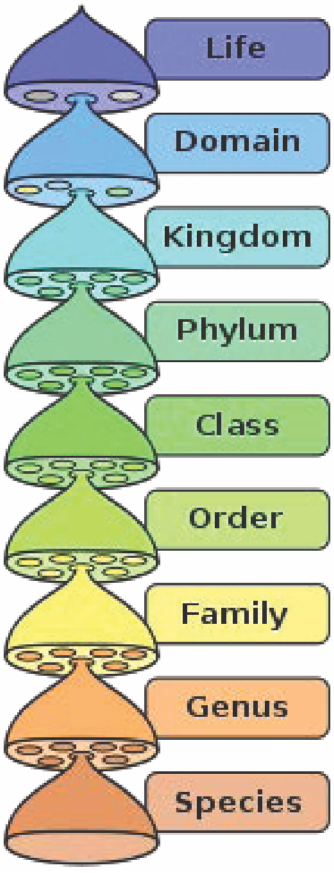
LETTERS - TRANSACTIONS

By: Pierre A. Mandel



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Transactions in Leukemogenesis - Cancer:

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The purpose of this article, is to outline new answers, to retro-viral immunity, basic medical science of cancer biology, and to open new venues to treatment of the afflicted, and preventative vaccines. The subject, and research pertaining to the retro-viral restriction, concerns dynamic conferral of said venue as a new form immunity for unafflicted organisms, is discussed. A vaccine using retro-viral half-shell bouts, will prove to be one avenue of prevention of infection. Using "bout-derived immunity", from X-ray deactivated virus; said demi-shells, find successful applications in retro-viral immunity. Retro-viral vaccines, are already in use world-wide, and the dynamic for immunity is the same as those already in use in hospitals, throughout the western hemi-sphere.

Lymphocytes, have their beginnings in the marrows of bones. Lymphocytes migrate and accumulate to the thymus organ, the white-blood heart. The premature thymocyte migrates, from the bone-marrow to the thymus. There it develops into the mother-leukocyte, or the agranulocyte, divides into monocytes, killer t-cells, and many other leukocyte derivatives, lymphocytes. With age, the thymus reaches maturity. With further age, that organ recedes in size, reaching its minima, at the time of death. The lymphatic system has often been compared to "fountain of youth" organ within the human body. The lymphatic system can also be likened to life's clock, for many of Earth's life forms, this is true, e.g. mammals in general. Any tampering or pollutant, would, by analogy, stopping life's cleansing subroutines, shortens life-span quickly. Their over-activity soon erodes the foundations. A biological parallel lay in the outer coating of slime, on the body of any poissonal fish. The destruction to the slime of the fish, is, by analogy, destruction to the immune health layer/synergy. Once the protective layer is compromised, opportunistic invasion, and infection ensues.

There are many theories where, and how, leukemia, and lymphoma are contracted. Exposure to both deleterious x-rays (ionizing radiation), as well as, overdoses of particle radiation, from gene-deletion alone, can induce the disease, The LD50 exposure is nearly 650 rads. More, leads to death. Sun-bather's sickness from x-ray exposure, is well known for causing melanoma in white(s), and is second in place, to developing lymphocytic sarcoma(s) of all types. Some chemicals, are also, teratogenic.

The four types of general erthrocyte histological typology include: A, B, AB, O; are either: Rh (+/-) as antigen format. Leukocyte histology is of HLA-A, HLA-B, HLA-C, and HLA-D; either RH(+/-) 1-18. Their ratios, i.e. Red Cell count / White-Cell count, stays constant for most individuals, i.e. gender specific. Lymphomas and leukemias, both have greatly elevated white cell counts. Hence, often they turn against "self", often consuming the host in this way. The AIDS retrovirus, is destructive, to the white blood T-cell. This differs from typical lymphoma/leukemia. Hence, the AIDS molecule is lysogenic, and acts morbidly to the leukocyte cellules, similar to the way in which the erythrocytic malaria pest, consuming the red-blood cellule, inside out. Not only does red-blood histology need to be considered before transplant/phlebotomy, but also white-blood histology, for any treatment/transplant/transfusion regimen. Methods for sarcoma treatment, have included body exposure to UV light, as well as blood warming, to kill off and cleanse, the blood of high-titre retro-viral populations/concentrations.

Heat treatment (hyper-thermia) of the blood, applied as a therapy, works from the fact that all viruses are heat intolerant. Already hyper-thermia patents, have been awarded for the treatment, of genital herpes, as well as Hepatitus A,B,C,D,E. Recommended treatment temperature is within the $> 37.0 < 39.1\, C^o$, limits, and in a step-wise, gentle departure/return to normal: $37\, C^o$, basal (BMR) body temperature, on-day, off-day, regimes can be accompanied, by longer run times, two-hours, two-days, and two-weeks, designed to mimic, and successfully reproduce a course of mild fever; now known to deliver the same viral LD effect predicted, direct linear decreases, that is trackable as a linear mathematical decreases for typical eradication always seen in vitro, charted and predictable, as such, and routinely, and disappointingly so,

always ignored; the Pasteur break (results), in the lab studies, we wished for, discretely follows that same scientist, is always ignored; since recorded laboratory virological sciences began in time > 20 years ago. Hopefully, the Dairy industry won't change their way, due to that fact.

Course/progress for in-vivo LD100 retro-viral titers, given all random/normal genetic mutation leaps, all the LD100 is reached, at $2C_o$ above $37C^o$, normal for most mammals. Increasing temperature, and time of exposure, risks damaging the host organism, is not advisable, over treatment time expediency, in any way. Most of the attrition is due to too rapid a of an ascent/descent from normal physiological basal (BMR) body temperature. How to achieve this pharmaceutically, would be a test for pharmacology, and physician alike. There are none to date.

