Infrastructures for the Noosphere

The case of the Great Basin, a Winter Desert

Rolf A. F. Witzsche - Sept. 2010

Snake Valley, Utah and Nevada - the northern edge of the Nevada Great Basin

At an altitude of 3,000 to 5,000 feet, snow occasionally covers the landscape

Here begins the story of the infrastructures for the noosphere

The great desert basin extending south will be the last to be affected by the New Ice Age ahead

The Noosphere

The term Noosphere (often pronounced as noösphere), was defined by the Russian Scientist Vladimir Vernadsky, and to some degree by the French scientist Teilhard de Chardin, to denote the "sphere of human thought".

Vernadsky perceived the noosphere as the third stage in a succession of phases in the development of our planet, beginning with the geosphere (inanimate matter), followed by the biosphere (biological life), with the third distinct phase being the emergence of human cognition, which being the most powerful of the three, has proved itself as a power that is able to fundamentally transform the biosphere and to uplift it beyond its natural potential. In contrast to the conceptions of the Gaia theorists, or the promoters of cyberspace, Vernadsky's noosphere emerges at the point where mankind through the mastery of nuclear processes is able to create new resources resources for living through the transmutation of elements, thereby literally creating a new world. (ref: Noosphere)

With the high-elevation environment of the Nevada Great Basin being poorly suited for natural plant growth, the human potential becomes correspondingly more pronounced in this high desert area.

Classified as "winter desert"

The Nevada Great Basin desert is one of three great deserts of the world classified as "winter desert." This is high-elevation country 3,000-5,000 feet above sea level comprised of mountains and vast flat regions of salt, sand, shrubs, tumble weed, with a record breaking climate. The summers can be as hot as 125 °F (52 °C) and the winters as cold as –50 °F (–46 °C).

The two other major "winter deserts" are the Gobi Desert in Asia, and the Patagonia desert area that covers much of the cone of South America.

The Nevada subregion of the Great Basin desert in North America extends across a 47,100 sq mi (122,000 km2), an area of 14 watersheds that all drain into Nevada and its elevated lands. This high region in the shadow of the coastal mountain range has an annual precipitation of less than 10 inches per year which is sustaining a 'thin' biosphere all across its various ecoregions, except those covered with sand and salt as for example the Great Salt Lake Desert below.

The Great Salt Lake Dessert

Some people see this area as useless land, and some see it as a natural paradise of unspoiled emptiness where in a few sparse places nature is clinging to life against all odds. However, one can also see this empty land as an opportunity - a nicely level, unoccupied space that is well suited for development.

Except, how does one develop a desert on top of the world, at an average elevation above 4,000 feet above sea level?

A question of options

Ancient technology does not provide the answer here. Throughout history water diversion has been accomplished by channeling water from a high-elevation source to a low elevation destination. This principle cannot be applied for the 1960s NAWAPA water transfer plan that has its source at a much lower elevation (even with the great dams added, that are proposed for Alaska and the Yukon Territory in Northern Canada).

Actually the 1960s NAWAPA plan is not designed to service the high deserts in any significant way. The Nevada Great Basin will likely receive at the very most a mere 20 million acre feet per year (MAF/yr) from the NAWAPA water diversion of the upper Yukon River and related sources in Alaska. But what are 20 million acre feet in a desert of nearly 50 million acres? An equivalent increase of 4.8 inches of rain per year won't be able to support any significant biological upgrade in the region with new agriculture and new cities and industries.

In other words, the 1960s NAWAPA is not intended for the Great Basin, by design, but for the lower elevation deserts in the south for which a volume of 72 MAF/yr are allocated, which too, is far from being sufficient. This volume is limited because the source waters at to 2100 foot elevation, are limited in volume to slightly over 110 million acre feet per year, which is determined by the climate of the collection area that is itself semi-arid in the range of 20-24 inches of precipitation per year. In addition, the plan is limited by another critical factor.

In the 1960s overland water-transfer scheme from Alaska to the deep south, the Nevada Great Basin stands as a barrier in the way, which far exceeds the source elevation. Thus, in order to get the water from Alaska diverted to the southern low-elevation deserts by an overland route, the diverted 'river' has to be pumped up over the continental hump - the high-elevation Nevada Great Basin - before it can reach its destination. All this adds up to a truly huge task.

The world has large fresh-water resources, but since little of it exists at high elevation the 1960s NAWAPA plan envisions a network of vast infrastructures to overcome this deficiency of the natural world. The 1960s NAWAPA plan is to raise several high rivers in Alaska and the Canadian Yukon Territory from 1200 feet elevation, and lower, to 2100 feet, by means of a series of large dams (900 - 1,700 feet tall), and then channel the water southward through tunnels and reservoirs, with more water being collected along the way, all of which is then to be pumped over the hump, the Great Basin desert. The combined power of 32 large nuclear plants would accomplish this feat and get the water to this point, to an elevation of over 5,000 feet, for its continued journey south into the low elevation areas.

With modern technologies that have been developed in recent years a different option unfolds. With the use of technological advances in power production and the use of new materials, the main objective of the NAWAPA plan - to invigorate the great deserts in the south - can be much more readily accomplished, such as with the principle of submerged water transfer (moving water in water within thin-walled infrastructures) a principle that enables the use of 'local' waters from the outflow of the much closer and larger rivers, such as from the Columbia River and the Fraser River, that presently dump their waters into the oceans, unused. The combined outflow of these rivers adds up to 280 MAF/yr of which 200 MAF/yr could be easily diverted to the southern deserts without any significant disruption at the rivers. The thereby diverted waters would arrive at the doorstep of southern California, and this with three times the 1960s projected NAWAPA volume. In addition, the vastly richer water flow would be available 35 to 45 years before the projected NAWAPA completion date under the 1960s plan. Also, to pump-distribute this 3-fold larger volume of water from the coast across the southern deserts would require significantly less power and bring it directly to were it would be needed for irrigation and to supply of the new cities that would then be built across the vast biologically-invigorated area. Thus advanced technology options improve the dynamics involved in accomplishing a given task.

Consider the dynamics. Assume your task is to travel from San Francisco to Los Angeles. This can be accomplished by taking a plane to Tokyo and another plane from there to LA. This would be a practical option if no other option did exist. It would take you two days, and you would arrive tired and a lot lighter in the pocketbook. But you wouldn't do this, because other options do exist. You could take the LA shuttle from Frisco airport and arrive two days earlier. Or you could fuel up your tin lizy and drive to LA, and stop at all the wineries along the way. This two would be a practical option depending on your objective. Or you could board the high-speed train if one did exist and be in LA before the shuttle clears the runway, considering the security hurtles associated with flying and the airport logistics.

So, what is practical? The long detour is practical if no other options exist. In this context the 1960s NAWAPA plan was a practical option. But there are other options available now to meet the objective, like taking the shuttle from Frisco to LA instead of traveling via Tokyo. The available options change the dynamics.

What about the Nevada Great Basin?

