

This Free E-Book is brought to you by Natural-Aging.com.

100% Effective Natural Hormone Treatment
Menopause, Andropause And Other Hormone Imbalances
Impair Healthy Healing In People Over The Age Of 30!

Nature Will Not Imagine

By Charles Douglas Wehner

Nature Will Not Imagine by Charles Douglas Wehner

Mathematicians can be pig-headed. Sometimes there are problems that admit of no solution, but the mathematician ignores common sense and presses on regardless.

One such question would be "WHERE, ON A UNIT CIRCLE, IS A POINT FIVE UNITS TO THE RIGHT FROM THE CENTRE"?

Pythagoras gave an answer. The hypotenuse is a unit, so you square it. The square is still a unit. Now you look at the position to the right. It is five units. You square it to twenty-five and take it away.

Then you find the square root.

But one minus twenty-five is MINUS TWENTY-FOUR. What is the root of a negative number?

There is no answer!

But common sense tells you that nothing can be on a circle if it is further from the centre than the radius. The answer "NOT ON THE CIRCLE" leaps to mind.

Girolamo Cardano was a mathematician who was even consulted by Leonardo da Vinci. He was also a gambler, but used his knowledge of probability to get the better of his opponents. He decided that he had the solution.

You split up the problem into two parts. The root of 36 is 6. However, one can try the root of 4 times 9 – in which case one has the root of 4 times the root of 9. The answer is the same.

So you look for the root of -1 times the root of 24.

The root of any negative number will be the root of -1 times the root of the absolute value of that number.

Nature Will Not Imagine

So the root of -36 is the root of -1 times six.

The root of -1 is defined as IMAGINARY, so the root of -36 is IMAGINARY SIX. And the answer to the position on a unit circle of the point $X=5$? That will be $Y=IMAGINARY\ ROOT\ 24$.

Cardano was scoffed at. He died. The years went by, and slowly the mathematical community began to realise that the idea was not quite so bad after all.

It was a NEW TECHNIQUE. To solve problems, you simply follow the rules slavishly. These rules began to be taught in the universities. People were taught that the old numbers – the REAL ones – had to be kept separate from the imaginary ones. They learned to describe a two-part number having real

and imaginary as a COMPLEX NUMBER.

The rules say that whenever you multiply real by real you get real. Multiply real by imaginary (of imaginary by real) and you get imaginary. Multiply imaginary by imaginary and you get MINUS real.

Simple rules, easy to apply.

But how does this impact upon the whole of mathematics? What happens to sines, cosines, logarithms and other things when you use complex numbers in place of real ones? A host of great mathematicians – including the legendary Leonhard Euler – worked on this question. Complex mathematics was becoming established as a standard tool.

Problems began to become apparent. The simplistic concept of ROOT -1 was actually wrong. It should have been "ONE OF THE ROOTS OF -1 ". There are actually two.

Then the problem of multiple solutions appeared. As I wrote at <http://www.wehner.org/euler/>, this problem can be visualised by considering the antilogarithm of an imaginary number as a SPIRAL IN COMPLEX SPACE. What is the lowest point? One for every turn of the spiral. Therefore multiple solutions.

I then continued the research by delving deeply into Euler's GAMMA FUNCTION. Here, for numbers below zero, the result negates in unit steps. I called this the NEGATION FUNCTION, which is also a spiral in complex space.

I posed the riddle, how do you create a diagram of the Gamma function when it spirals in one place and not in the other?

I solved that riddle with a surprising answer. NATURE IN THIS CONTEXT REJECTS THE IMAGINARY. There is no solution to the Gamma Function if you use complex maths. There is no complex space.

That is to say, the square root of -1 has two answers, but Nature insists that you must take them BOTH AT THE SAME TIME.

Nature Will Not Imagine

This is quite different to the roots of real numbers. The roots of 4 are 2 *OR* -2.

The roots of -1 are i *AND* $-i$. Take BOTH or NONE, in the case of the Gamma Function. Otherwise, the riddle is insoluble.

But i makes the spiral go left whilst $-i$ makes the spiral go right. Making the spiral go equally left and right will STOP it from spiralling. So both is the equivalent of none. Nature has REJECTED the imaginary.

At this point I wrote (<http://www.wehner.org/euler/solution.htm>) that "If it can be shown for other functions unrelated to the Gamma function, and having a negation function, that Nature rejects the imaginary axis in this way, then it can be said that Nature rejects complex mathematics as a human product. "

I had not expected that Nature would then reveal to me a function that rejects the imaginary axis

without having a negation function. It is the INVERSE function to the exponential. That is to say, it is the LOGARITHM.

