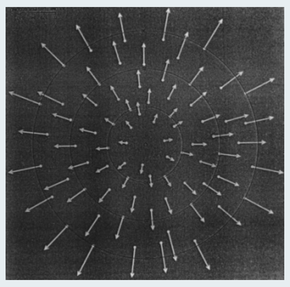
*FIGURE 1.*

*The dispersion of galaxies*
*according to Hubble's law*
*(velocity ∝ distance)*



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**PREFACE**

It is my duty as a philosopher to fight dogmatism, especially that aired by weird hypotheses blown up with high-brow math!

At first, I want to honour H. Poincaré as the leading figure in the interplay between classical metaphysics and modern cosmology.

Antedating Einstein's SR 1905 paper by 3 weeks, he presented an equivalent (formally more mature) theory based on $i=\sqrt{-1}$, predicting the reality of gravitational waves (*ondes gravifiques*); Against Einstein, he held that space can have no innate metric, claiming that the only innate properties of space are topological.

André Mercier, co-founder of Cern, initiator of SR 50 yr jubilee, and founder of *GRG*, once wrote a paper to that journal with the startling title "*Gravitation **is** Time*". This induced me invite him to the 1994 PIRT conference at Imperial College, Ld., sponsored by the Brit. Soc. Phil. Science, at which he stated as his judgment that spacetime ought rather be called timespace, or supertime.

The book "On General Relativity", by Mercier, Treder & Yourgrau, [1979] can be read as a catalogue over the shortcomings of GR.

It is often claimed that modern cosmology began with Einstein's GR, published 1915. The idea of an infinite Newtonian universe seemed to run into numerous inconsistencies if supposed static. This was the situation when Einstein proposed his world model, based on a Riemann geometry for closed spherical 3-space.

In order to guarantee that his model would be static, avoiding a collapse, Einstein inserted a constant $\Lambda$ into his field equations, believing that they had no possible solution for an empty space.

However, de Sitter soon suggested a static universe based on the hyperbolic geometry of Lobachevsky, that had to be empty, the point being that a free particle, when inserted, would receive an outward acceleration; the example of a particle having inertia without being exposed to gravitation appears to break the direct coupling of inertia and gravity, assumed by Mach and Einstein.

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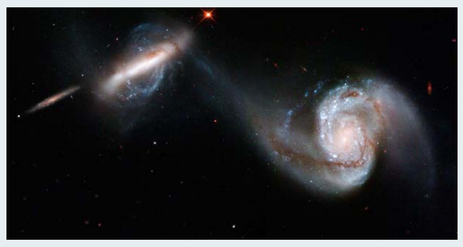
***(Aug.28-Sept.02)***

*Entangled Galaxies, Arp 87*



*Courtesy of NASA & STSci*

***Mogens True Wegener***
***MODERN COSMOLOGY***
***(problems of the $\Lambda$CDM model)***
***A PHILOSOPHER'S VIEW***
***(general)***

This has severe consequences for cosmological models based on Mach's principle saying that inertia is caused by the presence of distant matter. De Sitter did make use of Einstein's constant $\mathbf{\Lambda}$; but Taub showed that, even without $\mathbf{\Lambda}$, the field equations of GR in special conditions yield curved space when matter is absent.

So J.D. North [1965] claimed: "there is no excuse" for saying that "the curvature of space-time is the cause of gravitation"!

My cosmological hero, the Oxford mathematician E.A. Milne, has shown [1951[2]] how local deviations from cosmic symmetry can cause a spontaneous emergence of forces in the universe. His colleague A.G. Walker proved that this 'kinematic technique', just like GR, can be extended to cover a variety of world-models.

Lately P. Rowlands [2007] has argued that the universe is simple, that physical laws are invariant in time and space, and that a cosmic time is definable by "the birth-ordering of non-local quantum events"; he even proved how all GR effects are derivable by classical means.

A.A. Ungar [2008] found a formula obviating the need of dark matter; but a lot of scientists, unaware of this, still hope to observe such stuff! He likewise demonstrated that the velocity space of SR is hyperbolic. I agree with J.F. Barrett, that this must hold for position space too.