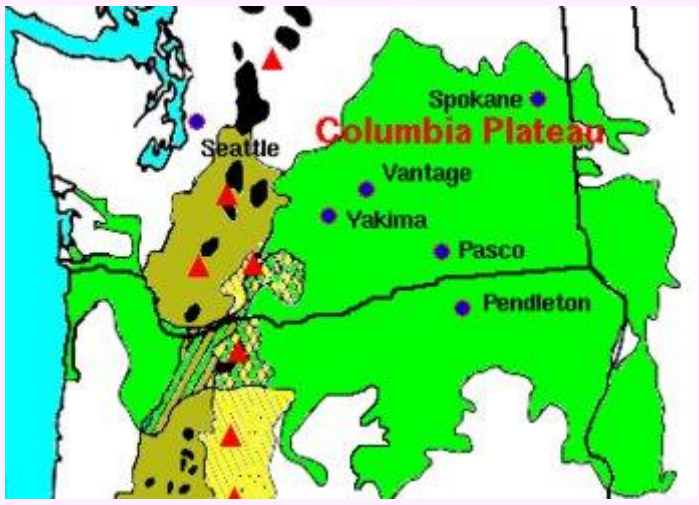
How would a more powerful New NAWAPA plan affect the Great Basin deserts that would be bypassed if the Submerged Water-Conveyance option was chosen?

The answer for the Great Basis lies in the same technology. The same new materials would enable vastly more efficient regional water-transfer projects for which the source lies at high elevations surrounding Great Basin, primarily in the immediate north. Access to these sources is presently not feasible, but with the new materials that exist plentifully in the region itself, those limits fall away.

The key for the new technology lies here in the Great Sandy Desert of the Harney Basin of Oregon. This entire area is itself but a small part of the Columbia River Flood Basalt Province.

What do you see when you look at the above scene? Do you see a thinly overgrown wasteland of sand and a few space shrubs in a 4,000-foot high desert arena?

I see in this scene the potential heart of the greatest industrial and technological revolution in American history. Beneath the sand and in the mountains in the distance, and in those behind them, unseen by the eye, lies a vast store of basalt in one of the largest flood basalt deposits ever created on the Earth's surface, extending across the states of Washington, Idaho, Oregon, and trailing south into California. The Columbia and Snake River Flood Basalt Province extends across 163,700 km² (63,000 mile²) of the Pacific Northwest with stores of basalt that are up to 6000 feet deep and contain an estimated volume of 174,300 cubic kilometers. The basalt was laid down 17–14 million years ago in a volcanic flooding event.



Columbia and Snake River Flood Basalt Province

Basalt exists in large quantities in the mantle of the earth, but only in a few places do they appear on the surface. Basalt is a stone, basically. But what a stone it is! It has amazing properties. It is nearly as hard as diamonds, melts at 'low' temperatures (slightly lower than molten glass), and when extruded into the fibers it is one of the strongest materials known, second only to carbon fibers. Just compare the tenacity (strength) numbers (given in MPa - mega Pascal; 1 Pa=1kg/square meter). The numbers are, for structural steel=400, titanium=830, the best glass fiber=4,710, basalt fiber=4,870, carbon fiber=5,650. While being 12 times stronger than steel in this comparison, basalt is nearly three times lighter. These amazing qualities of basalt, altogether, enable equally amazing technological capabilities.

The reason why basalt is not yet widely used, is society's reluctance to use its vast nuclear power resources, and also provide itself the needed space to set up the corresponding vast new industrial capability that utilizes the new material. In comparison, it takes twice as much energy to melt basalt than it takes to melt steel. However, in the nuclear age, energy is no longer a big factor, especially in heat-based processing where the theoretical energy factor is near zero.

For example: It takes 200 calories to raise the temperature of a ton of basalt one degree Centigrade. This adds up to 280,000 calories of heat needed to raise a ton of basalt to the process temperature of 1,400 degrees. The heat volume equates to 325 Kw/hrs. That is the power needed to process one ton of basalt. On the basis of this facts, a 1 gigawatt nuclear reactor would be able to process 3,000 tons of basalt per hour. However, the heat that gets put into the process of melting the basalt, can be recovered after forming the product during the cooling of the product. Typically the recovered heat would be applied to preheating the feed stock. If only half of the process heat would be recovered that way, a single one gigawatt plant would be able to process twice as much material, or 6,000 tons per hour. In practice far greater efficiencies are achievable. If the process was designed so that 90% of the input heat can be recovered from the cooling process, a single 1 GW plant would be able to process 27,000 tons of basalt per hour, which adds up to 23 million tons per year. This is more than double the output in tonnage of a large-scale steel mill, and is four times greater in volume.

With the current world-capacity in steel production standing at roughly 1.5 billion tons, it would take a mere 55 production units to match the current world-capacity. However, with the structural strength of basalt being ten times greater, a mere 6 production units would be able to produce the equivalent of the entire world-supply of structural steel products.

The above analysis isn't intended to suggest that steel production would be displaced, but it illustrates the enormous potential of the basalt process for revolutionizing the economic platform of the world. In real terms, basalt would be used for products where steel is not even considered due to its presently high production cost (in the absence of high-temperature nuclear power). But steel production is not cheap either. Steel production is a complex, multi-stage process from mining both the ore and the coal for melting it, involving secondary industries for ore processing, coke making, steel smelting, and so on, till the end-stage of the milled product is reached.

Let me give you a comparison: Steel making, and basalt making.

The steel making process begins with the mining of hematite or magnetite containing rock formations, for example. The mined product is then crushed and ground into a powder that enables magnetic separation. The result, after the tailings (60%-75%) are removed, is a concentrate that contains 60% of iron, the typical feed stock for the smelting processes. In order to produce one ton of iron, one typically needs a mix of 1 ¾ tons of the concentrate (ore), ¾ ton of charcoal or coke, and ¼ ton of limestone. Typically furnaces stand 30 feet tall. Traditionally the materials were placed in the furnace in layers. The first layer was charcoal, the next layer limestone, followed by the iron ore. Stoked in this manner the furnace burned by natural draft. Now forced air is used, in blast furnaces, and the charge (fuel and ore etc.) is continuously supplied. The coke burns at an extremely high temperature by which the iron in the ore melts. In the process a small amount of the carbon is absorbed. The limestone combines with the impurities to form a waste material called, slag. The resulting product is called "pig iron" that is used for secondary manufacturing. The Coke that powers the modern process is derived from destructive distillation of low-ash, low-sulfur bituminous coal. The coke making involves a high temperature process (typically 1100°C) in an oxygen deficient atmosphere that concentrates the carbon. Coke making is a separate industry attached to the steel industry. In steel making, typically 4 tons of air is required, per ton of steel, which is either vented directly, or cleaned before venting.

The basalt making process is simpler. Here 100% of the quarried material is used (no tailings result). The quarried material is process ready (no pre-processing is required). The process is non-polluting (no ash and no slag are produced). The end product is derived in a one-step process. The difference between steel making and basalt processing appears to be of the same order of magnitude as the difference of flying from San Francisco to Los Angeles via Tokyo, and taking the LA shuttle.

The above comparison illustrates the inherent cost differential between steel making and the nuclear-powered basalt processing, which opens up a whole world of applications with many types of manufacturing not yet imagined. It certainly wouldn't make steel production obsolete. Steel has many valuable qualities. But the potential efficiency in basalt processing will likely result in many more, and more efficient options, for achieving a certain industrial product objective.