From the first page above, you can visualise Euler's equation for the exponential ($\exp(i X) = \cos(X) + i \sin(X)$) as a spiral. You can see that $\exp(i \text{Pi})$ gives -1 . So does $\exp(i 3\text{Pi})$. So does $\exp(i 5\text{Pi})$. So do ALL the odd imaginary multiples of Pi. So do all the negative values of those odd imaginary multiples.

So the log of -1 is ALL of those positive and negative odd imaginary multiples of Pi. It does not really matter whether they are AND or OR. It only matters that they are there.

I then considered the logarithm of zero. This is known to be MINUS INFINITY.

But what of MINUS ZERO? This may seem like a silly question, but it is not. We have considered the log of any negative number to be the log of the positive equivalent plus one or more odd imaginary multiples of Pi. So the log of minus zero will be minus infinity just like the log of zero – but with a DIFFERENCE.

For all the negative numbers, the logarithm is as for the positive but TOGETHER WITH THE SERRIED RANKS OF ODD IMAGINARY PIs. As the numbers rise, they get closer and closer towards zero, and the real part of the logarithm goes downwards towards minus infinity.

Then they hit zero. Those serried ranks of imaginary numbers STOP. That's it! They VANISH.

One would call this a SINGULARITY, but it is more than that. There are INFINITE odd imaginary multiples of Pi, and they ALL stop together at the point $X=0$.

So Nature again is REFUSING the imaginary.

Natural laws tend to flow smoothly throughout the number continuum. For an entire family of numbers –

Nature Will Not Imagine

all odd imaginary multiples of Pi – and therefore by inference a whole SET – the set of all imaginary – to stop is quite unnatural.

So the imaginary numbers are the imaginings of Humankind. Nature does not imagine.

Charles Douglas Wehner

Born in 1944, Charles Wehner is an electronics engineer, technical author and former factory manager.

The Forces of Nature in Your Stories

By Shery Ma Belle Arrieta–Russ

The Forces of Nature in Your Stories by Shery Ma Belle Arrieta–Russ

Nature plays a big role in stories. Nature can make a character more authentic because it can influence his/her action or behavior.

If you ever find yourself stuck on to how to describe one of your characters, add a force of nature in your character description. Describe how your character behaves or reacts during a bad (or good) weather.

Take for example a few movies where forces of nature were vital. Imagine how the characters and the plots would change if the following forces of nature were taken away:

- ~ the tornado in the Wizard of Oz
- ~ the lightning in Phenomenon (John Travolta)
- ~ the volcanic eruption in Dante's Peak (Pierce Brosnan)
- ~ the icebergs in the Atlantic in Titanic (Leonardo diCaprio)
- ~ the avalanche in Vertical Limit (Chris O'Donnell)

Try to substitute another force of nature in the examples above and see how it affects the story and the characters.

Try it yourself on the following:

1. Deanna Ball possesses a strong sense of duty. She's stuck in a traffic jam. Force of nature: Earthquake
2. Randall Graves is people-oriented and works well with others. He's in a bar watching afternoon football with friends. Force of nature: Snowstorm
3. Dessa Woods has an intimidating personality. She's on vacation with a couple of friends. Force of nature: Avalanche

Nature Will Not Imagine

4. Geoff Earhart is organized and methodical in his approach to everything. He's been ordered to recover a vital piece of equipment from a capsized ship. Force of nature: Lightning storm

5. Mac Taylor is the persistent type. He's been trailing a woman who looked like his best friend's dead wife. Force of nature: Torrential rain

Copyright 2004 Shery Ma Belle Arrieta–Russ

Shery authored the book WEEKLY WRITES: 52 Weeks of Writing Bliss. Grab a copy from

Amazon.com and get free unlimited access to the WeeklyWrites.com Exclusive Members Area featuring new modules, journaling software, exclusive content and free courses for writers. Visit <http://weeklywrites.com> for complete info.



This Free E–Book has been brought to you by [Natural–Aging.com](http://Natural-Aging.com).

**[100% Effective Natural Hormone Treatment](#)
Menopause, Andropause And Other Hormone Imbalances
Impair Healthy Healing In People Over The Age Of 30!**

Nature Will Not Imagine

