THE LAROUCHE YOUTH MOVEMENT TAKES OFF IN EUROPE

Burn the Textbooks! Re-create the Original Discoveries!

by Jason Ross

Chris Lewis/EIRNS

French members of the LaRouche Youth Movement produce the minimal surface known as the catenoid by forming a soap film between two parallel rings, at the Wiesbaden, Germany, pedagogical festival May 31, 2003.

"Can you say that again? We're having trouble holding our sugar cubes."

"I'm telling you, we can't see Mars: it never gets dark here!"

"Wait, doesn't that lead to the inevitability of entropy?"

"Ah, *that* is the significance of the calculus!"

These are youth speaking, but the conversations are not taking place in university halls, or in the philosophy chatroom of an internet website. These are the voices of collaboration among the international offices of LaRouche's "Combat University on Wheels."

Over the past year, the self-conception and political actions of the LaRouche Youth Movement internationally have transformed from movements in particular regions or countries, into an international force dedicated to LaRouche's election in 2004, and to banishing Euler and Lagrange from classrooms worldwide.

We started our international interchange of ideas around a year ago, intending to get a more sensuous conception of the global nature of our political fight and to collaborate on organizing projects. This had a true effect in producing a sense of our international mission, particularly in some of the more isolated offices. Beginning with the crucial role of American members of the LaRouche Youth Movement around the March 2003 European conference in Bad Schwalbach, Germany, this collaboration has moved forward on the scientific and pedagogical front, and over the past half-year the European offices of the International LaRouche Youth Movement have exploded in recruitment and potential. Over a period of just a few months the following remarkable developments have taken place: Sweden grew from zero to eight full-time youth members; Denmark now has half-a-dozen youth organizers; in France, more than a dozen, from a larger group of full-time youth, are spreading LaRouche's ideas on a six-week long summer *Tour de France;* a dozen young Germans are dedicated to the hegemony of LaRouche's method; and, a youth movement is taking off in Italy. A measure of their success so far was the attendance of more than 120 serious youth from across Europe at the August 16-17 conference in Frankfurt, Germany, where about a dozen science pedagogies by the youth were among the presentations.

Science and the YOUTH MOVEMENT

So what does scientific epistemology have to do with this recruitment? Illustrative is one discussion, in which this author participated, sparked by an evening's work on mathematics and geometry in Rennes, France, last April. Taking our cue from LaRouche, we were examining square and cube numbers in the context of working on the concept of powers as a crucial element for understanding Gauss's 1799 "Fundamental Theorem of Algebra" report. Our path to the discoveries we made that day, demonstrated that you can only *know* by personally re-working a discovery; no amount of description will do. On this particular question, we began by first examining square numbers as simply numbers multiplied by themselves, and cube numbers as another multiplication. We came up with these numerical results:

Square numbers:

Number	1	4	9	16	25	36
diff.		3	5	7	9	11
2nd diff.			2	2	2	2

Cube numbers:

Number	1	8	27	64	125	216
diff.		7	19	37	61	91
2nd diff.			12	18	24	30
3rd diff.				6	6	6

From this we came to the provocative, but incomplete conclusion that the difference between square numbers differs by 2, and the difference of the difference between the cube numbers differs by 6. This descriptive approach from a textbook number-line, Euler-LaGrange standpoint led us to numerical conclusions. But what do these numerical values *actually mean?* Approaching geometry with equations is like designing a car on a computer—you do not know what is really happening.

Juliana Jones/EIRNS

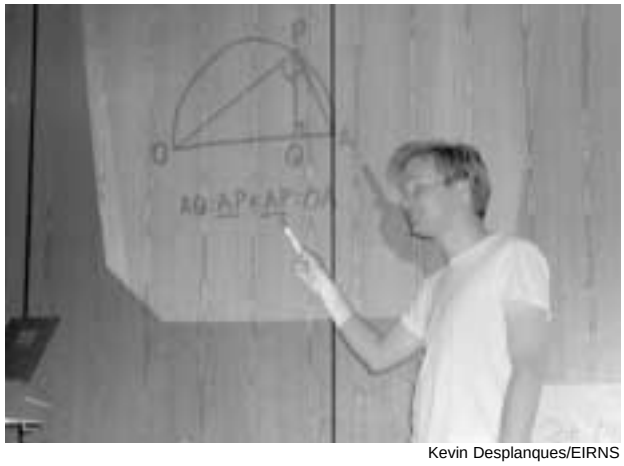
The author (checked shirt) in discussion with Lyndon LaRouche, after a conference in Reston, Virginia, Feb. 17, 2003, and presenting the Archytas solution to the doubling of the the cube at a pedagogical evening in Wiesbaden, Germany, April 2003.