Infrastructures for the noosphere

For the automated production of housing, for example, extruded multi-layer corrugated wall units and floor units, of multiple types and shapes, etc. could be produced in single-step processes, for an assembly-ready product that is requiring little or no post-processing, which would also be light in weight for easy transportation. Consider the following: For construction, the strength of steel is 10 times greater than wood, and that of basalt it 10 times greater than steel and with a third of the weight. The resulting advantage could totally revolutionize housing across the world, and this so rapidly that the self-perception of society itself would change.

Quality housing is one of the basic infrastructures for human development. The commitment by society to providing itself this infrastructure for free on as universal a platform as possible, would be nothing less than a commitment by society to empower with technology-infrastructures the advanced self-development of its noosphere on which all aspects of development in the world depend. This intelligently directed intervention would provide for the noosphere an advanced platform for the further development of its creative power that it might not be able to achieve without this infrastructure.

While infrastructures are basically physical (even education has a physical component), their effects can however be shaped in such a manner that they uplift the entire sphere of life, including the biosphere, and above all the noosphere, and create a New World with a new renaissance in the process, such as has never been seen before. Advanced technology enables the needed infrastructures to be created.

There are three 'levels' of infrastructures possible. One type, for example, takes water from a water-rich area to a dry area to enable the expansion of the biosphere. This is a basic type that does not alter the biosphere, but merely expands it into previously unproductive areas. The second type, is a higher-order type of infrastructure. It is one that raises the dynamic power of the biosphere itself, to levels of productivity and creativity that the biosphere would not be able to attain without these manmade infrastructures since the conditions required for this type of improvement do not exist naturally on this planet, which can only be created by human action.

The third type of infrastructure is of a still higher order by virtue of its intention to create the same advanced conditions that would empower the biosphere to enable equivalent improvements in the noosphere. With the provision of free high-quality housing the noosphere would become empowered to attain a 'density' of self-improvement at a rate that is not statistically predictable as certain limits would then be removed across the board of society that would enable conditions that have not previously been achieved. We saw a bit of this dynamic unfolding during the Golden Renaissance, which was rapidly torn down with the infusion of imperial insanity before the noospheric development had reached a critical breakout point where it would have reached the needed stability.

In the modern world the noosphere is rapidly collapsing, which is evident in the collapsing physical productivity around the world and in the general conditions of life. An economic recovery will likely not be possible without an intense response to reversing the collapse in the noosphere. It simply won't be possible to create a nuclear powered world with scientifically enriched agriculture and space-faring technology, while ever-greater portions of society live under bridges, or in slum conditions, or are choked to death by rent-slavery. At the current stage where the economic collapse has become critical and a recovery is urgently needed the focus has to be on the foundation, the noospheric improvement that creates the conditions for creative economic development. Fortunately this improvement is not difficult to achieve. The power resources and the needed materials all exist in abundance for creating the needed basic infrastructures, including the physical space for a jumpstart development, which likewise exists in abundance, and of course the technologies do exist as well. All that stands in the way at the preset time is the 'hump' of the currently prevailing 'intense' smallness in thinking that society needs to get accross. No physical limits stand in the way.

Presently a 2,000 sqft wood-frame house weighs roughly 50 tons. If this weight was reduced to only 10 tons with the use of high-strength modules, which should be achievable with basalt, a single 1 GW basalt processing plant should on this platform be able to produce the modular components for 2,700 houses in one hour. Even if this theoretical capacity cannot be achieved, the automated manufacturing of 2,000 houses an hour (17 million houses a year) from a single facility, would go a long way in changing the living environment of society.

Factors in development dynamics

The dynamics for achieving a critical breakthrough in all types of development appears to be determined by two critical factors. One of these is the factor of 'task density.' The greater the task is, the more likely it will be tackled. And the second factor may be termed 'task quality.' The term quality in this case relates a quality of objectives that inspire the greatest possible cultural optimism (such as getting from Frisco to LA in an hour at a cost so low that you can afford to go there for an afternoon tea or a concert performance. The NASA moon-landing project was strong in both factors. That is likely why it succeeded. Kenney said that we must do it, because it is hard, and society was inspired by what the human being can accomplish. It still inspires people just to look back at what was accomplished in crossing the countless hurdles along the way. Just look at what we did.

The Adventure Begins - Moon Rise

Earth Rise

Space Power - Man Power

Rocket Trip to the Moon - Saturn V

The Eagle Descending

Stepping off - Stepping up

A Wasteland - A Treasure

Liftoff - Shutdown

Proof of Ownership

The task of providing free universal housing scores high in both of the dynamics factors. It is not an easy task, though technologically much simpler than flying to the moon. It also has the potential to score high in cultural optimism. And of course, behind the scene it would create the kind of high-power productive environment that would invariably change the world. The 'economics' of monetarism wouldn't survive the shock-effect of this development, especially considering that the houses would be given away for free as investment by society into itself, ending homelessness, poverty, slum living, rent slavery, and so on, opening the door to a vast potential improvement in the creative power of the noosphere.

A high-powered productive environment of the above type would instantly reverse the trend of history. Consider the following fact in steel production. In 2008, steel started to be traded as a commodity at the London Metal Exchange. By the end of the same year, 2008, the steel industry faced a sharp downturn that resulted in many cut-backs and layoffs. Now reverse the process and multiply it 100,000-fold. That's the kind of dynamics the high-tech application of basalt technology can offer.

Thus basalt becomes the corner stone for the economic recovery of the world. And the turnkey for getting this recovery started lies in the upper region of the Nevada Great Basin where near-unlimited space is available for the new manufacturing facilities, and which is located at a close distance to one of the greatest basalt deposits in the world..

Basalt will likely also revolutionize automobile production, replacing steel with composite materials for a large reduction in weight, enough to enable the Super-Capacitor electric car to become mass-produced, which promises a 500 Km range and a 5 minute recharge with already pioneered leading-edge technology. The Super-Capacitor 'battery' might also be superceded by the equally promising electric flywheel 'battery' that basalt fibers might bring into the range of practicality at an extremely low cost, comparatively. A flywheel running in vacuum on magnetically floating bearings, operating at very high speeds, has been theorized to be able to store energy equal to the energy-content of fossil fuel by weight. While the theoretical maximum will likely not be achieved with basalt-fiber flywheels, a useful low-cost flywheel system with endless durability for the powering of electric cars and with a respectable vehicle range, won't be far off.

Basalt will also revolutionize the aircraft industry, which has already begun utilizing basalt composites. It would also revolutionize the railway industry with lighter Maglev trains and infrastructures.

Most certainly, the automated basalt-based manufacturing would revolutionize the housing industry. The automation can no doubt be so highly advanced, for extreme low-'cost' production, that the housing, at first for the new cities, could be given away for free as a jump-start investment by society into itself, and thereafter be given away for free universally across the country. The entire automated housing program wouldn't cost society a penny more than it spends presently on a single military aircraft system, which would all become redundant thereby.

The one single factor, of free housing, all by itself, would completely revolutionize society's concept of economics. Every notion of empire would fade out of existence from this point on, including its monetarism that currently chokes society to death with poverty, impotence, and war, and breeds corruption everywhere,

especially in politics.

One of the first secondary industries for basalt products, that one would expect to see being set up in the high dessert areas, would be dedicated to the automated mass production of water conveyance products, both for the submerged mode (for The New NAWAPA) and for the overland mode for local water distribution.