Further, T.v. Flandern has noticed the Sun's force of gravity to proceed from its true position whereas its light is observed in a different direction; no adherent of GR has so far been able to explain this unpleasant fact. Finally, E. Baird has proven SR and GR to be incompatible theories!

- Thus, Einstein's GR is not merely in conflict with observed fact, but even logically at variance with its supposed limiting case!

- A brand new world model inspired by the ideas discussed above, and exploiting the potentialities of Milne's kinematic technique to explain gravity solely in terms of SR, is here presented.

- If this is viable, it will represent an immense gain!

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**ABSTRACT**

- **3** world models, based on an apparent creation of matter and subject to an absolute and universal time, is presented in accordance with the principle of conservation of energy; one of these may be able to resolve the problems posed to the standard $\Lambda$FLRW model by the latest JWST findings!



**KEYWORDS**

- Cosmic Time, Apparent Creation, Energy Conservation, No Horizons, No Inflation, No Multiverse, No Dark Mysteries.


**INTRODUCTION**

That it is viable to defend the classical idea of an *absolute or universal time* $\mathcal{T}$, in open opposition to Einstein, is argued by the British physicist P. Rowlands, [2007], who claims that such time is identifiable with what he calls: *"the unique birth-ordering of non-local quantum events"*. In accordance with this standpoint, he claims that physics ought to be reconstructed on the foundation of time-invariant laws.

Sharing his view, I shall here submit a brand new theory of *Creatio Continua* (CC). Any such theory, recognizable by a Hubble factor $\mathcal{H}=\dot{\mathcal{R}}(\mathcal{T})/\mathcal{R}(\mathcal{T})$ that is (or tends to become) a constant, must agree with the basic results of *Special Relativity* (SR). In SR, as shown by A.A. Ungar [2008], *velocity space* is hyperbolic; thus, with $\mathcal{H}$ being (or tending to become) a constant, I shall postulate *position space* to be hyperbolic too. This accords very well with the views of V. Varićak [1924] and of J.F. Barrett [1994].

So, defining $c\equiv 1$, and taking $r_o\equiv t_o$ as units, we get the non-standard metric:

- $d\mathcal{T}^2=dt^2-dr^2[c^{-2}]-[t_o^2]sinh^2r\,(d\theta^2+sin^2\theta\,d\phi^2)=$ ***invar.*** $(1)$

With $\mathcal{R}\equiv 2\,[r_o]\,tanh\frac{r/2}{[r_o]}$, this *universal time-space* is translated into an observer's *individual space-time*, corresponding to the (incoming) light-cone of SR:

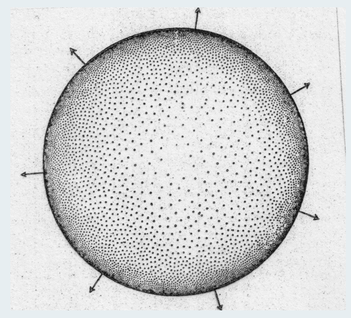
- $[c^2]\,dt^2=[c^2]\,d\mathcal{T}^2+\{d\mathcal{R}^2+\mathcal{R}^2(d\theta^2+sin^2\theta\,d\phi^2)\}/(1-\frac{\mathcal{R}^2}{4[r_o^2]})^2$ $(2)$

The space of this space-time differs from SR space by its hyperbolic geometry. If depicted in flat space as an observable *pseudosphere* of radius $\mathcal{R}=2$ for infinite $r$, it shows an apparent shrinking of objects with light-time distance $r=c\,t$ to an observer, proving that none of its contents are hidden behind a cosmic curtain, or horizon.

- Thus it obeys the *no-horizon principle* of the British cosmologist E.A. Milne.

*FIGURE 2.*

*The Milne "big bang" model,*
*a pseudo-sphere expanding at the speed of light.*
*Remove the arrows, and you find the*
*static pseudo-sphere of my new world model.*



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Adopting the basic idea of Milne's *Kinematic Relativity* (KR) [1952], that was later confirmed on more general terms by his collegue, the cosmologist A.G. Walker, viz., that *gravity* is not universal, as claimed by Einstein and embodied in the $\Delta$FLRW model, but rather the unavoidable *concomitant of local deviations from the global symmetry of a kinematic substratum* (S) *characterized by cosmic isotropy*, I shall distinguish between two sorts of *observer-particles* ('Leibnizian monads'): *fundamental ones* (FP) at rest in S, in this context defined relative to CMBR (the cosmic microvawe background radiation), and *accidental ones* (AP) in motion in S, similarly defined with respect to CMBR.