Next, the Whiteboard

Time to look at the geometry involved! So, we pulled out a whiteboard and began to look at actual squares. When we draw the sequence of the square numbers, such that each square number has the previous square number hatched out of it, this leaves us with the difference between the numbers (Figure 1).

We saw that the differences were 1, 3, 5, 7, and so on, giving a difference of differences of 2. But where does this 2 exist *physically?* Let's do the same thing again, this time looking only at the differences, and hatching out the previous difference (Figure 2). This leaves us each time with the two opposite corner squares remaining—aha, here is our 2!

So far, so good, for the squares. But what about explaining our cube numbers? Stuck with a flat whiteboard, one might just give up after making a few messy drawings of cubes, saying, "well, the numbers just work out to give us that 6." Fortunately, we were armed with wooden cubes.



Kevin Desplanques/EIRNS

Cubes

With our supply of small wooden cubes in hand, we re-examined the problem. First, we made square numbers again, discovering that instead of looking at the sequence of numbers as given, we had to actually *determine* the numbers of blocks that form squares. Taking one square's worth of blocks out of the next larger square left us with the L-shapes we found earlier on the whiteboard. Try it yourself. No, really, get some sugar cubes or play blocks and do it right now (we'll wait); you will discover things that you would not by trying to imagine in your head.

Next, we investigated cubes, first making a sequence of cube numbers out of our blocks. When it came to finding the differences between the cube numbers, we removed the smaller cube from the larger, not as a *number* of blocks, but as an actual *cube,* so that we could see the process of growth among the cubes. We were left with a series of cube-shells (Figure 3), which we saw were growing

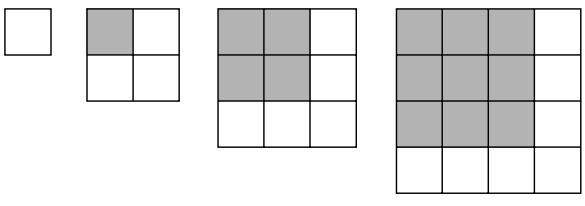


Figure 1
A SEQUENCE OF SQUARE NUMBERS
The square numbers 1, 4, 9, 16. The area of the previous square is indicated by shading, leaving the square excess in white.

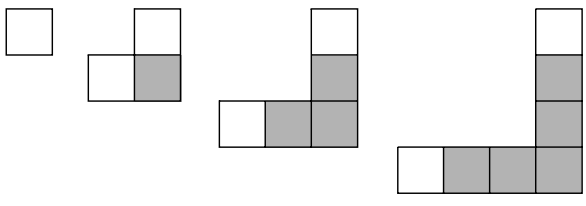


Figure 2
THE SQUARE EXCESSES
The excess, or first-order difference between the square numbers 1, 3, 5, and 7 is shown; the area of the previous excess is indicated by shading, leaving the constant second order difference of 2.

similarly. But where was the growth? Another layer of discovery was necessary.

With the cube numbers you have built, try to find the shape of the change from one cube-shell to the next, without looking at the figure. You may need the help of a friend for this one, and you certainly cannot do it without physically building cubes, so get some if you have not yet done so. What you find is the interesting frame shape shown taped together here (Figure 4). Here is our six!—a six-sided frame that increases by six between each set of cube numbers, as we see illustrated, and broken down into its six components in Figure 5.

Now we had a clear idea of the actual process of growth occurring in the cubes, as a physical generative process, instead of an after-the-fact description. We also recognized, in the distinction between the two approaches to the problem, a clear demonstration of the essential fraud behind the New Economy: the same principle which lies behind the widespread substitution of computer-modelling for field testing, such as happened with the disastrous Mercedes A-Class design of a few years ago. The error lies in assuming that you actually "know" something, because you can write a formula, or make some other abstract description that appears to match a process.