The one limiting factor in the entire arena, of course, would no doubt be the limited availability of manpower. Nothing eats up manpower more rapidly than a horizon-wide technological revolution does, based on new materials and processes that are orders of magnitude more efficient. Even the nuclear power systems themselves would then be mass-produced to maintain the momentum of the recovery into a new renaissance. The Liquid Fluoride Thorium Reactor design would likely be most suitable for that. And to get this technology off the ground, large training centers would have to be built, and linear accelerators for charging up the thorium (via lithium) to jump-start the reactors. Unemployment, homelessness, slum living, would simply vanish as if they never existed. The entire employment level would be raised to a new standard of quality and efficiency.

Along the line of this kind of powerful economic development the high-elevation Great Basin area would see its water requirements be met with (then) minimal efforts with the use of the basalt-enabled materials. The Great Basin is flanked with numerous high-elevation catchments on three sides, especially on the eastern side with relatively high precipitation. High-strength materials and some modest nuclear pumping will make the utilization of these local resources easily possible, considering that a large portion of the high-elevation sources are located in the high-precipitation local area. The rest could be brought in along the line of the New NAWAPA that supplies then the lower-elevation desserts in the south.

While the Great Basin area would require significantly more water than the 1960s NAWAPA would allocate for it, it wouldn't require enormous amounts of it, even for its new desert-agriculture.

Empowering the biosphere

With the high winter-deserts being best suited for greenhouse-type agriculture, less water would be needed for them as a large portion of the water would be recycled in closed-in systems. A revolutionary advance in biological power may be realized with this principle, which has the potential to totally change the productive power of the biological landscape.

Consider the landscape below. Do you see an empty wasteland?

I see this valley housing a vast university research facility in the future, designed for advanced agriculture. I see large portions of the landscape glassed in. I see behind the glassed-in landscape the realization of scientifically controlled environments for the purpose of empowering the biosphere towards ever-greater productive capacities. We may see this happening, and most likely fast, because we need it rather urgently.

With the dollar ruling today and tonnage being the focus for agricultural production, rather than nutrition, our food has become nutritionally hollow. For example, we pile harsh fertilizers onto the fields that kill the

soil microbes, and gain a product in the process that is so nutritionally empty that many people find themselves urged to eat more and more, becoming obese in the process of starving. A real biological revolution would have to begin with taking the research process back to what growing food is all about, quantitatively and qualitatively. In this arena very little is happening to date. The wide empty spaces of the high deserts in the Great Basin give us an ample opportunity to find ways to change that.

Wah Wah Valley - Utah, elevation. 4577 ft.

Just consider the basic fact that plants are our main food resource. Ironically, we know far too little about the botanical system that produces our food. For example, we don't know what the optimal CO2 concentration for plant growth is, and what nutrients should be in the air for optimal conditions. We know for instance that 440 million years ago, when the vast proliferation of life began on this planet, the CO2 concentration in the air was 18 times greater than it is today, which has gradually diminished. Even as recently as 50 million years ago the CO2 concentration was still 6 times greater.

Plants live by sunlight, water, and by CO2 in the air. If one of these is missing, plants die. But what are the optimum values? It is highly likely that the development of the giant dinosaurs that may have reached 90 feet in length and a weight of 120 tones, had been enabled by the abundant food resources that the 10-times greater CO2 concentration during the dinosaur area would likely have produced.

In the above context our current agriculture is unfolding in a starvation environment. Greenhouse operators, who have artificially increased CO2 levels from the current average of 380 ppm to 1200 ppm, or even 1500 ppm, have seen a plant-growth increases of up to 60% without altering any of the other vital factors. A ten-fold increase in CO2, coupled with the appropriate optimization of lighting, heat, nutrients, moisture, and so in, may have the potential to start a whole new agricultural revolution. And this may all begin in places like the above, the currently vast empty spaces of the Great Basin.

Thus, mankind, with the aid of technology, is able to to empower the biosphere to a level of productivity that it cannot attain on its own in the natural world.

The idea of uplifting the power of nature with infrastructures, such as with advanced agriculture and indoor agriculture, is a necessary one that we cannot get away from. Wisdom demands that we do what is necessary, and that we do it as efficiently as possible in order that all that needs to be done, can be done, including the provision of the most nutritious foods possible, in contrast with the many 'hollow' foods that are found today.

We now stand at the threshold where we can do a lot of the necessary things with advanced infrastructures, like indoor agriculture, that may perhaps even become absolutely essential in the not-so-distant future.

Consider the CO2 concentration once more. If the CO2 drops below 200 ppm all plant grows stops. Typically, the CO2 concentrations follow the climate trend, delayed by the response dynamics of the system. Colder climates lead to lower CO2 levels. With the earth now facing the transition to the next glaciation cycle of the great ice age period that we are currently in, which might even have already started, the natural consequence of lower CO2 levels in conjunction with the colder climates that weaken the growing conditions, we have some

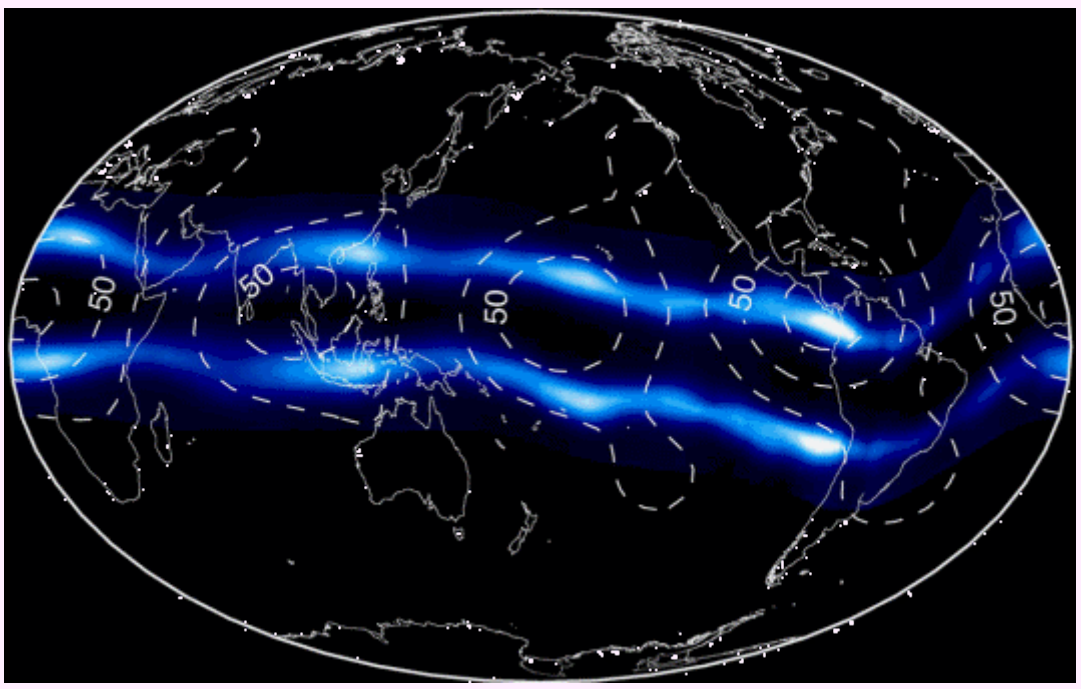
rather unpleasant circumstances to look forward to. Thus, the technology for indoor agriculture, which comes with the New NAWAPA, may become a lifeline for all mankind in the near future.