Granted that all FPs constitute an equivalence class S subject to cosmic isotropy, thus making it possible to avoid the 'clock paradox' of SR, cf. Milne & Whitrow [1949], I postulate the unrestricted validity of the classical principle of conservation of energy.

Now the state of any AP, say A, in S can be described by two simple classical vectors relating to two FPs, say F1 & F2, where A coincides with F1 at the same instant $\mathcal{T}_o$ of $\mathcal{T}$ when A is at rest relative to F2. If F1 ascribes the kinetic energy E to A, F2 must ascribe to A exactly the same energy E, only that E is no longer kinetic but potential (dynamic).

This points to a spontaneous rise of potential forces in S due to local asymmetries. Maybe gravitation is explainable solely by SR, thus making GR superfluous?

As hinted at, Rowlands [2007] has shown to derive the "crucial" GR effects by classical means; he even showed [1994] that they were in fact thus derived!

I, for my own, have found the following formulas based solely on SR:

$$\boldsymbol{H}\equiv\boldsymbol{T}+\boldsymbol{V}=m_{\overrightarrow{v}}-m_{\overleftarrow{v}}=m_o(\gamma_{\overrightarrow{v}}-\gamma_{\overleftarrow{v}})=const.$$
$$\boldsymbol{L}\equiv\boldsymbol{T}-\boldsymbol{V}=m_{\overrightarrow{v}}+m_{\overleftarrow{v}}-2m_o=m_o(\gamma_{\overrightarrow{v}}+\gamma_{\overleftarrow{v}}-2)$$

where $\varphi$ is representing the classical gravitational potential.

Assuming the principle of least action and using the above Lagrangian, we get a variational principle describing the observed perihelion displacement of Mercury:

$$\delta\int_{t_1}^{t_2}\boldsymbol{L}\,dt=\delta\int_{t_1}^{t_2}(m_{\overrightarrow{v}}+m_{\overleftarrow{v}})dt=0\ \Rightarrow\ \tfrac{d}{dt}(\tfrac{\partial m_{\overrightarrow{v}}}{\partial\dot{q}_i})-\tfrac{\partial m_{\overrightarrow{v}}}{\partial q_i}=0$$

Following Prokhovnik [1988], a unit-rod moving in the substratum is reduced by:

$$c_{v,\theta}^{-1}=\tfrac{1}{2}(c_{\overrightarrow{\ }}^{-1}+c_{\overleftarrow{\ }}^{-1})=\tfrac{\sqrt{1-v^2sin^2\theta}}{1-v^2}$$

Due to the local asymmetry of the motion, the longitudinal "speed" of a photon will be $c_{v,0}=1-v^2$, its transversal "speed" being $c_{v,\frac{\pi}{2}}=\sqrt{1-v^2}$; by analogy we then assume:

$$c_{v,\theta}^{-1}=\tfrac{\sqrt{1-v^2sin^2\theta}}{1-v^2}\ \simeq\ c_{\varphi,\theta}^{-1}=\tfrac{\sqrt{1+2\varphi sin^2\theta}}{1+2\varphi}$$

$\delta\int_{t_1}^{t_2}2r\,dt/c_\varphi$ for $\theta\simeq 0$ yields the delay of light-signals reflected from a planet, while the deflection of light rays near a massive body is found by a Fermat principle:

$$\delta\int_{t_1}^{t_2}\tfrac{dr}{c_\varphi}=\delta\int_{r_1}^{r_2}\tfrac{\sqrt{1+2\varphi sin^2\theta}}{1+2\varphi}dr=0$$

**PRESENTATION**

Our ***CC***-world ***W1*** is constructed thus, with $c\equiv$ *unity*, $\mathcal{T}$ for FP proper time, $t\equiv\frac{1}{2}(\mathcal{T}_3+\mathcal{T}_1)$ and $r\equiv\frac{1}{2}(\mathcal{T}_3-\mathcal{T}_1)$ for standard coordinates, and postulating:

