Paper to the No-Y-ian Tutorial Class
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This paper is in two parts. If you want to access the second part write to:
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Perfect Symmetry, the Big Bang and the Universe, Part I

by
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It was Heinz Pagels who proposed that the void of nothingness before the big bang was Perfect Symmetry.

Relative to this, is the-as-if, that after untold eons of forevers in eternity, there was a shift in this Perfect Symmetry with incredible consequences:

> **The nothingness "before" the creation of the universe is the most complete void that we can imagine - no space, time or matter existed. It is a world without place, without duration or eternity, without number - it is what the mathematicians call "the empty set." Yet this unthinkable void converts itself into the plenum of existence - a necessary consequence of physical laws. Where are the laws written into that void? What "tells" the void that it is pregnant with a possible universe? It would seem that even the void is subjected to law, a logic that exists prior to space and time.**

Heinz R. Pagels: Perfect Symmetry THE SEARCH FOR THE BEGINNING OF TIME Simon and Schuster 1985 page 347.

For the Latin scholar it is the shift:

ex nihil ad omnes[1].

For us, the most astute and critical derivation was Pagels insight that:

the void is subjected to law[2], a logic that exists prior to space and time[3].

According to Physics, the shift *ex nihil ad omnes* happened because there was a very slight perturbation of incredibly small magnitude in this void of nothingness. This perturbation disrupted Perfect Symmetry. We would surmise that this disruption constituted an incredible warped distortion of Perfect Symmetry; and from this was

[1] ***ex nihil ad omnes*** stands for – from nothing to everything.
[2] **subjected to law** is an open ended clause and hence it can imply in this **law** may be a whole slew of other sub-laws.
[3] **a logic that exists prior to space and time** means that in Perfect Symmetry are the structures of Law that are contingent to its **logic**.

squeezed out **ALL** the sub-atomic particles [4] that constituted the Big Bang and would in time become the universe.

This event, we now know was about the shift in the condition of:

absolute perfect entropy 0^{0time} to what it is now$_{2010}$, entropy$10^{14billion\ years}$ [5].

Entropy is the study of the change from order to chaos, structure to disorder and from cohesion to dispersion. It is about the dispersion of energy and matter. Place a cup of hot water on a table and leave it. The heat in the water will dissipate into the environment. The dispersed heat will never re-coalesce and enter the cup to get its temperature as it was. I usually take one spoon of sugar with my tea and milk. Once I completely stir the sugar, they will never re-congregate as sugar crystals at the bottom of my cup. The direction of the dispersion of energy and matter is asymmetrical.

All atoms are in a state of flux and so too all subatomic particles. Suppose you had a one ton slab of the hardest granite and left it the chamber of a salt mine. Sooner or later one atom of your granite slab near its surface will by its movement escape the gravitational pull of its mass. Once it does so, it will never return. It will take a very long time, but in the end, even this granite slab will dissipate into nothing. They say that today the height of the Great Pyramid of Khufu in Egypt is some 90+ feet below its true original height. In this instance with the sand weathering of the desert the rate of entropy will be much faster than your slab of granite in the chamber of your salt mine; one day the great pyramid will be no more.

These processes follow the necessary consequence of a physical law from the very beginning of the Big Bang, i.e. from the beginning of time to the present. This physical law is called the Boltzmann's Equation:

S = k long W [6].

What then is absolute zero entropy.

Whatever it was, we may now surmise that it can never return to the way it was before the Big Bang. Today we know that the universe is expanding at an accelerating speed. At the edge of the expansion, we have to logically surmise that there is no more space because the universe is finite. However, what we think is happening is that more space unfolds out of subspace to accommodate the expansion. Physics now knows that to this new space and all *olde* space, each cubic centimeter has $10^{-8\ ergs}$ of energy. It is a universal physical constant for all space and hence a derivative of some physical law. You will have this information confirmed for you if you visit this web site:

http://www.ted.com/talks/sean_carroll_on_the_arrow_of_time.html.

If this is so, this universe, notwithstanding its expansion can never reach absolute zero temperature again. Absolute zero temperature would be 0 Kelvin degree or -273^0 Celsius. In fact we would surmise that we ourselves will never be able to create the

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[4] . . . **this disruption constituted an incredible warped distortion of Perfect Symmetry; and from this was squeezed out ALL the sub-atomic particles** is isomorphic with the proposition by Stephen Hawking of the warp in the space at the edge of the event horizon of a black hole that matter is squeeze out of it.

[5] entropy$10^{14billion\ years}$ is the current dispersion of our expanding universe. It is estimated at about 14 billion years.

[6] **S = k long W**: just type this in the Internet and you will get all the information about it.

condition of absolute zero degrees in our laboratories. We will not be able to do so because the space in our laboratory-cooling chamber will have to obey the universal law of the physical constant of $10^{-8\ ergs}$ per cc of space. The existence of this energy will deny the temperature ever reaching absolute zero.

We can surmise that at the time of absolute zero entropy, absolute nothingness was at 0 Kelvin degree.

There is one thing we can be sure of. The opposite of absolute zero entropy would logically be absolute chaos and absolute dispersion. It certainly was so 2 seconds after the Big Bang. However, after that began the processes that led to the formation of stars, planets, galaxies and so forth. We therefore believe that it is possible to infer that the dispersion of this universe that unfolded out of the Big Bang would be never ending. In a sense we have to wonder if by such a form of dispersion this universe would fulfill a physical law of recreating an empty set - another void of absolute nothingness.

For these considerations we propose that absolute zero entropy is:

absolute infinite order and structure[7].

Of course when you talk like this any theologian will tell you that you are talking about God. For obvious considerations, we, like Physics will not go there in this paper but to continue with our form of language.

There is a seeming simulacrum of order and structure in this universe. However, on closer inspection it is a place replete with wonders but also with the horrors of chaos and dispersion.

It was Stephen Hawking who proposed that the distortion of space at the event horizon of the black hole is so incredible that it squeezes matter out of it. And I have seen the pictures of a black hole eject such an incredible mass of physical subatomic particles that they were ripping apart another galaxy. The frequency of supernovae is not that rare and they take place according to physical laws. Their consequences for planetary bodies near to it are cataclysmic. Out there you see galaxies colliding with each other. Our galaxy, the Milky Way is fated to collide with the Andromeda, albeit a few billion years from now.

As Q of Star Trek, the Next Generation told Captain John Luke Picard:

You have no idea of the wonders and the terrors that await you.

[7] **absolute infinite order and structure** in which are **all** the laws of order and structure that Pagels had surmised to exist in it . . . before the Big Bang.