Also, where would we get the CO2 from for the required uplift. Smaller large-scale implementations of CO2-enriched greenhouse operations, like those spanning such spaces as the one above, might get their CO2 from carbon-fired power plants. But this kind of pairing of infrastructures has a limit. For global operations the CO2 will have to be gleamed from the oceans, which are by far the largest CO2 emitter on the planet as they contain 50 times as much in volume that the atmosphere contains. The technology for gleaming CO2 from the oceans would fall onto the plate of the university research teams that the New NAWAPA would provide room for, together with new cities and industries, all built up in the Great-Basin deserts where the basalt industries would be located and the world's largest nuclear power infrastructures that would power the new industries.

The case for a power revolution

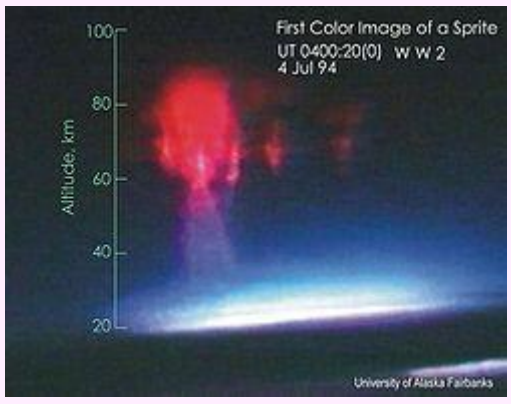
The Great Basin, might also prove to hold the key to an even greater power-revolution.

The Great Basin arena is significant in this context for its central place within the New NAWAPA system. In a global scan, America's space agency, NASA, recently located two bands of large electric currents flowing in the plasma of the ionosphere. The composite image below shows one of the high-power nodes of this system being located almost right over the top of NAWAPA's South American development area. NAWAPA's involvement in this region would give it a perfect base for a new kind of high-altitude power exploration utilizing new types of tethered balloons.



With basalt micro-fibers in the 6 micron range, strong but super-light balloons become now possible that would able to ascent 50 kilometers into the lower parts of the ionosphere where the interface exists between the Earth and the electric power streams that power the sun in an electric arc mode fashion, which also surround the Earth. It has long been known that the Earth is afloat in a sea of electric energy that pervades all space, and which flows in vast electric currents in plasma streams. While this knowledge is disputed by the masters of empire and their corrupt agents that control large segments of science, the proof towards the practical utilization of the existing galactic electric energy is now becoming possible - made possible with the dawning technologies of high strength basalt materials.

The evidence for vast electric fields that NASA has detected being associated with the global current bands, has been seen by billions of people in the form of lightning. Only the connection has not been recognized until the evidence was successfully photographed quite recently of a powerful electric connection between the ionosphere and lightning on to the surface of the Earth.



credit: university of Alaska Fairbanks - credit Eastview

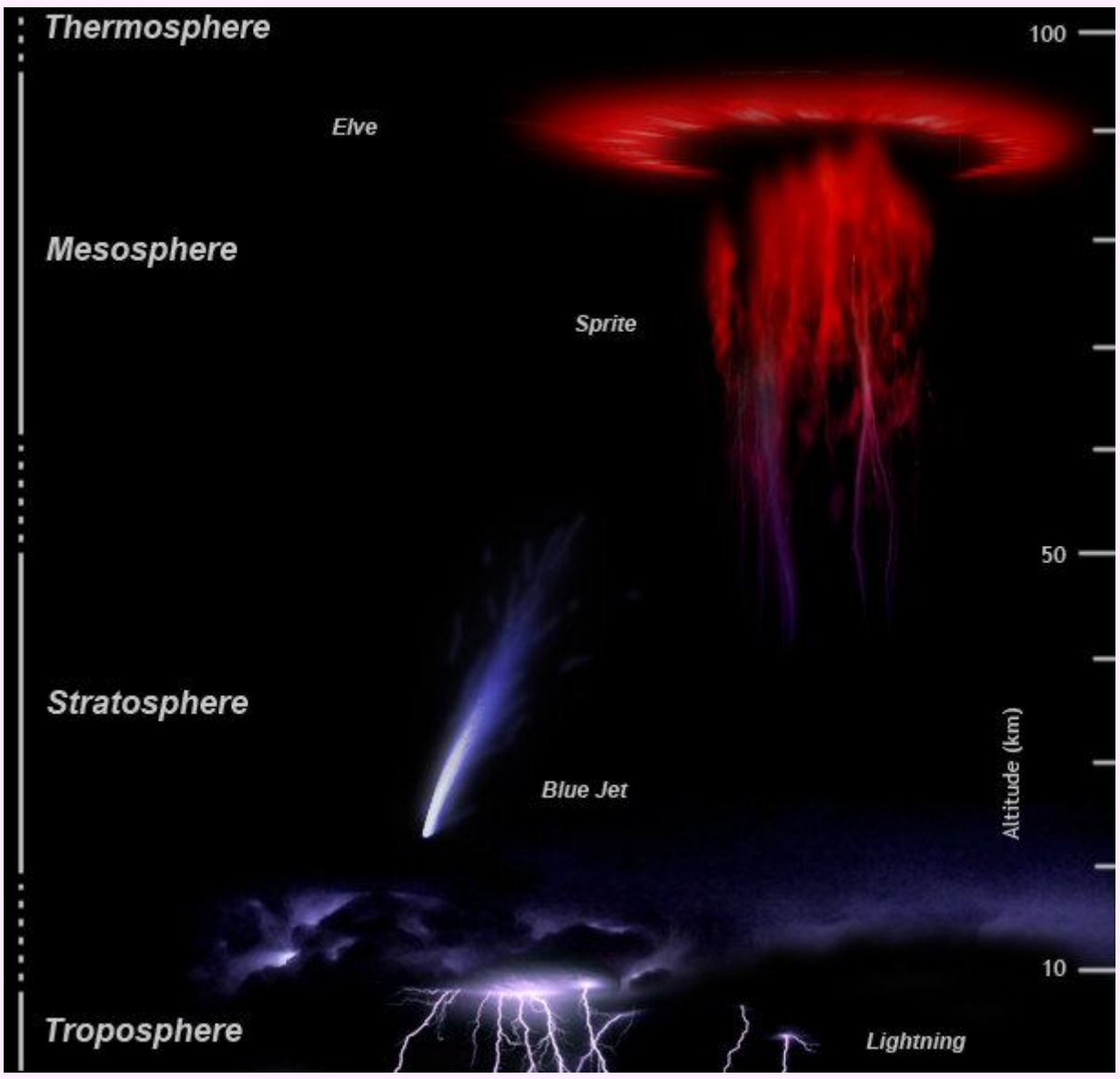


illustration by Abestrobi

Thus, a modern NAWAPA, with nothing but the original objective remaining for uplifting the power of the natural system with natural processes, might open the door for mankind's (now near) access to 'unlimited' electric energy. The galactic power that is available to us is not as energy dense as that which powers the Sun, by which the Sun shines. Nevertheless it is evidently dense enough to meet all of our 'puny' needs of Earth for all times to come.

This is the great potential that the masters of empire have labored hard for over half a century (by now) to prevent from becoming recognized, but which is nevertheless a potential that cannot really be killed. Humanity's grand platform on which it exists is its progressive discovery of evermore aspects of truth. The unfolding of this platform may be choked for a season, but not forever. The evidence becomes increasingly hard to ignore, in spite the thick blankets of mythological perception that have overlaid what is still called, science, and have crippled it natural dynamism.