There are at least 8 ways to inactivate retrovirus in the laboratory, i.e. UV, Heat, X-ray, Soap, Alcohol, Ultra-Sound, H2O2, and NaCl. Conversely virus of any kind can be frozen, however, without affecting their virulence. Most lymphomas as well as leukemias are derived from genetic deletions, environmental sources are most common, usually are EBV analogue mutants; while differing in leukocytic target cell phenotype; all show EBV positivity from immuno-flourescence. By example, a typical EBV infection is monocytic lymphoma (mono), renders its victim with tremendous fever and weakness. In a typical population of victims, the fever occurs in 30-40% of them. This lasts several weeks (4-6 weeks), with fevers developing to $39\,C^o$, or more.

The fact that fever is causal for cure, has as saving fulcrum, the fact that EBV retro-virus infections, those which fever find cure, those which do not fever, never recover. From virology 99.99% viral and retroviral capsules, attrite from 1-2 degree increases in temperature, mutants included. Furthermore the kill rate climbs to 100%, linearly decreases with time, stopping on zero titre, and which never returns. The claim that total eradication, is also true. This is true in the lab, for both UV, and temperate-warming; these two forms of sanguine treatment are very effective and cause no genetic damage to the hardier cellules and organnelles present in common blood. Sanguine warming can be an effective avenue for treatment when administered early, and correctly.

The ones that do not develop a fever, remain infected and thus weakened for the remainder, face soon attrition, from life function. Evolutionarily speaking, virus can proliferate without inducing fever, better than with inducing fever. The same is true of retro-viral radiation leukemia virus, as well as retro-viral AIDS. The mechanism for X-ray radiation induced sarcoma(s), such as leukemia, is due to the fact that the ionizing radiation causes genetic deletions, causal for release of the radiation leukemia virus, as a departure from a normally inhibited modality, then flushed from the cellule, by the white leukocyte, is then cleared fecally. Introducing a virus becomes through anal high-risk sex, (AIDS infected ejaculatate), or through infected blood transfusion, by-passes the gut, thus the introduced virion will naturally cross the osmotic rectum membrane-holes leading into the blood-stream, hence the host becomes sick, after the virion passes the rectal osmotic membrane system, and succomb while never developing Pasteur fever-killed virion. A condom will prevent this trnasfer from occurring, thus those who use these typically don't succomb to STD's, their disease their weakening conditions, and are thus protected.

Chron's disease sufferers can succomb to a similar fate; the osmotic holes are too large, typically. The cure lay in the ability to regulate the osmotic intestinal wall pore-aperatures (see skin pores). Retroviral RNA/DNA have a low barn/dalton size, and more importantly are also temperature sensitive/fragile, and easily decompose with mild heat treatment.

Infection occurs typically from poor health habits and/or trauma, accompanied by immune incompetence, temperature at BMR, leads to system overload, disability from multiple diseases, which easily multiply, no check in sight, keeping the host-door open invites more, any host candidate will do. The disease vector is non-discriminating, except by genus/specie/temp; are the most common reason, for onset, contracting these maladies.

There are theories upon theories, for the differences/origins of common virus, retrovirus, endogenous, or exogenous, in origin. Some think that a host carries the virus, as a deactivated side-car, to host cellules/nuclei. However contracted, one fact remains certain; unless vaccinated, those who fever, will always survive, those who do not, are more likely to perish. Insulation from germ challenge, X-rays, particle radiation, decreases this risk manyfold, making leukemia/lymphoma preventable noting these easy precautions. One poor-man's leukemia prevention, from X-rays, was to cover at least one limb-bone, with leaded (Pb) exersize weight(s); common practice in modern dentistry. This will also prevent sun-bather's sickness.

For current carcinoma rates, their linkage is direct, with the level of cancer directly linked to the length of exposure to automobile exhaust. The more one drives, the more exposure there is to those toxins. To the extent one does not drive, the risk goes down, directly, as well. The cure will lie in the study of stem cells. They are, by their early development, natural tumor makers. As an assay, they represent the potential as a test for "turned-on" abrogation; to detect a "turn-off" candidate additive, i.e. a turn-off drug, or bio-agent. Thus the stem cell biotechnology easily lends as an anti-transformation assay. The cure for transformation will also be found using this form of assay, as well as the more severe, metastatic, and blastoma cancers, as well.

Furthermore, new technologies are needed to fill the Pasteur level science gaps. Namely, advances in "Skywalker" level ultra-modern prosthetics for war causalty populations. Secondly, robotics must replace live soldier actives. Third, nerve-blockade deblockers, limb-growth factor blocker/deblocker endocrine key developments must meet/make market as fast-track FDA candidate bio-agents. Fourth, regarding metastatic cancers, the immortality-reproduce endocrine bio-agent can be blocked, also through pharmacy and formulary. The same applies in the leukemia/lymphomas, always treat first with fever reproduced/induced through tool/formulary.

The 'No-Vacancy' bout-derived restriction mechanism is simple. This approach is also colloquially known as the poor man's locksmith method, viral bout-technology insulate a target cell by locking out full-body virulent virus at the cellular membrane level such that retro-viral cellular entry into the in-vivo system is blocked. This is mediated by occupying the hemi-acetal chair in the anti-genotropic receptor of bio-protein; lays in-situ with a typical cell's outer membrane. This implies that other virion bout(s) could be a method to uniquely effectively de-activate and protect the channel-protein doorways to the cellule's genetic nuclear engine, from infectability. Still further the restriction to access the cellule's genetic code may be similarly protected by similarly immunizing the nuclear membrane from infectability.

A bout-producing plasmid product, could be used also, to protect the nuclear membrane interior, in any eukaryotic host; thus potentially conferring restrictive immunity at that genomic operon level, for any individual. Reversal or abrogation of restriction based immunity in any in-vivo subjects, can further the knowledge field, also. Typically, abrogation connotes restriction from infectability, and any iterruption from this state, as a phenomenon. Abrogation is used here in reference to durability / strength of immunity parsimony, to the end point of fragile retro-viral RNA-DNA deactivation. Deactivated shell-bouts, typically centrifuged, selectively microfiltered, confers traditional Ig immunity, as a vaccine. All these things are essentials in protocols, for bout-based vaccines, and inoculants.

