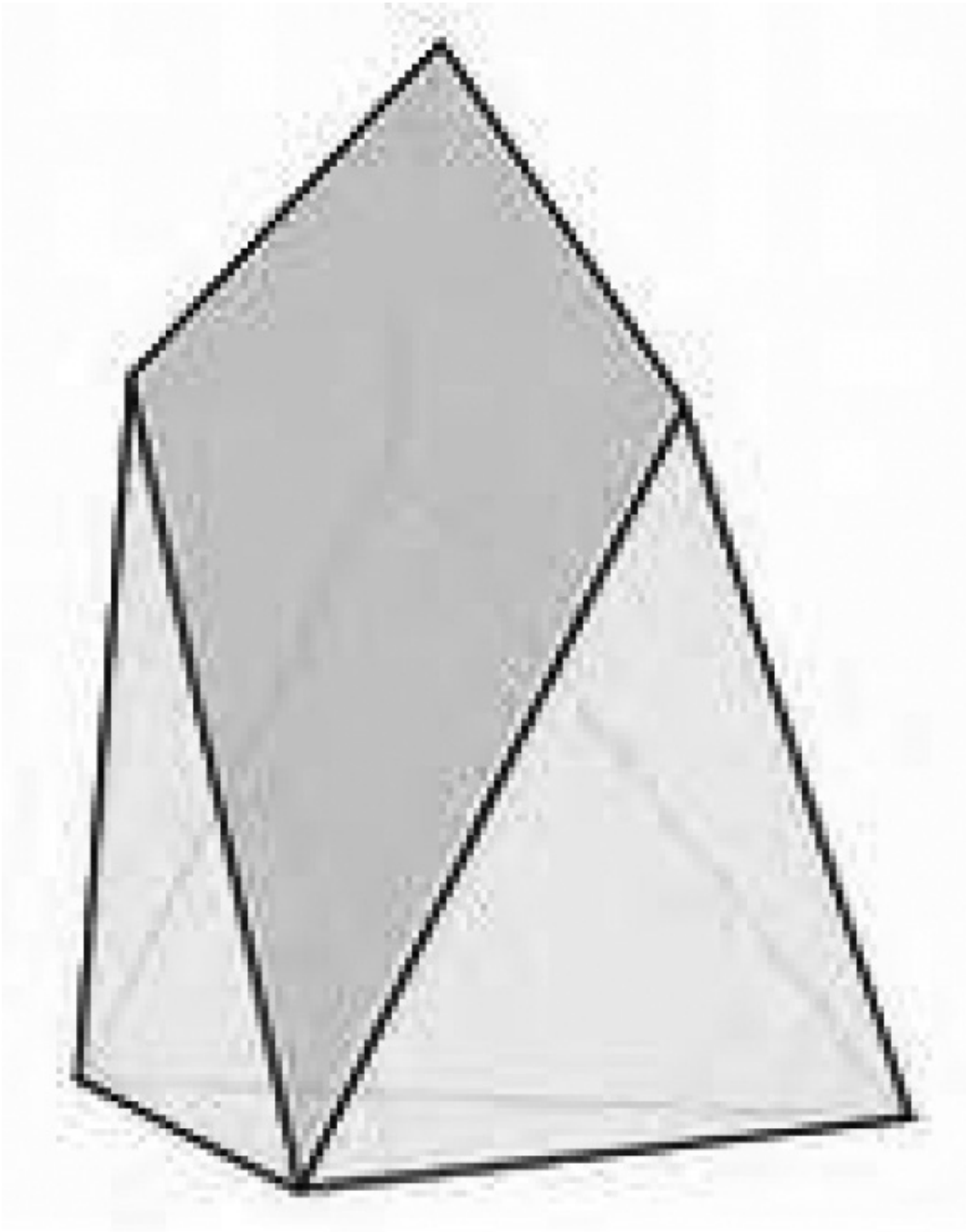
Monoatomic gold is superconductive, meaning it has no resistance. Systems that have this gold in them are able to super-conduct the properties that go into the formation of this gold. What are the properties that go into the formation of this gold? You know that you have to come out with light because somewhere in us we need enlightenment and that has to happen somewhere. Can you also take a guess as to one of the predominant ways of turning metallic earthly gold into this high-speed monoatomic gold? Putting it through a high-speed vortex. When you put gold—which exists in our blood—in a high-speed vortex, I believe you can form monoatomic gold. It happens in our heart all the time. There is gold in the trace elements floating around the blood, in the same concentration as in sea water. You can take blood and distill it and use a spectrophotometer and you will find gold there. Despite the popular perception, the alchemists did not make monoatomic cosmic gold from base metals, they made it from gold.