- $d\mathcal{T}\equiv dt/cosh(r/r_o)=dr/sinh(r/r_o)=$ ***invar.*** $(1\,a\&b)$

From these differential equations we deduce the following important results:

$d\mathcal{T}^2=dt^2-dr^2=$ ***invar.***  - $v\equiv dr/dt=tanh(r/r_o)$ $(2\,a\&b)$
$dt/d\mathcal{T}=1/\sqrt{1-v^2}\equiv\gamma$ - $dr/d\mathcal{T}=v/\sqrt{1-v^2}=v\,\gamma$ $(3\,a\&b)$

Phipps [1986] opines that $\gamma$ is the all-important SR-result; and, in the end, what is left of Einsteinian SR & GR is almost nothing but the $\gamma$-factor, plus the standard SR-redshift:

$$s\equiv 1+z(r)=\tfrac{dt+dr}{dt-dr}=\tfrac{d\mathcal{T}}{d\mathcal{T}}=e^{r/r_o}\quad(4)$$

We are now able to introduce natural units in accordance with the principle of Milne that *no dimensional constant is allowed to enter the definition of the kinematic substratum*:

- $1+z(r)=e^{r/r_o}=e\ \Leftrightarrow\ r=r_o\equiv t_o\equiv$ ***unity*** $(5)$

Our basic differential eq.s $(3\,a\&b)$ are then easily integrated; the result being:

- $\rho=sinh\,r/e^t=2\,tanh\frac{r}{2}/e^{\mathcal{T}}\equiv\mathcal{R}/e^{\mathcal{T}}$ $(6)$
- $e^t d\rho=cosh\,r\,dr-sinh\,r\,dt=dr-sinh\,r\,d\mathcal{T}$ $(7)$

The formal difference between fundamental and accidental particles is stated thus: for fundamental particles (FP), $\rho$ is a constant; for accidental ones (AP), $\rho$ is a variable. It is now easy to verify that our cosmological model is a genuine stationary universe:

- $\mathcal{H}\equiv\dot{\mathcal{R}}(\mathcal{T})/\mathcal{R}(\mathcal{T})=$ ***const.*** $(8)$

From $\dot{\mathcal{R}}\propto\mathcal{R}$ we infer that *position-space*, like *velocity-space,* must be *hyperbolic*:

- $d\mathcal{T}^2=dt^2-dr^2-sinh^2r\,(d\theta^2+sin^2\theta\,d\phi^2)$ $(9)$

This invisible *World Map* is easily translated into an observable *World View:*

- $dt^2=d\mathcal{T}^2+\{d\mathcal{R}^2+\mathcal{R}^2(d\theta^2+sin^2\theta\,d\phi^2)\}/(1-\frac{\mathcal{R}^2}{4})^2$ $(10)$

Following Milne's KR, cf. North [1965, p.343 eq.14], we take the energy of photons exchanged between FPs to be invariant, their rates of observation being reduced by the standard redshift as well as by the reduction of unit area in hyperbolic space, thus:

$$\mathcal{L}^{-1}\propto(1+z)\,sinh^2r\propto s\,(s-s^{-1})^2\quad(11)$$

We are now able to compute the relative luminosities of similar objects at rest in CMBR:

$$\tfrac{\mathcal{L}_\alpha}{\mathcal{L}_\beta}=\tfrac{s_\beta(s_\beta-s_\beta^{-1})^2}{s_\alpha(s_\alpha-s_\alpha^{-1})^2}\ \underset{s\gg 1}{\approx}\ \tfrac{s_\beta^2}{s_\alpha^2}\quad(12)$$

**CONCLUSION**

Following Milne, we distinguish between two different descriptions of ***W1***, viz., as *World Map* and as *World View*, where the universal constancy of $c$ in *World View* reflects a "stretching" of light in *World Map*, cf. Prokhovnik [1988]:

***World Map**: **an invisible hyperboloid of co-existing objects***
$d\mathcal{T}^2=dt^2-ds^2\ .\ \ ds^2=dr^2+sinh\,r^2(d\theta^2+sin^2\theta d\phi^2)$
The hyperbolic space of *World Map* is isotropic and homogeneous; for fixed $\mathcal{T}$, it yields an instantaneous "snap-shot" of the universe.