Virological RadLV is a useful tool for study. EBV, HLV, HIV, HPV, and WNV, can be heat treated as a first-line defense remedy, provided the patient is hardy, and not gravely infected, and not mentally ill, (suicide risk). Sterile technique is critical, due to the return routing of the blood after warming. The technology already exists, e.g. surgical units already have Thermal-Angel/Microwave-Thermal-Therapy machines to warm-up refrigerated blood, before transfusion. Typically such can be used to initiate in-situ in-vivo "blood-warming" as a retroviral reduction tactic; is, by analogy, a method of "tenting" pest eradication from a form of insect. The typical pharmaceutical AZT falls short of "blood-warming" much as use of a can of household chemical pesticide can cure a termite or cockroach pest infestation, in the "body" of an afflicted home.

The same temperature sensitivity can be used as therapy and represents a form of Pasteurization for retroviruses of all kinds and types, including all TS mutant populations, (temperature sensitive). Any rise in temperature of one degree or more completely eradicates all viral populations long before mutant virions have a chance to form, i.e. mutants take many generations to form. This thermal treatment can be readily applied to infected in-vivo subjects with pharmaceutical fever inducers with a 21-day fever treatment regimen, spread over 30-day hospice stay, will completely eradicate the infection, and the disease. Included in the protocol is concurrent administration of aspirin, low dosage heparin, or a vitamin K clot-blocker shot to avoid stroke and potential clots, as sometimes accompanies a viral fever type immune response.

Regarding the spiroplasma spongiform (sans cell wall), plasma bacteria, commonly known as "Mad-Cow" disease, is known to originate from the bovine food-gut cycle where it is found. Also the form found in the feed, is the same strain as that found in Corn Stunt Disease, and Citrus Stuborn Disease, per plants. The bovine form would be cured by thermal, or fever therapy. Provided a suitable pharmaceutical fever-inducer is found, the spongiform, which thrives at: $30^{o}C - 37^{o}C$, higher basal (BMR) body temperature of 1-2 degrees C, rids the host of the prokaryote parasite. The feed itself, through pasteurization will prevent this, as well.

Typical patient regimens would include a 30-day in-hospice/hold-stay. Once other formulary based protocols have been developed, they will serve the surgical phlebotomy devices are already devised for sanguine warming. A two-hour treatment period(s) are the limit for blood warming therapies. After that an immune response wall develops, and therapy is usually discontinues when that point is reached. This is due to the histamine build-up, and can be mollified by concurrent anti-histamine pill administration to thermal therapy. Patient controlled temperature settings should circumvent harm. Sterile equipment is a must; a prophylactic anti-biotic shot as assurance. Developing a machine that can perform both tasks with sterility (UV and blood-warming) is imperative, i.e. Bair Hugger or Thermal-Angel/Microwave-Thermal-Therapy, is common surgical unit equipment. Those machines are used to gently heat refrigerated blood for transfusion, so that the warmed blood doesn't cause a heart attack to the recipient, were cold blood transfused into a patient. These hyper-thermia techniques can also be used to decontaminate tainted blood. These should be goals in the treatment regimens for retro-viruses in general.

Fever therapy or blood warming excels by denaturing retro-virus by focusing on their temperature sensitive nature. Temperature sensitive mutants are a rare event. Overall, a 2-3 degree fever using a blood warming device, and working much as the UV blood screens, meets with linear decreases in virion titre, and is a function of temperature and time of exposure, at therapeutic temperature. The di-sulfide bonds go first, then di-carbides; these long-chain bonds easily degenerate with temperature. Then, smaller proteins of retrovirus, un-ravel first; de-activating them, loosening their tertiary conformation. Freezing temperatures preserve them however, and virions do not lose their infectious virility from freezing. In fact, the practice still is to store them in liquid nitrogen. Presented below are two equations that depict the effect of both warming and UV, each have LD100 as linearly decreasing functions, and both easily achieve zero live virus titre as a direct function of time and temperature. This is true for UV blood therapy which should precede blood warming; this is especially true for the AIDS afflicted; the weaker subjects do not tolerate blood warming. In such subjects UV blood treatment therapy, should precede blood-warming therapy. Both treatment modalities is a natural choice front-line regimen for retro-viral infections of all kinds. This will be helpful for the AIDS patient population directly, and in the field (Africa) restriction-based vaccines may be a medicinal regimen one day, much as Hepatitus vaccines in this day.

The theoretical break through in UV short-wave radiation as it applies was discovered in 1979-80 by this author. Live retro-virions which easily cold temperatures cleave into two or more parts when exposed to long-wave UV light. Thus as discussed mathematically below, the LD100 is easily achievable even with dirty non-filtered supernatants; is a linear function with time, and leads to 0% live viral titer-counts, even in sanguine blood. This can also be used as a method to cleave retro-virus and collect the still bio-sticky shells after being separated from the retro-viral RNA/DNA. This has been the practice in laboratory for some time. As mentioned earlier attachment of "half key-bout" virion shells which can render an organism

neutral to infection through restriction based immunity. Occurring at the agranulo, mast, and/or lymphocytic T-cell level, narrowing in on the parsimony of complete and reproducible immunity is the goal of this scientist at the basic medical sciences level.

As a field therapy - treatment method, would resort to moderate temperature treatment, using a distillation apparatus to treat the blood. Such a system would distill water, and use the blood as the cooling jacket liquid, thus gently heating it; maintaining heat for the requisite period of time, as determined by formula. Conceivably, two water (H2O) distillation apparatus could be hooked together, the output of one would feed into the other's input. With monitoring, and feeder and collection drip IV bottles, at the correct height, the system would work by gravity alone without strain, however the treated blood must be returned to the patient, at basal (BMR) body temperature. This form of pasteurization of the blood, is used to eradicate retro-viral infections of all kinds. This has been true for the warm blooded, for a long time. Victims of murine, feline, simian, or human viral infections, can with proper technique, achieve this treatment goal. The virion LD equation for this kind of thermal therapy, is as:

$$i).\ \int_{t_i}^{t_f} k\,\Delta T_{temp}\,dt = k\,\Delta T_{temp}((t_f - t_i) + C_i)$$

$$ii).\ (-)\int_{t_i}^{t_f} k\,\Delta T_{temp}\,dt = k\,\Delta T_{temp}(-)((t_f - t_i) + C_i) = k\,\Delta T_{temp}((t_i - t_f) - C_i)$$

$\Delta T =$, the value of temperature difference. $t_i =$ exposure time. $k =$ the constant of proportion. $C_i =$ the constant of integration.