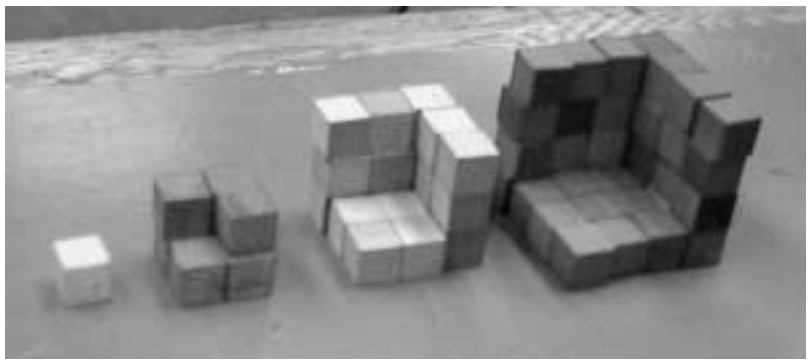


Figure 3
THE CUBIC EXCESSES
The sequence of cubic numbers 1, 8, 27, 64 is pictured., with the volume of the previous cube removed from each.

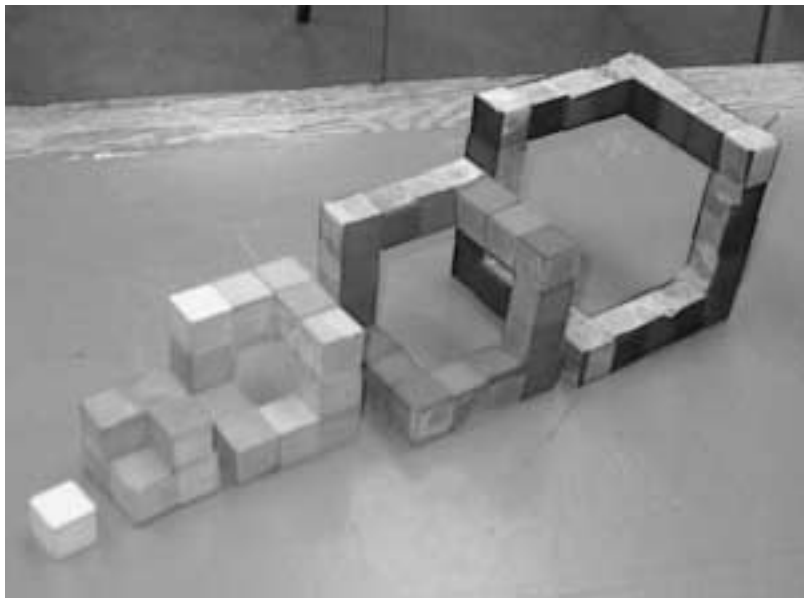


Figure 4
THE SIX-SIDED CUBIC 'FRAME'
The cubic frames illustrate what is left after the difference of the difference is subtracted from the sequence of cubic numbers.

Science and the YOUTH MOVEMENT

Knowing something is not a matter of saying in your head that you "see" it; you must understand how to *generate* it. If you are trying to understand this, without pulling out some cubes and doing the actual work, your mentality is no different than those greedy Enron day traders, trying to make money with nothing to back it up, or those still stubbornly, foolishly imagining there is some way to make it without getting LaRouche elected:

"I see food in the supermarket every day; what do you mean we are facing an economic crisis?"

"Oh, we must be in a recovery by now. The economy goes in cycles." —Why? "Well, it just works that way."

"Yeah, sure Saddam had WMDs. How dare you suggest a need to know anything about the infrastructure and industrial prerequisites for a weapons program before making that assertion. It's just true! You don't want to wait till you see a mushroom cloud, do you?"

"Yeah, put the suture there, that's what *medicine.com* said."

If you do not know the process that generates the objects we encounter in our sensed universe, you do not really *know* anything about them. You cannot see an economy; you must know how to generate it.