***World View**: **a visible pseudo-sphere of shells of varying age***
$dt^2=d\mathcal{T}^2+ds^2\ .\ \ ds^2=\{d\mathcal{R}^2+\mathcal{R}^2(d\theta^2+sin^2\theta\,d\phi^2)\}/(1-\frac{\mathcal{R}^2}{4})^2$
The flat space of *World View* is isotropic, but not homogeneous; with varying $r=[c]\,t$, it depicts "space-shells" of increasing age, explaining the *observed crowding of objects* with distance, cf. *www.astro.ucla.edu/~wright/stdystat/htm,*fig.$2_{1\text{-}3}$; compare *'Circle Limit iv'* of M.C. Escher [1960], NB!

***Two kindred world models are sketched below:***

- ***W2**: "A Fierce Blow"*

$$\rho=sinh\,r/sinh\,t=2\,tanh\tfrac{r}{2}/sinh\,\mathcal{T}\equiv\mathcal{R}/sinh\mathcal{T}$$
$$sinh\,t\,d\rho=cosh\,r\,dr-sinh\,r\,coth\,t\,dt=dr-sinh\,r\,coth\,\mathcal{T}\,d\mathcal{T}$$
$$\mathcal{H}_2(\mathcal{T})\equiv\dot{\mathcal{R}}(\mathcal{T})/\mathcal{R}(\mathcal{T})\propto coth\,\mathcal{T}\underset{\mathcal{T}\to\infty}{\rightarrow}\mathcal{H}_1$$

- ***W3**: "A Gentle Flow":*

$$\rho=sinh\,r/cosh\,t=2\,tanh\tfrac{r}{2}r/cosh\,\mathcal{T}\equiv\mathcal{R}/cosh\,\mathcal{T}$$
$$cosh\,t\,d\rho=cosh\,r\,dr-sinh\,r\,tanh\,t\,dt=dr\,sinh\,r\,tanh\,\mathcal{T}\,d\mathcal{T}$$
$$\mathcal{H}_3(\mathcal{T})\equiv\dot{\mathcal{R}}(\mathcal{T})/\mathcal{R}(\mathcal{T})\propto tanh\,\mathcal{T}\underset{\mathcal{T}\to\infty}{\rightarrow}\mathcal{H}_1$$

Granted that gravity cannot act as a brake on the socalled expansion of space or, better, the spreading of the matter particles contained within the hyperbolic time-space, it is obvious that only a faint pressure is needed to accelerate a very natural dispersion. A Poincaré-pressure may be produced by an apparent local creation of matter needed to compensate the apparent vanishing of matter at the apparent boundary of the universe.

Realizing that *the pseudosphere* can be viewed as *a cosmic black hole* from which nothing can escape, the necessity of a compensation follows directly from the principle of the conservation of energy which here holds without any proviso, in contrast to GR.

So there is no "dark energy", as there is no "dark matter"; cf. Ungar [op.cit.,p.491f]. As there are no horizons, all stars in the pseudosphere being observable in principle, there is no need for "inflation" either, nor for lofty speculations about a "multiverse".

It should be noticed that, in accordance with the kinematic technique of Milne,

- the bulky field equations of GR are redundant: a revised SR does suffice!

**POSTSCRIPT**

The idea of *multiverse* is spurred by the search for a background-free version of GR. Hence its background is a blatant disregard of the two most conspicuous cosmological discoveries of the 20th century, viz., those of Hubble's law and of the CMBR at 3 Kelvin. Both discoveries seem to indicate the existence of a privileged cosmological framework which will produce the conceptual foundation for an all-encompassing universal time.

One would assume that the orthodoxy of the old "big bang" theory had already been suitably shaken by the recent sprouting of the most diverse types of *inflation theory*. In fact, most of these developments are inspired by the sustained attempt to absolve a number of sincere problems that has bedevilled the old theory for quite a long time. However, only very few cosmologists think of questioning its basic assumption: GR.