The virus titre is the sign negative of the linear increasing function, thus, linearly decreasing. Similarly, UV(hv) photon energy may be substituted for temperature differences in a similar way, i.e. using a constant of proportion.

Part II

By now, bi-energy hybrid systems will soon be available from the automobile industry. Simple electric rear axle combined with fuel efficient production 3-cylinder 2.3 litre H_2/ETOH fueled internal combustion engines with front wheel transmission systems; can be offered in ETOH or LP electric featured switchable all-wheel as a vehicle option packages using ETOH/Electricity based, dual-green-mode, hybrids, with 4 x 4 all-mode drive automobiles. These may solve the fossil fuel dependence with their toxic emissions, as an energy source for surface transport. Such a hybrid systems preserve the internal combustion engine design, offering two pollution-free options and modes (Low-Chain Alkane, and Solar Electricity). Alternatively, single under front hood uni-motor hybrid electric turbine engine systems with shaft 4-wheel drive. The back would utilize LiFePO3 high voltage batteries. A model of this design was offered originally by Chrysler Motors of Detroit, Michigan, in 1967; could on nostalgia be re-introduced as a hybrid ETOH/Electric. ETOH/Electric hybrid systems are pollution free, CO_2, H_2O, and O_2; are easily solar power adapted as green energy hybrid options. With car-top mounted solar-cell technology; boasts full-charge in as little as 2-hours time. This adds to time between liquids refueling. As close to the solar disk as Earth is, that energy will always be present/tappable.

An ETOH based combustion backup engine hybrid with an electric back-up system, provides the best combination for pollution free performance. ETOH has such a small profile hydrocarbon (2-Carbon chain)

footprint that there are no pollutants when used as fuel. This combination would cover all weather contingencies, warm/cold dual-mode, all green-powered options. By switching fuels to ETOH/Electric, the entire long-chain alkane - benzene production cycle is avoided; with no losses in power. Trucks do well with ETOH - plenty of power.

The catalytic converters of this day, are producing more odorless exhaust/pollutants, but they are over 10 times as carcinogenic as those a decade ago. This is entirely due to the de-activated benzene rings formed from long-chain alkanes such as Iso-Pentane, Octane.

As such the arene electronic resonance forms a kind of chemical saw, whose action causes deletions in the long-strand DNA. Genetic deletions almost always cause cancer, usually by lowering DNA repair scores. The only way for the body to metabolize is to reduce the arene ring to an aliphatic form, precursors to the Kreb-cycle 6-carbon glucose metabolic pathway; using buffered acid preps such as aspirin, or strong dose Vitamin C.

In development is a said catalytic converter whose goal is to convert: CO_2 -> O_2, to treat exhaust "greenhouse" emissions reclaim Oxygen, of all types of input oxide forms. This method can be used to treat coal fired power plant emissions as well as car exhaust. This is accomplished by extracting Oxygen using the nucleophilic substitution of alkenes with exhaust carbon dioxide (CO_2); could occur by acid catalyzed michaelson addition across the double bond used industrially as a method employing a common gringard type of phosgene reaction. Re-calling the "Hay-Gas" reaction with phosgene, carbon dioxide, hydrochloric acid, and water, catalyzed by acid, can absorb CO_2, produces a graphite and oxygen as end-product. Hot KMnO4 could catalyze the oxidation of the phosgene alkene to a diol; followed by reductive ozonylation to produce the carbon graphite alkane end-product. This would repeat itself as a 3-part cycle.

1). 1(C=C-C=C) + (2CO2) + HCl -> (02=HC-C-C-C-C-CH=O2) + KMnO4 + Zn/Sn/Pt -> 1(C-C-C-C-C-C) + 2(O3) + hv + H30+ -> graphite + 2(O2) + 2H2O.

2). 1(C=C-C=C) + 2(CO2) + HCl -> 1(HOH2C-C-C-C-C-CH2OH) + KMnO4 + heat + Zn//Sn/Pt -> 1(C-C-C-C-C-C) + 2(O3) + UV(hv) + H30+ -> graphite + 2(O2) + 2H2O.

3). 2RMgX + 2CO2 + HCl -> 2RCOOH + HMgX + KMnO4 + Zn/Sn/Pt + heat -> 2RCH3 + 2(O3) + UV(hv) + H30+ -> 2RCH3 + 2(O2) + 2H2O.

4). 1(OClH-C-C=C-C-HClO) + (2CO2) + HCl -> (O2=CH-C-C-C-C-CH=O2) + 2HCl + KMnO4 + Zn/Sn/Pt -> graphite + 2(O3) + hv + H30+ -> graphite + 2(O2) + 2H2O.

This cycle repeats, forming the butadiene, recycling by reducing common greenhouse gases; releasing and thus renews life-giving O_2. Another method to produce Oxygen from CO_2 (Carbon Dioxide), is by using gas catalytic separation into carbon-graphite and O_2. By the said "Hay-Gas" chemical reaction involving phosgene reduction of the oxides of carbon, sulfur, and nitrogen, into graphite, free molecular Oxygen, and H_2O. This will make difference based upon how efficient they are at reducing ambient free radical dioxides, into free molecular Oxygen. Presumably by their third and fourth design generation, subsequent required phase-ins, could turning around this trend. Aiding the fight greenhouse gas reduction through this catalyzed reduction converter one day will reverse the trend of atmospheric molecular Oxygen depletion, into a replenishment modality. This would have popular public appeal, too.