Mankind's potential therefore exists in the opposite direction, away from the mysticism of empire that thrives by deceptions and outright lies. Our potential exists in the power of ideas, not money. Advanced recognitions of truth have the power to close the door to the dark ages of the past and the terrible limits that old technologies impose that echo through the darkness.

Mankind's place is in the Sun. This means, surprisingly literally, that we are living on a planet that is 'clothed' with the energies that also power our Sun, of which the Sun itself is the most-profound evidence of. (See:The

Electric Universe)

Matching the dynamics of the Universe

On the taller platform built on galactic power, we find the potential to touch upon a type of economics that is itself fundamental to the most basic creative principle of the Universe as a whole. On the surface of our Sun this principle is expressed physically in a process of creative fusion where protons and electrons become intertwined in the density of this power, to create atomic structures that are 100,000 times larger than their parts. This is the platform that the entire Universe is built on, from the smallest atom to the largest clusters of galaxies. A hydrogen atom, the smallest of them all, fits this description physically, as does every other atom in the Universe. The human body matches this powerful dynamic model biologically; and the human being expresses the same model creatively. The end product is the human economy in which the dynamics of the natural model becomes evermore fully and powerfully expressed.

Progress takes off the old shackles from the eyes of mankind. Once these shackles are removed, there is no going back to the toilsome world of inefficient processes. We cannot re-enter a world that has become too small by the limits imposed by inefficiencies. The New NAWAPA must be of a type that aims for a 100,000-fold gain in the living-power of mankind, which thereby reflects increasingly the dynamics by which the Universe itself exists. With a New NAWAPA built on those dynamics, the freedom of the Universe unfold before us. If our eyes are set in this direction we will soon see those dynamics increasingly coming to light in the Great Basin deserts, where this unfolding would be reflected technologically, scientifically, economically, and most of all humanistically.

Actually it shouldn't be a hard task to achieve a 100,000-fold gain in a desert that is a largely empty and barren land, which much of the economic scene in the world has also become in recent years - a desert of homelessness, hunger, crime, poverty, insanity, inhumanity, and diseases that are deemed too costly to address. In comparative terms the landscape below is a rather rich one, considering the humanist dessert the world has become where a billion people live in a state of chronic starvation under the blight imposed by monetarism.

Nevada Great Basin -

Here in Great Basin desert where nothing has changed since the last Ice Age, change is about to begin with the dawn of the new basalt renaissance that has the natural potential to unfolds into a 100,000-fold increase in the power of life on all levels and throughout the world..

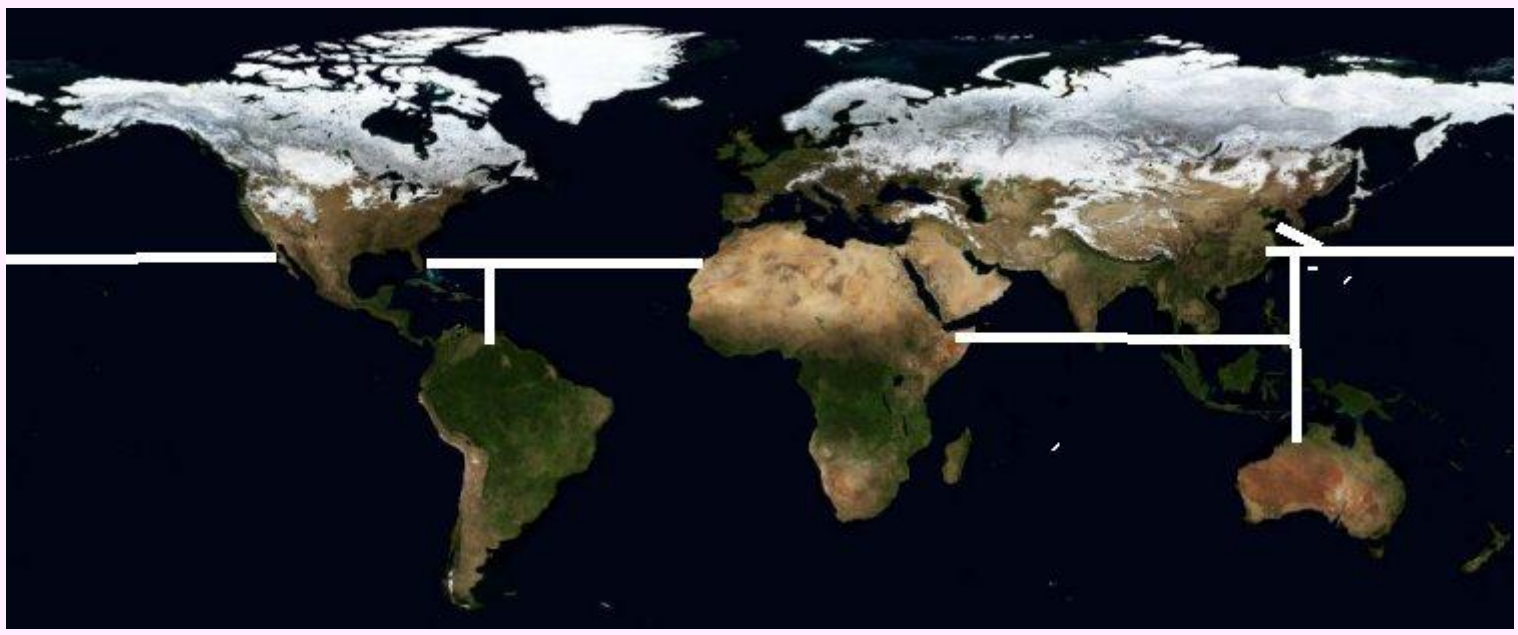
NASA has it within its grasp in the near future to take us to Mars. The Mars shuttle might depart from NASA's future Bonneville Space Port. The shuttle, as an infrastructure, would provide us with a platform for biological research on Mars of a type that we never had, or could have elsewhere, enabling biological development in a higher-density cosmic-ray environment (see: Mankind: Children of the Universe). In this manner, by human intervention with high-technology infrastructures, the biosphere may become enabled to develop its potential far beyond what it may ever achieve otherwise, with it currently being limited to the natural conditions on our planet.

Wouldn't this empowerment of the biosphere with human-technology infrastructures qualify for a 100,000-fold gain in achievement?

Passing the test

Of course, the ultimate test that would qualify us for the grand price, which would be the ultimate measure of achievement, would be found in mankind's response to the coming return of the Ice Age, as has been the case for the last two million years. Will we, by then, have achieved such a great power in human living that the return of the Ice Age return, which may begin soon or might have already begun, will find us responding to it with a smile in our hearts saying, "so what?"

By moving towards this end the entire world will invariably become one, joining hands across the oceans for the construction of the Great World Bridge shown below - a floating bridge with high-speed rail service - all made of basalt, connecting all the continents across the tropics.



Question: What would be easier and quicker to build, a rail line through a 50 Km tunnel under the Bering Strait, connecting the USA and Asia, or the corresponding World Bridge link from Mexico to Asia?