Science in the LaRouche Youth Movement

So, what do we do with a discovery? Well, tell everyone else, of course! Our international movement has been intensifying its work on epistemology and pedagogical method, and we have been having discussions on Nicholas of Cusa, the father of modern science, powers

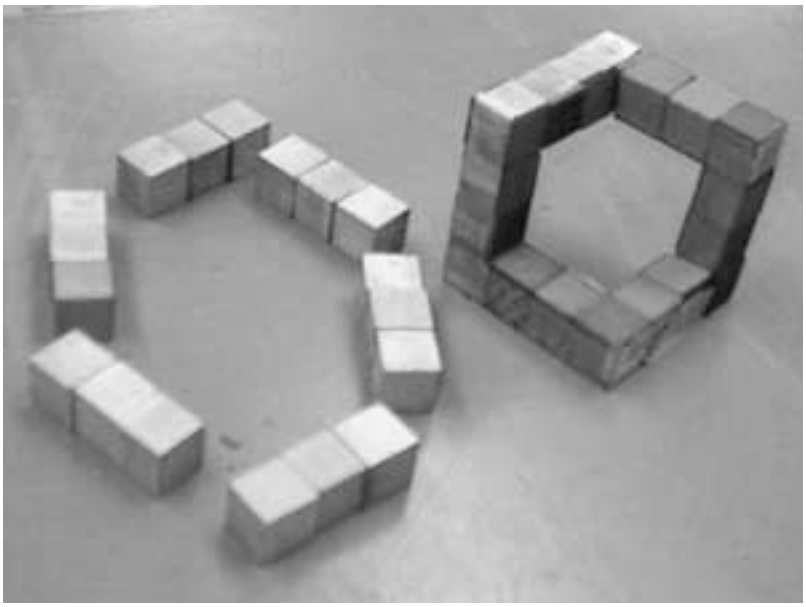


Figure 5
EXPLODED VIEW OF THE SIX-SIDED CUBIC FRAME
Here one can see how each cubic "frame" is made up of six sides. Each side increases by 1 from one cubic number to the next, giving 6 as the third-order difference of the cubic numbers.

and means, the curvature of the universe, what soap bubbles have to do with entropy, differentials from the standpoint of Pascal, Gauss's 1799 report on the "Fundamental Theorem of Algebra," Riemannian space, Abelian functions, the Pythagorean comma and the paradox of communicating ideas and talking with the universe, observations of our neighbor Mars, and the Carnot-Monge brigade system to rapidly expand the power of reason. These discussions have been used to give to youth new to our movement a sense of our international mission and the power of ideas to shape history. How else but through the power of the human mind will we reverse decades of a consumer outlook to products and ideas, and create a Renaissance dedicated to reviving the method of discovery?

Power

How *will* we, as a movement without overwhelming force of numbers, remove Vice President Cheney, and implement LaRouche's economic policy *before* LaRouche's election in 2004? It is not going to come through what we are told are the normal avenues of power. Having lots of money, a knack for graffiti, university degrees, gold teeth, mutant powers, a great ass, a basement full of canned food, or a team of highly trained secret agents are not going to improve the power of mankind in and over the universe.

What actually transforms human power is not *more* of anything—more money, more guns, or even more economic infrastructure *per se.* It is that flanking ability of a human mind to *change,* through a new discovery of principle, the domain of what is generatively *possible.* Instead of thinking "I am doing everything I can," think "how do I change what I am capable of?"

Plato addressed this political concept in his *Meno* dialogue, which will lead us into the Platonic conception of *power.* The part of the dialogue that we will discuss begins with a discussion Socrates is holding with Meno about the nature of knowledge. This question is of fundamental importance in determining the orbit of human culture: What defines humanity, as distinct from animals, besides our ability to know?

Socrates demonstrates the ability to know as inherent in every human being, through a discussion with an uneducated slave boy. Socrates takes up this question of knowing in a domain that, today, is considered by many to be opaque to general understanding: geometry. Drawing a square in the sand, Socrates asks this boy to double it—to make a square twice as big.

The boy's first idea is to double the length of each side of the square. A good first try, but wait, that gives a square four times as large as the original (Figure 6). The boy's next guess is to make each side one-and-a-half times as long, which gives us a shape (Figure 7) that includes the original square, two rectangles each half the area of the square (which brings us up to double the area already), and a smaller square as well—too big again.

Now, think about how we could cut the square of area four (Figure 6) in half. Well, we see that we can split a square to make

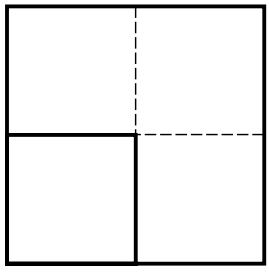


Figure 6
FIRST ATTEMPT TO DOUBLE THE SQUARE
Doubling each side of a square produces a square that is four times the original area.