Due to the huge burning of fossil fuels and the advent of the automobile with the care free notion that "buy a car today while the Oxygen is still free" became a strong selling point for such vehicular ventures; particularly inspite of alternative Solar/Electric. They were unaware of the collateral damage that occurs, in

terms of the parallel advent of some carcinomas (cancer); the equally sudden appearance has never reversed itself. This has been shown to parallel decreasing molecular Oxygen levels on the bio-sphere are at a 50% depleted level due the the internal combustion engines around the world; operating day after day for over 100 years. By treating these gases, and freeing up the molecular life-giving Oxygen in them, by chemical reduction alone is along the same lines as which occurs from the plant population's biospheric reduction into sugar(s), with molecular Oxygen release; is parallel in chemistry. Whether Man-kind can out-wit their own extinction from suffocation by doing as the plants do, would depend upon any one Units individual scientific focus to find a solution to the problems of the day, taking on this responsibility has been shown at the individual entrepreneurial leadership level. The Cadmium Selenium based solar-cell technology have been superceded by LiFeSO4 and LiFePO4 based technology allowing higher voltages to be achieved. Companies are already trading with 1000% increases in their stock; shown to soar upon IPO.

Reducing the dependence on foreign oil can be reduced 90% with switch-over to a fully Solar/Electric based energy economy. No-terrorist can interfere with the nor sabotage the Solar source; additionally such technology rescues terrorist nations, from the excuse that dabbling into nuclear atomic science for energy purposes. Thus supplying the electrical science, and denying the nuclear science, two objectives in the Mid-East, are achievable with one stroke of technology, and two, from a pen.

Until fully electric automobiles come online, additional alternatives per said Carbon dioxide reduction systems, potentially catalyze Ozone-Oxygen conversion; Ozonylation by acid catalyzed condensation-reflux, is central for molecular Oxygen production - the final part of gas processing. Ozone as an tri-atomic element becomes a health hazard, due to its free radical basic nature. The development of such elemental catalytic Oxygen producers, from CO_2, could answer Earth's now critical need for these soon depleted, life-giving gases, inventing new devices for atmospheric Oxygen level replenishment; levels less than 6% become non-viable, for the animated life-forms.

Oxygen hungry fossil fuel burning cars, are the primary source of Oxygen loss, and greenhouse gas production. As preventative measures, car-tops and house-tops could also be made X-ray proof; home/car Oxygen levels could also be augmented through the added input of O_2 tanks. Perhaps there will be a day when terra-forming of other planet's atmosphere gases could occur using these chemical pathways. The atmospheres of other worlds will always be a function of 6 or more elements, most common from the stellar sources terrestrial worlds stem from, are namely: (Carbon, Oxygen, Nitrogen, Hydrogen, Sulfur, and Phosphorus). Converting the oxides from these elements to release O_2, viable Oxygen can be produced for example, with an extraterrestrial bio-sphere (Venus/Mars).

Molecular Oxygen (O_2) is Earth's natural disinfectant, and anti-teratogenic. This already is old world knowledge. The reduction of global Oxygen content measured as atmospheric partial pressure, percentwise has decreased from 32% in 1932, to half that amount in 2005 (16% O_2).

Epidemiological cancer rate increases, in many cases, have been demonstrated to be Oxygen/Pollution related (Nobel Prize of 1932); as such increased carcinoma rates, have been linked to metropolitan areas with gross air pollutants, composed of both poly-arylated, Platinum catalysts, and hydrocarbon by-products, are teratogenic to the genome, in destructive order. The heavy-ion nucleus (Pt,Pb,Pu) are so large compared to genome nuclei, by weight the introduce crushing blows to lower atomic number element nuclei of an ordinary DNA-type genome. Such "Pollution-Pretzels" producers can be eradicated from the Bio-Sphere's transportation systems, through the use of low-chain ETOH/Propane-Butane hydrocarbon fuels, instead of longer chain "isopropyl-pentane as -> gasoline-octane". Such long-chain alkane combustion form arenes (arylated benzylene rings) as waste products and are non-biodegradable, and non metabolizable by the body. The body has no way of digesting benzylene analogues. They accumulate since they cannot be digested. They are unsaturated arylated precursors to styrene, nylon, and other PCB's. They do damage to cellular DNA, and are thus carcinogenic. Luckily, through the use of oral doses of aspirin, these in the body, can be metabolically degraded, through regular doses of aspirin; reduces some carcinomas, too. For the aspirin intolerant, stronger dose, natural sources, for Vitamin C, grapefruit, citrus drinks, are still,

highly recommended. All of these work by saturating pollutant's double bonds formations, using the protons from those mild acids. This appears to be one popular pathway, for their degradation.

Conceivably, by refining Oil and CNG Geo-gases to form ETOH, would alleviate and by-pass the food route, i.e. fermentation, to produce that fuel. Also with ETOH, no retooling need occur, the same carburetion atomization, is preserved also. Noise pollution which accompanied the internal combustion engine could decrease by 50%. Heat pollution also could decrease by 50%. Electric car solar panels can also use conventional electrical-outlet bars, could virtually replace the filling station which would apply for longer journey ETOH fuels. Long-term surface travel could eventually be be a Trans-American, solar-powered experience. The on-board internal combustion 3-cyl engines meet greater horsepower that a hilly surface requires.

Foreign-oil imports are financially crippling economic factors, which have led the USA as a country, to their financial doom. The western developed nations must switch over to Solar power. The nations that do will survive financially, the ones that don't, won't survive. Electric-Power is the next big wave of the future, after the information age, which succeeded the iron age. Solar panels are used to re-charge rechargeable batteries, and can be power converted to AC by inverting it; during parked car conditions; full-charge occurring typically in 2 hours from empty; is easily achievable; the same can be used for work site electricity. Solar cell panels covering rooftops can power the work-site building electrical needs for free. This is also true for residential housing units. Green energy will enjoy more job growth, and expansion than the that, of the fossil-fuel energy sector.

The photo-electric effect bridges the gap by displacing the electron with the momentum of the photon, displacing it by inelastic collision, thus creating current. The transfer is energetic, trapable, and is also known as the Compton effect. Power-cells, of all types and kinds, are available at retail technology counters around the world. Atypical, LiFeSO4 and LiFePO4, high energy UPS systems will replace NiMH; dry lead-sulfate battery UPS power-systems which already store day-time line energy for low power night-time use.