Instead, an increasing number of scientists are seriously engaged in the joyful pastime of imagining "realities" altogether different to our own observable universe, "realities" taken to be disclosed in other parts of space, or in fully separate spaces. What it is to be "real" is seldom explained, but mostly left to exuberant imagination. Something alike holds for space: the mind-boggling vastness of a space assumed to stretch endlessly beyond our own tiny observable region of an infinite "multiverse" is a thrill to the vivid phantasy.

Tegmark, one of those bright people bent on boosting the idea of a multiverse, knows that the best defence is an attack: led by him, "The multiverse strikes back". Defining *our own universe* as that part of all things existing which is observable to us as human beings, and distinguishing four different senses of the concept of *multiverse*, he defines *level 1* as the part of "being" which is *in fact unobservable* to us, but ruled by *the same laws* of nature, defining *level 2* as those parts of "being" that are *in principle unobservable* to us, and may therefore be ruled by wholly *different laws* of nature.

In both cases, it is the idea of *cosmic horizons* that is in play, in fact or in principle. Clearly, the non-existence of cosmic horizons would make the multiverse indefensible. But as regards *level 3* something very different is at stake since, by this term, he refers to the idea of *parallel universes*, introduced by Evereth and embraced by Wheeler,as a plausible solution to the problem of *wave function collapse* annoying quantum theorists. Because that idea presupposes quantum theory to be *unitary* in the sense of providing an over-arching wave function $\Psi$, at least $\Psi$ must be a law common to such universes, showing the same form in all the parallel universes, including that we call "our own".

What designates the *many worlds interpretation* of quantum theory, making it akin to the idea of a *mathematical universe* defined as *level 4* in the classification proposed by Tegmark, is that it invests the concept of "reality" in a purely formal abstraction, viz., the mathematics of the wave function that is represented by the symbol $\Psi$.

This move brings him in opposition to the classical *Copenhagen Interpretation*, which he summarily rejects; according to Bohr & al., what is real is much rather the collapse of the $\Psi$-function into an observable and causally effective *quantum event*. Here it is the collapse of our mathematics that brings us into contact with reality!

This, of course, is intolerable for brilliant mathematicians like Tegmark and his allies. For him *the observer's perspective* is merely "the frog's view", contemptuously contrasted to *the mathematician's perspective* which he calls "the bird's view", thereby tacitly implying that such elevated vision is the privilege of genuine "spiritual eagles" like himself. Presupposing "physical reality" to be mathematical, he finally identifies physics with mathematics, thus professing an extreme type of idealism; insisting on calling this: *structural realism*, he turns the meaning of "realism" on its head.

As if this is not enough, he goes as far as he can in stripping mathematical physics of all traces that might remind his fellow scientists of anything with a taste of traditional realism. At the end of his track we find only *mathematical structures* consisting of formal entities and their relations, but totally devoid of irrelevant "human baggage" composed of ideas such as "particles", "forces", "fields", &c.; whence one might guess that even his own ideas of "entity", "relation", and "structure", would belong to the same sort of linguistic baggage, or conceptual waste. Having led us that far astray he claims, with Vilenkin, that all this is just "solid science".

How solid? On what rock-solid foundation does this supposed science rest? Answering some objections by Ellis, Tegmark [2019] lists seven open questions, one of them added by himself, viz., whether quantum theory is unitary, or just false. As quantum mechanics is one of the best affirmed theories we know, let us accept it; this leaves us with one question, viz., whether the many-worlds interpretation is correct. So let us begin weighing his ideas by going back from level 3, over level 2, to level 1.

Concerning level 3, I prefer the Copenhagen interpretation, not "parallel worlds". Regarding level 2, it utilizes the idea of minima in a "string theoretical landscape". But the "solidity" of string theory is a far cry from that of standard quantum theory; so far, indeed, that it is questionable whether string theory may count as a science: Seldom has the devastating criticism: "it is not even wrong", been more appropriate! As regards level 1, it rests wholly on the idea of *inflation*, already discussed above, and devised *ad hoc* in order to solve some problems of the old "big bang" theory.