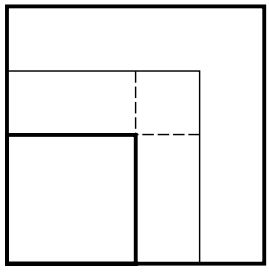


Figure 7
SECOND ATTEMPT TO DOUBLE THE SQUARE
Increasing each side by one-half, produces a square that is more than twice as large.

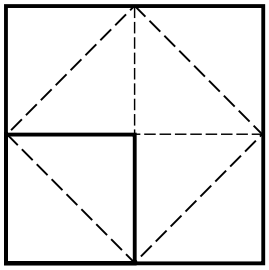


Figure 8
THE DOUBLED SQUARE
By cutting each of the four squares of Figure 6 in half on the diagonal, a new square is produced (dotted lines) which has area of 2.

two equal triangles, and if we do that for each of the four squares, we can make a new, "crooked" square (Figure 8). This crooked square contains half the area of the large, quadrupled square, making it twice as big as the original square. Ah! The boy *knows* that this is a successful doubling. By awakening this discovery in the mind of the slave, Socrates shows that the ability to know can be evoked in anyone, and that it can be demonstrated.

Finding the Square Root of 2

We have not fully understood everything about this doubled square, however. In his *Theaetetus* dialogue, Plato demonstrates that the side of this doubled square is very interesting indeed. Let's examine this length, not as crooked, but by bringing it down to lie on the straight line of the base of our original square (Figure 9).

So how long is this length? "The square root of 2," we hear. Hold on just a minute! That is a question, not an answer. We know that this length is the square root of 2, because we found it to be the root (foundation) for building a square of 2. But how long is it? "1.41421. . . something," is our next, more precise-sounding answer. That may be a close *approximation* to measure its length, but how long is it really?

We know we are looking for a number greater than one and less than 3/2. If we can find it exactly, we will have the side of the square whose area is 2, that is, the square root of 2. Do we have the means to create this length without drawing a diagonal? Let's try it out. Perhaps we can find a fraction (a ratio of two whole numbers) that will give us the desired value. There are an infinite number of fractions between 1 and 2 to choose from, so one of them must be it. Let us see if we can construct it.

First, to get a general idea of what it means to make a square with a given magnitude for a side, take the example of a square whose side is 1-2/5 (or 7/5) in length. To do this, we imagine that we take our original square, cut each side into five equal segments, and add two more of these segments on each side to make our new square (Figure 10). This is how any length increase operates. Now, think of our fractional length as making a ratio in size between two squares. In the case of Figure 10, we have a ratio of an original square with 25 blocks, and a larger one of 49—pretty close to double, but not quite right on. To solve our problem of finding the length needed to double the square (the square root of 2) means figuring out how to construct a ratio between two squares that makes one square precisely twice as large as another.

We can narrow down the fraction we are looking for by trying to figure out if our sought-after original and doubled squares have sides of odd or of even length in regard to each other. If we begin by posing that the larger square is odd on its side, then we arrive at a square that contains an odd number of blocks. (Figure out on your own, with blocks, coins, sugar cubes, and so on, why an odd-number square is odd.) But an odd number cannot be double anything, for then it would be even. This is impossible. So, our larger square must have even sides.

Now that we know that our larger square is even on each side, we now have to figure out the evenness or oddness of our smaller square. If it is also even on each side (for example 8/6, as in Figure 11), then we did not need to cut up the squares into so many pieces to make our ratio. In this example, we could look at the ratio as 4/3, just as 3/2 could have been called 6/4, while still being the same ratio. So if both squares are even, then we could reduce the number of divisions such that one or the other will be odd. We already discussed the large square being odd, so now we are left with the large square being even and the smaller

Wesley Irwin/EIRNS

Tarrajna Dorsey, joined by other exuberant members of the LaRouche Youth Movement, uses cubic blocks to investigate the principle of powers at a Seattle pedagogical event August 2, 2003.