Electricity from Solar power does not deplete life-giving molecular Oxygen. The Geo-Wind option could easily find their niche near coastal environs, e.g. sea coasts, and/or great lakes. The Solar-Cell photo-voltaic effect technology, will soon lead as sources of green-energy; needing monetary incentive for all typical drivers yearly, as to include an Oxygen friendly green-energy Solar/Electric car rebate, e.g. free-yearly-registration, combined with a fossil fuel user registration would in this switch-over scheme, carry a stiff yearly Oxygen-use greenhouse-gas producer tax. Road tolls, albeit un-popular, between cities increases revenues as well as increase intrastate security. Solar-power farming with Nickel Cadmium / Selenium Oxide photo-voltaic solar-power-cells panels can produce paychecks for the farmer during the winter months, as a winter crop; has been developed in California to the point where electricity is its chief inter-state export product.

There is enough sun light that falls on U.S.A. every day, to power its electrical needs for a year. Using solar-cell technology in Solar-farms should be measured in hundreds of square miles, (e.g. 400 miles x 400 miles) squared equals 160,000 square miles. These would appear as a square patch aerially, in desertified areas, ideally. This can be easily achieved in separate installations of 15 square miles, each. These power-plant outputs these kinds of patched power could conservatively reach to 10.66 Tera-Watt-Hours of free every-day, sun-belt, 120-240 Volt, no-overhead, raw, exportable, line-power. High-light energy would be kept for low-light conditions, with stacks of dry lead sulfate, battery backed power-verted, UPS backed-up DC -> AC solr power rechargeable systems. Either as entrepreneur company, or state owned and operated, all these are rocketing, un-tapped, knowledge-found industries. Nickel-Cadmium Selenium-Oxide photo-cell sheets, are already an everyday industry standard, that must be cultured in the roll-over, with the auto-industry, fossil-fuel energy specie, phase-out. All these should pass easily, within any local city / state legislatures. This idea, is user friendly, has no emissions danger, no radioactivity, no down-side, on tap as part of California's golden state and has no bio-hazard risk; also renews itself every western day, with no

run-cost - overhead.

Since the Sun is burning heavier elements, the solar heat is greater and the heat received by Earth greater as well. During the pre-cretaceous period some 120 million years ago, there were no ice-caps whatsoever on Earth, and the half the globe was completely solid ocean. With higher mass number element fusion and their increases in temperatures, the debits in gravity actually cause the Earth to spiral to ever increases in orbital radius. This fact also causes galaxy spirals to occur. Essentially contradicting the "stronger-tighter" view; appended to the "stronger-looser" view. Parallax measurements of Earth's orbital radius from 1950 is registered as 92,914,800 miles, whereas in 1961 it was reported by parallax studies to be 92,950,000 miles. Today in 2010 it is 93,020,000 miles, which confirms this theory.

So Earth is, quite literally, spiraling into Martian tropics. Similarly, one day Venus will cool as it migrates (spirals) into former Earth tropics (1 AU). By that time, its surface temperatures could have cooled enough to support Earthling life, provided water would be available/discovered, the day will come when it can also be populated by Human life. This is true for any system of stars/planetaries. The evidence lay in the fact that the sidereal year, according known data, is increasing by 3.41 minutes per every 10 years. The expression for period T (yrs), and radius R (AU), is as: $\frac{T_1^2}{T_2^2} = \frac{R_1^3}{R_2^3}$, reduces to: $R_{AU} = T^{2/3}$. Kepler's laws of the mechanics of orbital rotation (conservation of angular momentum), linearized becomes as: $m\,v \times r\,\theta$, dictate that spiraling effects will occur; a decrease in θ, means an increase in radius (AU).

From Miocene times, dating back 1-10 Million years ago, the outward spiral of Earth's orbit started an ice-age that began the formation of polar ice-caps; prior to 1 million years ago there were no ice-caps, at all. There is no trace of an ice-age prior to this day's ice-age, of present day Earth, e.g. 350 million - 500 million years ago shows no evidence of prior occurrences of ice-ages, in Earth's 4.5 billion year history.

Also, of interest, are the perihelion/aphelion data. Due to precession of the Earth, every 10,000 years, the perihelion/aphelion data reverse themselves. Currently, Earth's perihelion occurs during winter, and the aphelion occurs during summer. Hence, the global warming effect increases due to this alignment. The aphelion/perihelion reversal is also thought to be the reason for the on-set of the great flood, and Permian first extinction of the day of Noah - Triassic period. However, another reason for that may be Earth's acquisition of the Moon, per migration and trapping of the then, wandering comet.

The Dinosaurs' first extinction ice-age period, or the Permian extinction, was due to the increase in the radius of orbit around the Sun, after the trapping of the comet Moon, as mentioned, during the Triassic period, cooled the temperate conditions then, re-surfaced, in the last few million years, bringing on the advent of an the second greater, ice-age/extinction, already several million years old. Thus, warm-blooded creatures flourished, both due to elimination of a predator specie, and from adaptations of warm-blooded metabolism, hibernation/estivation, which enabled the survival of the sub-catastrophic cold temperatures, which an ice-age, can produce.

From these changes in Earth's orbit, the gravity of Earth's Sun can be calculated. This is also true for determining the mass of a galaxy; from their spiral rates of rotation, and radial dispersion of their stellar components, their core mass, and density can be computed. This fact ads strength to the LaPlace's Nebular Theory for the solar system; due in whole to changes in the special relativity of gravitation, and the changes in solar mass, temperature, and density. Earth's Moon, and the rock/dust which compose it, all differ from normal Nebular theory Earths; moons are typically trapped, dirty-snowballs, or comets. They, are not Nebular theory derivatives.

Thus polar caps developed on Earth at a much later date. The fear that the polar caps melting could flood the Hudson Bay wetlands, Louisiana wetlands, and the Netherlands. Since Earth's orbital radius is

increasing, this brings the cooling, and formation of ice-caps; the global warming due to greenhouse gases has the effect of reversing the greater trend for cooling, as data will show. But the Earth is in perihelion during winter months, and at aphelion during summer month, and reverses due to precession, every 10,000 years. The greenhouse effect of combustion engine exhaust, in essence brings Earth back to its previous polar ice-melted condition, despite increases in orbital position (cooling-trend).