The answer is obvious: The World Bridge link would be easier and quicker to build. The construction would be modular and be produced with totally automated processes. The labor of relatively few people would be involved. And the bridge would be located where the coming Ice Age would have no effect on its structure, some place south of Los Angeles, past the southern end of the winter sea ice. In addition the tropical World Bridge would serve as a backbone for economic development all along the way, supporting floatation-borne agriculture that would be stretching south from the World-Bridge links towards the equator.

The floating tropical agriculture would not be biologically disruptive, as the tropical water are themselves biologically poor, for reasons of them being CO2-deficient. The tropical oceans are CO2 starved, even though the oceans contain 50 times as much CO2 than the atmosphere does. The critical factor in this case is temperature.

More than twice as much CO2 becomes dissolved into the oceans in the cold polar waters than in the warm tropical waters. This is critical, because in the oceans too, the CO2 is critical to life. Marine plants (e.g., phytoplankton) take in CO2 and other chemicals from the sea water in which they live, with which they produce their plant tissues. Microscopic marine animals, called zooplankton, in turn eat the phytoplankton and

thereby provide the basis for the food chain for nearly all the higher forms life in the sea. It is this tightly interlocked dynamic system that renders the tropical waters biologically poor by the fact that most of the atmospheric CO2 that is absorbed by the oceans, is absorbed by the colder waters. The tropical waters are rendered thereby so nationally poor that some whales migrate to the tropical waters where they find greater safety to bear their young, but are unable to live there. The whales must return to the arctic waters, as there is nothing to eat in the tropics that would sustain their large bodies. If they didn't migrate back, they would starve to death in the tropics. The whales know this. The resulting migration is an ancient pattern.

Of course the CO2 abortion differential between warm and cold waters that drives the migration pattern, unfolds in reverse in respect to the CO2 release from the oceans. The CO2 release takes place mostly in the tropics, and not in small quantities, because in the context of the global carbon budget the oceans are the world's major source for CO2 being released into the atmosphere. This interchange cycle is enormous. Approximately 90 to 100 Pg of carbon moves back and forth between the atmosphere and the oceans (a petagram [Pg] equals 1*10^15 grams), which adds up to a volume of 90 to 100 billion tons (the atmosphere holds roughly 750 billion tons of carbon).

What has this got to do with human economics?

The answer is found in the New NAWAPA potential. If some of the release of the ocean's CO2 is being trapped with infrastructures, such as within the floating indoor agriculture system that would soon be located in the tropics, a high-density CO2 environment might be created for more efficient plant growth, without effort and for a more secure biological environment for food production. On this platform we could snub the Ice Age, when it reduces the natural CO2 concentrations to significantly lower levels than we have today, with a presently unpredictable result, and a most likely devastating one. We don't know yet what the prevailing CO2 levels will be in the coming Ice Age environment, but we do know that in a cooling climate the prevailing atmospheric CO2 levels are correspondingly diminished. By developing a carbon-capture infrastructure for enriching the carbon environment for the plants, with such infrastructure attached to the floating agriculture in the tropics (something which modern technologies enable) we would create ourselves a platform for a richly powerful biological environment with such a dynamic environment that the coming Ice Age won't have a significant impact on it.

Living with a failing grade

With a little foresight, the coming Ice Age should not pose a critical challenge, a challenge maybe, but not one that we cannot survive. Unfortunately, modern society has nothing that it can boast about, in the foresight department, as if the future was not an item of concern, whether it be short term or long term. Society has been carefully cultivated that way in order to prevent it from discerning the nature of the imperial dynamics that lead to society's total collapse in the wake of the collapsing world economic system when the empire game plays itself out.

In both cases, the hyperinflationary collapse of its economy in the short term, or the critical Ice Age challenge in the long term, society's response is the same: what lies in the future doesn't concern us today.

We have lost the ability to see with the mind's eye what the physical eye cannot see, in both cases. Thus, such terms as Ice Age, and hyperinflation, and so on, are uttered no more. We are mentally back to the time when sophistry ruled the world, as under Pericles of Athens, and society slept, and then perished as it did in the Peloponnesian War, including Pericles himself. The NAWAPA orientation should generate a wakeup call and put the future back into the present. This method appears to be a part of the key to Franklin Roosevelt's success who made it quite clear in his inaugural address: "Where there is no vision the people perish," referring to an ancient proverb from Psalms.

For as long as the future remains far out of sight, the building of the World Bridge and its related large-scale floating agriculture infrastructures will appear like an enormous challenge, just as the challenge to vacate the corrupted politicians from their offices appears today right across the world and up to the highest levels. What seems so extremely necessary appears almost impossible to achieve, even while the world is

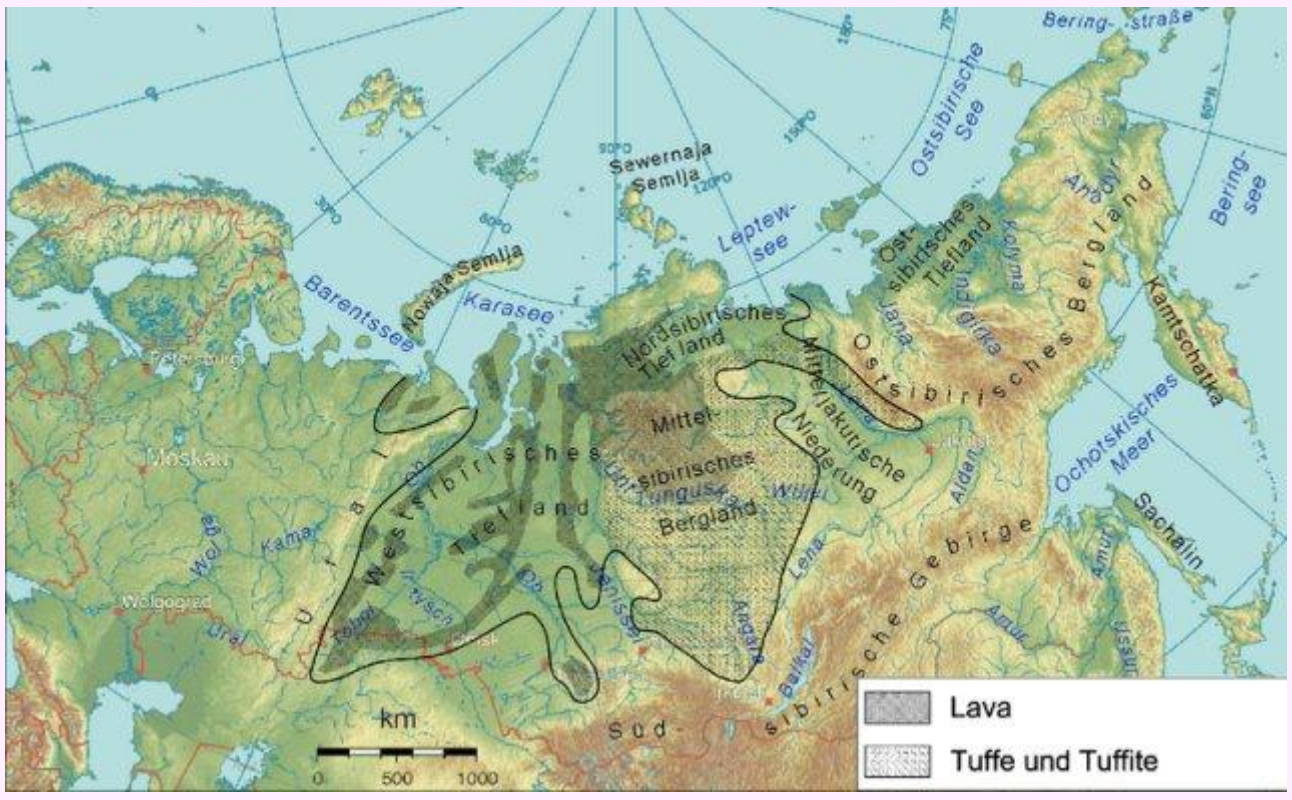
disintegrating by the effects of its prevailing small-minded insanity. The Noosphere has been collapsing, not for the lack of its potential, but for the lack of infrastructures that empower the human dynamics to ever greater powers of achievement. We have become a failing society by this poverty that breeds 'little minds.'