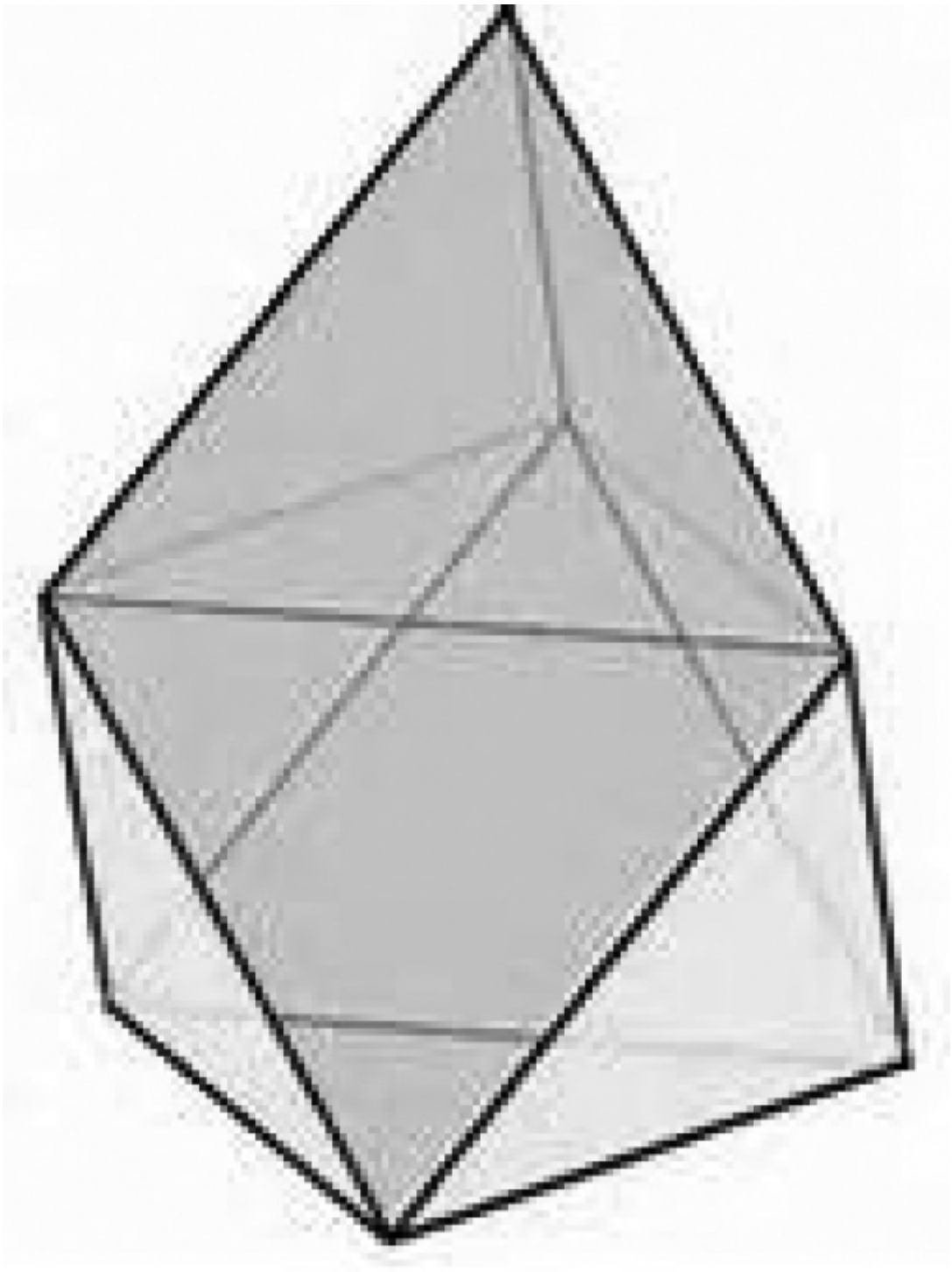
Some people like to use aurum gold, which is a homeopathic preparation of metallic gold, to treat heart conditions, but it is not the right form of gold. It does not create the kind of gold that I'm talking about, and I have not seen any particular effect from using it to treat heart conditions. Similarly, fine particles of colloidal gold are not monoatomic gold.

Two things happen in the transformation of earthly gold into this fine white powder called monoatomic gold. Two things are liberated. First, in the process there is a flash of light. If you stand a pencil next to it, you will see the flash of light but the pencil does not move. There is no energy from the outside; it's just a conversion into light. The other thing that happens is that the powder weighs 44 percent less than the gold it started with, which is totally incomprehensible. Where did the mass go? It went into light.

Some people call this other state of gold the "antimatter" because it loses its weight. In some way that I can't quite wrap my brain around, the monoatomic gold dust causes the pan it's sitting on to levitate. This "fairy dust" can cause something to rise and there's no physical connection of anything to that which is rising. How many people have seen a magnet and iron filings down below? Isn't that levitation? The magnet filings rise because of some unseen force that overcomes the gravity of the earth. Levitation is a real phenomenon. Thinking about creating this light and liberating it as the force of levitation brings to mind a quote from Stephen Hawking: "If you meet with your anti-self don't shake hands, you both would vanish in a great flash of light." In *The Egyptian Book of the Dead*, they said that they were using gold to make the pyramids and transport themselves into another dimension. They were using monoatomic gold.







THE CHESTAHEDRON

There are people who sell monoatomic gold. I was debating whether to whip out a bottle of monoatomic gold and with a flash of light go into another dimension. The problem is that it is not easy to come back. The fact of the matter is that we don’t know how to do that yet. I do know that there are some very interesting foods that have monoatomic gold in them, including Concord grapes, aloe vera, burdock root, the skins of purple eggplants, beets and scarlet kale. Concord grapes are the highest food in gold elements. Generally speaking, the purple color, which is the color of royalty, tells you that there is gold in it.

Gold that is no longer earthly is the ultimate goal of nature. What happens in the heart when you transform gold through the vortex into this flash-of-light antigravity force? The light permeates our being and causes us to be a quantum coherent organism. It all comes back to the heart being a vortex that creates light, which translates into warmth and love.

SIDEBAR

AMAZING *STROPHANTHUS*

I have observed the effects of *Strophanthus* over and over again in the last ten years, even in people who can hardly walk to the mailbox. I use a *Strophanthus* extract, and when I find the right dose, it provides immediate relief, not only in people's ability to exercise but in their sense of well-being. In 1984, one hundred and twenty-two out of one hundred and fifty heart patients in West Berlin were free from angina after just one week of taking the proper dose of g-strophanthin/ouabain only, and all but four were free from angina after two weeks. In fact, in Germany doctors used to have a diagnostic test called the strophanthin test—if you gave someone a dose of oral *Strophanthus* in the midst of chest pain and it broke the chest pain, it confirmed the fact that the person had heart disease.

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