How we handle heat-energy skill-fully, will determine whether Man-kind will be able to survive as a global specie. Seizing the added solar output would be the irrigation of desertified areas and seeding them with farmed food-stock plant producing seed. Irrigation at the rate of 1 drop/hour/stock, of potable H20 plant water which can be gleaned through de-salination osmosis of brackish, sea-water; is already the practice in the USA; exported as an technology incorporate to the African Sahara. The nutrients for plant life are already in the sand. The dry and Sun baked exposure assures soil sterility. This would spell renewable relief from starvation worn Africa.

On-going decreases in molecular Oxygen partial pressure add to this carcinogenic effect. Said power-plant and car exhaust emissions, can by catalytic Carbon Dioxide reduction, produce graphite and Oxygen, as main end-products; maintenance cycles for graphite filter replacement, under this scheme requires yearly service; the Oxygen would replenish the atmosphere beyond the amount the motor part consumes, eventually depleting Earth's greenhouse gases; could eventually double the molecular Oxygen concentration of Earth's atmosphere in 50 years, instead of depleting it, by that amount, as the automobile has already done.

Concerning kreb-cycle oxidation-reduction works the same in principle to all formal ion-exchange systems and is common also to battery-recharging systems. Biochemists need only look toward modern voltaic-pile technology, reminded that some biological forms have kreb-cycle oxidation based on AMS, ADS, and ATS, Adenosine Mono-Sulfates, Adenosine Di-Sulfates, and Adenosine Tri-Sulfates and their NADSH2 reducing agent counterparts. Perhaps one day electricity could be used to make sugars from CO2 gases from the atmosphere, using electricity to propel the Kreb cycle backwards. Furthermore breakthroughs in hybridoma cell line technology from cell-fusion of myeloma with stem cells could launch the science of immortality, by introducing these immortal cell lines into the body; extending the generations of daughter-cells by several thousands of generations.

Part III

Pertaining to jet travel, for all aircraft, the development of crash-proof "strong-wing" technology is a must for the 21st century. Alternatively CNG-LP gas powered turbines, are much more powerful than conventional diesel ones. They also, pollute less, show cleaner products (CO_2, O_3, and H_2O), have no diesel sutte, and less engine wear, than conventional systems. The LP tanks could easily ride upon a carriage, which could just as easily be switched out, for re-fueling. Using this design, would also make them jettison-able, for emergency landings. Furthermore, fully electric battery-powered flight may also be an option.

Helicopters propeller blade assemblies should only use counterweights of Plomb (Pb) in their designs. The use of other blades will only result in factory level errors in matching weights with another blade. Plomb counterweighted propeller blade assemblies are easy to design with 1, 3, 5, and 7 blade (Pb) balanced, one-piece, counterweighted systems. These will offer the soldier much more reliability in the field, with solid reproducible performance. So many soldiers have lost their lives to blade with blade assemblies which have intrinsic centrifugal imbalances, and which tear apart in service; this does not occur with (Pb) counterweighted designs.

Regarding the U.S. Navy's Osprey concerning their tilt-rotor directional instability, such tilt-engine problems are due directly to the sympathetic feedback loop of motor derived vibrations. When motor

RPM's are matched the motor vibrations feedback upon themselves and amplify in amplitude generating a shake that destroys the aircraft. The pilot's attempt to keep the motors slightly mis-matched to correct for this effect. That response causes the aircraft to list. Thus the pilot can crash. This type of aircraft's design also generates a reactive torque when engines are not matched in tilt and their rate of tilt-change. The net torques will cancel when the engine RPM's are matched in this way. The main problem with the Osprey lay in the malfunction of the engine's travel in the tilt cradle/carriage; gets obstructed/abutted. They are built without proper travel-clearances and can be easily interfere with parts, bosses, bolt-clearances with trusses; adjoining components.

Further remedy toward safety, would be to double the number of engines to four. A flight computer could readily serve as a tool for this type of controlled coordination. Fine engine tolerances and by balancing and counterbalancing the engine-propeller assembly components, such as fine-scale matched balance counterbalancing of motors, rotors, and crank-piston assemblies e.g. some smooth motor designs utilize separate counterbalancing shafts, which haved solved the problem in the motor-cycle industry motors. Vibration free motors, and their feedback looped components, plague the Osprey program. Electric engines could solve the problem, if they too are balanced in cradle and throughout. Commercial aircraft companies, also utilize multi-component motor-propeller system assemblies.

The commuter aircraft industry has this problem and its solution; producing dual engine designs are their specialty, are super-smooth in run-time performance characteristics, that don't chop, nor vibrate, nor feedback. Their engines actually hum when running at the same RPM; or slowly beat as would two closely tuned musical notes. Vibration dampening systems, would also help. Further considerations for change, are in crank angle piston-TDC rotation firing pattern, e.g. 180^{o}:270^{o}:360^{o}. This would spare any change in the cylinder block design. Also cam shaft lobe angles, adjust accordingly to changed crank lobe angles. This is seen in the motorcycle industry, also, (See Triumph Motorcycles).

For an era now, reflectors, are pitted against refractors, for light gathering capability. Refractors always produced the best photographic results, versus the similar aperture and light-gathering power, of reflectors. This does not have to do with design. Rather, these phenomena have more to do with the reflective material, on the reflective surface. Namely, the fact that said any reflector system efficiency, or lack their of, multiplies/decreases with every additional reflective surface. By contrast, previous elements in the trade, i.e. Aluminum-Coatings were only capable of 88% reflectivity. per surface.