The answer to both tragedies, indifference to hyperinflation and indifference to the Ice Age challenge, appear to be rooted in society's inability to think in high-technology terms. In one case the technology is expressed politically, and in the other case physically. The New NAWAPA orientation has the build-in potential to break us out of this rut on both counts. The first step in this direction, by a New NAWAPA, would inspire society's stepping away from the low-tech 1960's NAWAPA plan that would lock the world up for another half a century into a low-technology prison with little to show for in the end after 40 to 50 years. On this low level of commitment the political breakout would likely lack the required power to become successful.

Of course it is much easier to remain in the familiar 'cave' than to venture outside into the sunshine, as Plato has documented. In the early 1970s some scientists pointed to the exit from the cave and raised some concerns about the coming Ice Age and the need to develop the power to survive the transition. In response the global warming hoax was invented that has no footing in anything real. As time has passed since then, the concern has been displaced with a callous indifference that has also spilled over into the entire political world. But why shouldn't we be able to break this indifference, on do this on both counts? By singling out one aspect while ignoring the other, we deny the principle that applies to both, which gets us nowhere as experience has shown.

The current lack of optimism is groundless

There is no reason for us not to break out into the New Word, with a New NAWAPA that offers free housing produced by automated manufacturing made of basalt; where we divert rivers into the deserts via submerged conveyance systems; build the World Bridge system; create indoor agriculture afloat on the oceans, and more. There is no reason why society should not use and great volumes of energy and advanced materials that lay abundantly on the ground, and built itself a future with them. The USA all by itself has more than 900,000 tons of thorium available to it, enough to power a thousand 1 GW reactor systems for 900 years, even while the world has space based power within reach. And for basalt, the scene looks even richer. The Columbia River Flood Basalt province may be huge in size and volume, extending across several states, but in global terms this province barely make it to third place. Russia has a far bigger deposit available to it, the biggest of them all, the giant Siberian Traps that extend from the Ural mountains all the way east to the Lena River and from the arctic ocean in the north all the way south, almost to Lake Baikal.

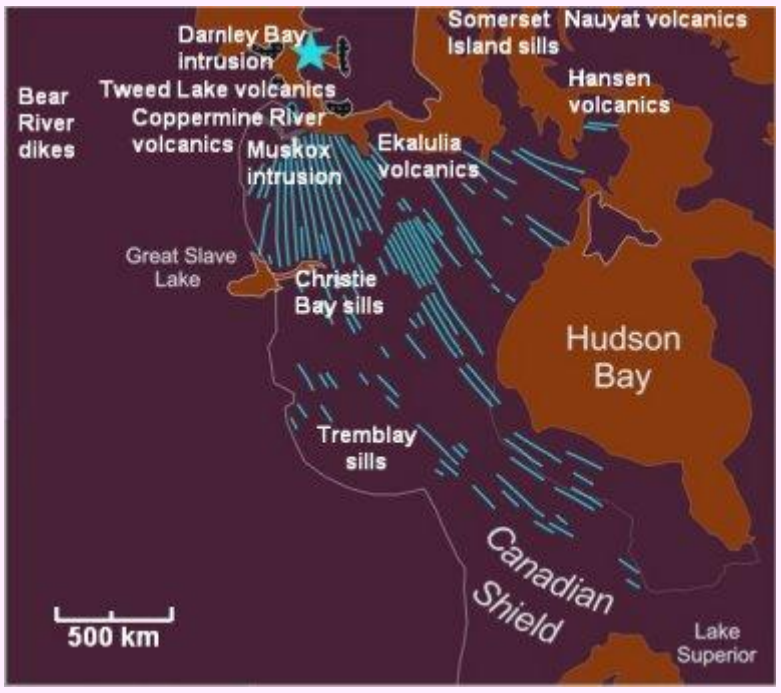


Siberian Traps flood basalt province

The Siberian Traps extend across 2 million square kilometers – an area roughly equal to all of western Europe.

The basalt volume there is estimated to range from 1 to 4 million cubic kilometers. All of this is 100% usable high-grade industrial material. Are we still thinking small?

The second-largest flood basalt province is located in the Northwest Territory of Canada, named the Mackenzie Large Igneous Province.



Mackenzie Large Igneous Province

It exists as a 'swarm' of deposits that occupies an area of at least 2,700,000 square kilometers, containing a basalt volume of 650,000 cubic kilometers. Its enormous expanse makes the Mackenzie Large Igneous Province larger in area than the entire U.S. State of Alaska., and also larger in volume than the famous Deccan Traps in central India that consist of multiple layers of solidified flood basalt that together are more than 6,000 ft thick in some places and cover an area of 500,000 sq km (193,051 sq mi). The Deccan Traps contain a basalt volume of 512,000 cubic kilometers (123,000 cu mi). The term 'traps' in the name is derived from the Dutch word for stairs. There is enough basalt in these provinces to cover the entire land area of the Earth 50 to 120 feet deep, depending on the estimates. This is more than ever be used. So, why shouldn't we start using the best that we have to built our new world with?

Is there anything more that we need, in terms of high-grade construction material than what presently sits unused on the ground? Are we having hope yet?

My point is, we have no reason to wallow in cultural pessimism, bow to poverty, grovel at the feet of empire. There is no reason to be satisfied with anything less that the greatest imaginable cultural optimism. Just imagine, a world without empire, without homelessness, and without starvation, with food being produced without limits. Yes, all this takes us back to NAWAPA. The once deemed great water transfer projects of the 1960s looks tiny in this light and rather silly in modern terms. But the idea behind it, its orientation, still stands tall as symbol of cultural optimism that in those days was strong enough to 'move mountains.'

Thinking big

We have plenty of reasons also to think big about water, and this bigger than ever. A great volume of fresh water, as much as 70% of all the fresh water in the world lies now within our reach by means of high technology, if we were to desire it. It is located in Antarctica and in Greenland. Its melt waters from the great ice fields, in the form of rivers that run into the oceans, could become the tap water for tomorrow in every city and on every continent, eliminating all the bad waters, or lack of water that has plagued many parts of the world for ages. We are about to enter a world that, if it wakes up, will enshrine the basic right to sufficient high quality water, food, and housing for every human being in the world, in its World Constitution. Why would humanity be satisfied with anything less? Thus, here too, there is room in the world for a 100,000-fold improvement. Why shouldn't we aim for this when we have the means already in our grasp to get us there? And why should we tarry? The time for thinking small and demanding too little is fast fading into oblivion, out of necessity.

Rolf A. F. Witzsche

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