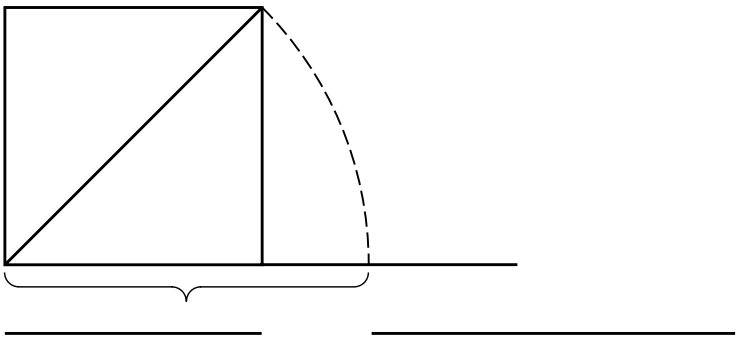


Figure 9
DETERMINING THE 'SQUARE ROOT OF 2'
We compare the length of the side of the doubled square (diagonal) to the side of the original square, by carrying its length down onto the extension of one of the sides.

odd—we are narrowing in on our sought-for fraction!

If we look at an even-sided large square and an odd-sided small square, with the large square twice the small square, then we can say that, cutting the large square in half (Figure 12), each half should have the *odd* area of the small, odd square. But the long side of these two rectangles is even, making the rectangles even, not odd. This cannot work either. Aha, but that is all the possibilities. If the length we are looking for can be expressed as a fraction or ratio of two whole numbers, they must each be either odd or even. But we are out of options!

We appear to have found something that lies beyond the infinite: all those fractions (an infinite number of them), and not one of them makes the magnitude we are looking for? This so-called "square root of 2," appears as a "hole" in our number line, a discontinuity in what we before thought to be completely continuous. Now you know what the synarchists are confronted with in LaRouche!

This magnitude we have found is a higher *power,* in Plato's sense of power. We are able, in space, to create magnitudes that cannot be expressed on the number line. This higher idea of power *expands the domain* of possible actions, in the same way that the incorporation of a newly discovered universal principle into our economy transforms the cardinality of potential effects we can generate. Just as our power over the universe is increased by the discovery and implementation of truthful universal principles, any individual's potential historic potency is determined by discovery and passionate adherence to truthful social principles.

Science and the YOUTH MOVEMENT

Looking at the world we find ourselves in, how can *you* increase the ability of mankind to survive this crisis? Will you pretend you do not know what to do, or will you act with LaRouche? **Time to join the International LaRouche Youth Movement!**

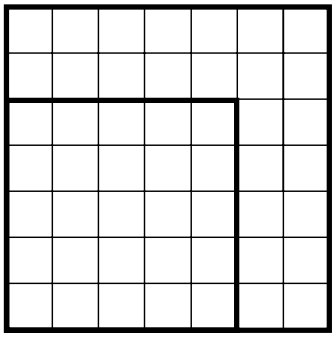


Figure 10
CAN THE SQUARE ROOT OF 2 BE A RATIO OF ODD NUMBERS?
Here the area of a square whose side is 7/5 is considered. Its area of 49/25 is close to, but not equal to 2. No odd square can be twice anything.

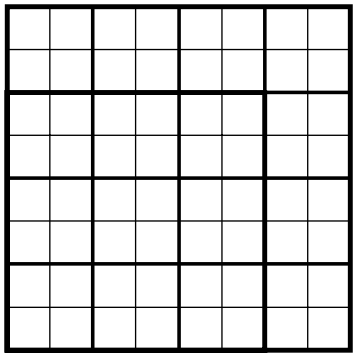


Figure 11
CAN THE SQUARE ROOT OF 2 BE A RATIO OF EVEN NUMBERS?
Suppose the even numbers are in the ratio 8/6. The small and large boxes in the diagram show us that the square of 8/6 (a ratio of even numbers) is equivalent to the square of 4/3 (a ratio of even over odd). Any even-number ratio will be reducible to a ratio containing either two odd numbers, or an odd and even number.

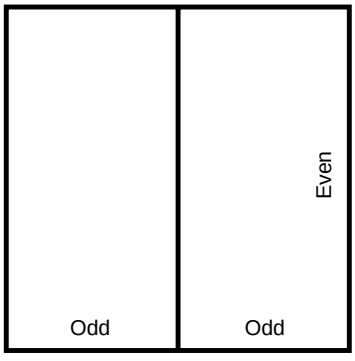


Figure 12
THE SQUARE ROOT OF AN EVEN-ODD RATIO DOESN'T WORK EITHER
Here, we take the large square and cut it in half, each half having the odd area of the small odd square. But the side of the square we created is even, so this won't work either.