For an era of reflectors, and refractors, concerning light gathering capability, and lens materials; refractors, always produced better photographic results, versus similar aperture and light-gathering power in reflectors. This does not have anything to do with design. However, these phenomena have more to do with the reflective material, or mineral lens production. The efficiency, or lack of, multiplies itself with every additional reflective surface. Aluminum-Al was only capable of 88% reflectivity. It is still used routinely, in this day for major astronomica modern telescopes. Compounded 3 times, (e.g. a 3-mirror system, the loss multiplies geometrically to 31%, a 4-mirror system suffers a 39% light signal percentage loss, using conventional Aluminium). Where x is the % loss in reflectivity, per surface, due to choice in mirror surface reflection element, the loss accrues geometrically. This is true for any compound reflector system.

$$i).\ (1-[(1-x)-(1-x)\,x]\,x)$$

WHITE-gold (Au) of 19kt., would improve reflective efficiency to 99% or above. Also white gold (Au), is the most reflective element over all the others. This recommendation will restore the color signal components, and other missing electromagnetic data (IR and UV) so easily lost in compound telescope transmission failure rates; all due to choice in reflective material; their coatings only partially reflect, this is particularly acute in visual reflectors; they exhibit cold-to-color photographs. Additionally, white (Au) is

highly malleable, polishes easily, is high in luster, reflects all colors correctly with negligible loss (100%); all attributes for any serious reflector astronomer.

Nickel (Ni), Chromium, and at least 19kt. WHITE gold (Au) would improve reflective efficiency to 99% or above. Also white gold (Au), is the most resistant to oxidation, than all the others. This recommendation restores the color signal components, and other missing electromagnetic data (IR and UV) so easily lost in compound telescope design, namely transmission failure rate; all due to reflective material element choice in reflector surface coatings. Additionally white (Au) is highly malleable, is easily polished, is high in luster, reflects all colors correctly with negligible loss; all attributes for any serious reflector astronomer. Pertaining to refractors, inventor George Ulex, was successful eliminating color aberation, using the Ulexite mineral trona, composed of: $NaCaB_5O_9$.

Additionally, LCD/LEM scientists could learn from crystal growers in the jewelry business, on how to produce more vivid and iridescent color from synthetic Opal crystal growers, the hexagonal matrix with a central color dot could be synthetically grown (SiO_2) to form better computer screens. They both utilize trapped liquid, within crystalline lattices, to form colorful Liquid Crystal (LCD), surfaces.

As an ancillary topic, concerning children and bicycles, lending from modern motorcycle scooter design, doubling the front wheels to (2) would greatly stabilize that invention’s balance inadequecies. Similarly, industry could adhere to 14-16 inch wheels for this arrangement, front and back. These enhancements together, would both eliminate injuries from falling, discouragement, disappointment, and overall decreases recreational physical - fitness, due to fall fault feature. Further enhancement for bicycle safety, could also include an anti-jack-knife steering tube fitting, in their stock construction (legal requirement-feature).

Thermal Angel®

Blood and IV Fluid Infusion Warmer

TA-200 Product Information

The Thermal Angel is an in-line, battery-powered disposable, lightweight and completely portable blood and IV fluid infusion warming device, capable of intravenous application and irrigation warming. The Thermal Angel TA-200 will strive to achieve 38°C (100.4°F) ±3°C at a flow rate of 2 to 150 ml/min given a fluid input temperature of 20°C (68°F) with a fully charged TA-BCE Battery.

Features:

- Lightweight (9 oz), in-line, disposable, portable battery-powered blood and IV fluid infusion warmer
- Will strive to achieve 38°C (100.4°F) ±3°C at a flow rate of 2 to 150 ml/min given a fluid input temperature of 20°C (68°F) with a fully charged TA-BCE Battery
- Quick setup within 30 seconds, warms in approximately 45 seconds
- Placed at or near the infusion site for minimal heat loss through tubing
- The unit uses standard luer fittings and will accept all standard IV line sets
- Heaters adjust automatically in response to changes in flow rate
- Disposable (single patient use), no cartridges or cleaning
- Serves as a standard of care in the pre-hospital, hospital and outpatient markets
- Single point of heated infusion from first contact through the entire continuum of care
- Meets AABB standards for blood warming devices

Estill Medical Technologies, Inc.
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(214) 561-6001 Fax: (214) 561-1930 Toll Free: (877) 354-0286 www.thermalangel.com

100-0010-122; Rev D

Thermal Angel TA-200 Performance Specifications:

Output Temperature:	38°C (100.4°F)
Accuracy:	±3°C (5.4°F)
Input Temperature:	20°C (68°F)
Input Flow Rate:	2 to 150 ml/min
Input Voltage:	12 Volts DC from a fully charged power source
Warm-up Time:	Approximately 45 seconds

Thermal Angel TA-200 Absolute Minimum and Maximum Specifications:

	Minimum	**Maximum**
Output Temperature:	NA	47°C (116.6°F) failsafe fuse
Input Temperature:	4°C (39.2°F)	38°C (100.4°F)
Input Flow Rate:	0 ml/min	200 ml/min
Input Voltage:	10.5 Volts DC	13.8 Volts DC
Storage Temperature:	0°C (32°F)	40°C (104°F)

Thermal Angel TA-200 External Physical Specifications:

Length:	9.0 in. (22.86 cm)
Width:	2.8 in. (7.11 cm)
Depth:	0.95 in. (2.41 cm)
Weight:	9.2 oz. (260.82 g)

Thermal Angel TA-200 Fluid Path Specifications:

Material:	Passivated 316L stainless steel tube
Tube Length:	50.25 in. (127.5 cm)
Tube Wall Thickness:	0.035 in. (.098 cm)
Tube I.D.:	0.117 in. (.30 cm)
Volume:	0.540 cu. in. (8.85 ml)

Thermal Angel TA-200 Heater Specifications:

Type:	Electrical resistance, band heater
Material:	1 oz. copper
Substrate:	3 mil polyester film
Approximate Area:	17 sq. in.
Nominal Power:	216 watts @ 12 Volts DC

Thermal Angel TA-200 Controller Specifications:

Operational Voltage:	5 Volts DC
Processor:	8-bit microcontroller
Clock Rate:	8 MHz
ADC Configuration:	8-bits
Sensor:	NTC Thermistor mounted in fluid stream
Control Algorithm:	Closed-loop PID (Proportional Integral Differential)
Sample Rate:	4.8 Ks/sec

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