One of these, the *flatness* problem, is associated with the field equations of Einstein. Following GR, the *classical escape velocity* marks a limit between *spherical* world-models, ending in collapse, and *hyperbolic* world-models, continuing to expand; so, if $\Omega>1$, meaning: the quotient $\rho_{obs}/\rho_{crit}$ is greater than unity, the expansion of space will come to a full stop which is followed by an implosion that will end up with a "big crunch"; and, if $\Omega<1$, the expansion does never stop, but the density will be steadily diminished.

In both cases, the slightest deviation of $\Omega$ from unity will increase very rapidly. The limiting flat case being that unstable, why is space so flat as it appears to be? It is here that the inflation hypothesis comes to the rescue: assuming that cosmic space is blown up enormously in a tiny fraction of a second (is inflation subject to a cosmic time?) it follows that the local curvature of space is reduced to a minimum very close to zero. On the other hand, the hypothesis of inflation urges the problem of cosmic horizons. The ghost of a multiverse shakes, and dies, with the reality of cosmic horizons!

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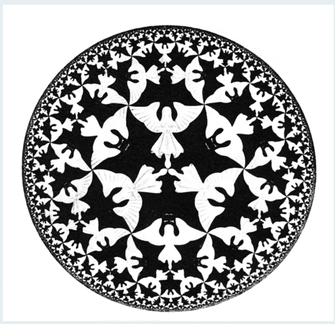
*FIGURE 3.*

***M.C. Escher: 'Circle Limit 4'***
***a most wonderful illustration of the***
***shrinking of galaxies with distance***
***in a flat space of finite radius.***

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***QUOTATIONS***

*"The essence of scientific freedom is the right to come to conclusions which differ from those of the majority."* *E.A. Milne: Modern Cosmology .., 1952.*

*"In fact there is no experimental evidence at all for the theory (i.e. Special Relativity); all that appears to support it does so through a circular argument."*
*H. Dingle: Introduction to Bergson, 1965.*

*"If science is not to degenerate into a medley of ad hoc hypotheses, it must become philo-sophical and must enter upon a thorough criticism of its own foundations."*
*A.N. Whitehead: Science & the Modern World, 1925.*

*"We come thus finally to what is perhaps the most destructive aspect of any physical theory that is 'too succesful' in the social or political sense - it destroys human freedom, and particularly the most precious one, the freedom to think. Forbidden thoughts, censored in their cradle - in this instance typified by the concept of distant simultaneity - always slip in by the back way, to the total confounding of rational thought processes .."*
*T.E. Phipps, jr.: Heretical Verities .., 1986.*

*"Imagine two clocks ... which are permanently keeping a perfect agreement. This may happen in three different ways. The first way is to presuppose a natural, or causal, influence (this is the way of the vulgar philosophy) ... The second way to make two clocks agree is to let them be controlled by a skilled craftsman who permanently adjusts the one to the other (this is the way of the occasionalist philosophy). The third way consists in adjusting their mechanisms so well from the beginning that this alone is sufficient to secure their agreement (this is the way of the pre-established harmony)."*
*G.W. Leibniz: Eclairciss. du Nouveau Systeme, 1695.*

*"Leibniz's universe was composed of monads which he regarded as mutually independent but his famous principle of pre-established harmony stipulates that the states of all monads at every instant correspond with each other. Leibniz illustrated this principle by the simile of two clocks that have been so perfectly constructed that they keep perfect time with each other without either mutual influence or external assistance. Consequently, in so far as the temporal aspect of the universe is concerned, Leibniz's principle of harmony is equivalent to the postulate of a single universal time. We must therefore discard this principle if we are to reconcile Leibniz's way of regarding time with Einstein's theory of relativity." G.J. Whitrow: What is Time? London 1972.*

*It is a tacit assumption of all physics that atoms of the same type, if exposed to the same conditions, oscillate at the same natural rate. Whenever we make use of atoms as 'Zeitgebers' in atomic clocks we exploit their Leibnizian Harmony. As hinted at by Leibniz: It is non-sensical, indeed vulgar, to ask for a causal explanation of this fundamental fact. Moreover, the standard metric of modern cosmology makes use of a temporal parameter which serves as a cosmic time. So: why not simply accept that time is universal and simultaneity absolute, even though this will necessitate a radical re-interpretation of SR?*
*Mogens True Wegener: Non-Standard Relativity, BoD, 2016[4]*

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