

SPIRAL SURVEY EXPEDITION—A PROPOSAL TO ORGANIZE FOR THE SURVEY, EXPLORATION  
AND EVENTUAL COLONIZATION OF THE MILKY WAY GALAXY

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This paper details a plan to explore the galaxy. Areas of interest to an era of cyberspace include the Tech-Index information system for the Expedition and the role cyberspace has in increasing expedition productivity and increasing the capabilities of cyberspace by expanding the goals and data set. The paper offers lists of projects for the cybermarket pool. The expedition is described also as a developers tool for cyberspace to acknowledge the scope of the human mind far surpasses present engineering yet guides our direction of energies and materials. Maintaining the biological capability to reproduce the Terran biosphere via Evolution park conservation areas is discussed. The ecological repair of Spaceship Earth and the build up of an interstellar industrial base from simple recycling and educational programs is meshed with a proposed "reverse engineering cyberspace" plan. A set of constructive contests are proposed with 3 new currencies offered as prizes.

The Planet, The Solar System, The Galaxy are 3 areas of focus. Each of these areas are considered in a cyberspectrum of 1. Sentience, 2. Biological diversity. 3. Energy/Matter resources.

Although no specific software is discussed or offered the paper will give an idea of the characteristics useful to advance the expedition towards the exploration of the Galaxy and building a strong self financed R&D group. Issues as diverse as access to the competition, challenge and benefits to the size of Earths gene pool as a data set and whether Cyberspace can model the technical information aboard interstellar colonization craft are brought forward. Cultural aspects, physics/religion interface and the potential dangers from drug lords as expedition cyberspace offers competition to recreational drugs for imagineering time in minds of bright young people.

Ideas for cross referencing terran life with each star in the galaxy for real colonization modelling.

Ideas for cyberspace modelling of novel space drives with a selection of the drives on the development table at the expedition. A short list of organizations and researchers collecting and producing data relevant to the Expedition who would be able to contribute to the Cyberspace Data sets to firm up the reverse engineering productivity.

A method of incorporating the expedition into the current industrial infrastructure in the area of "reducing input costs" so as to increase North American competitiveness and to make a reduction in the standard of living of expedition participants highly unlikely because if you have access to the tools to colonize a Galaxy and the resources of a Starship with fellow crewmembers spanning the globe, on a planet half buried by discarded technology you should be able to keep warm, dry, nourished and highly entertained. We are only snort on time. The educational and adventure opportunities are limitless for the Warrior on the Edge of time. A good argument is made for the expedition and its R&D.

In effect- hunting for the SpaceDrive.

## Part 1.

### A plan to explore the Galaxy.

This is fairly straightforward. We organize all scientific information in such a way that a person can learn enough to do experimental design of interstellar class technology. When new data becomes known it is inserted into the database known as the TechIndex-reg.tn. and is cross referenced so as to be accessible in the event a person needs the new data for study or design.

The database is structured so access is only made available once funds have been placed with the expedition to support Galactic exploration and colonization on a refundable basis. The funds can go into 4 different areas, each of which facilitates the Expedition. When a person wants some information they access the data from the TechIndex. If they are designing a Space Drive or anything directly related to the expedition they will be included in competition for prizes and remuneration for design work or research done that furthers the expedition.

The expedition is to explore and colonize the Milky Way Galaxy. Equipment must be designed and built to accomplish interstellar travel as will terraforming gear from time to time. The solar system will be the test-bed and proving ground. The first space project is a polar lunar power system. This will provide the energy and finance to research space drive technology and may spare a large quanta of Terran life for latter use in colonizing worlds. Next is a Gas giant Ice delivery system, followed by terraforming Mars and Venus. Earth, as the origin of life will have biological conservation sufficient to meet the challenge at hand. An industrial base able to build starfleets will be assembled during the research on space drives. Resources will be stockpiled, as in Key elements and infrastructure sites, at absolutely no expense to the biodiversity of the planet. There are duties and tasks pleasing even those who express a fear of stars. Due to the straightforward nature of the task at hand the TechIndex information system will be configured to accept the researches of CyberSimulants on behalf of participants, thereby freeing the biological participant for activity in the natural world. Nevertheless the cybersimulant may earn funds on behalf of its sponsor. In the event the Cybersimulant displays outstanding abilities it may be allowed to take on tasks offered in the TechIndex Cybermarket where it may perform tasks at the request of those who hire its services. How a CyberSimulant will be paid is currently under consideration. The Expedition is organic in nature and its goals must be met. Under no circumstances will cybersimulants impair the organic progress of biological life. Cyberial habitats may become available only after all possibility of organic colonization is excluded. It may be that the simulant would be paid only on the lunar base or places distant or perhaps offered a special class of LifeCredits that would offer the simulant REAL LIFE at some time, perhaps through the use of Clones of the initiator. Unless very real care is taken, the use of cyberspace may only result in the creation of a planetary prison with life confined to one planet or only a few. While cyberLife, better suited to interstellar travel, claims every new star its own.

The cyberspace environment of the TechIndex will be geared towards advancing the parametric with realtime analysis where possible. The expense of actual experimentation is prohibitive but will be employed to verify the data generated during some simulations and model runs. However, what is known and can be measured will whenever possible be included. The Cyberspace goal is to be able to model at will and have the TechIndex conduct realtime Reverse engineering with a REALITY GAUGE known as the cyberspectrum. The Cyberspectrum would indicate distance from reality. The known achievable parameters exceeded are accessible to pinpoint areas for further research to

expand our capabilities. The conversion of science fiction to Fact is the goal. An idea can have a spectral emission to sentience, and in a virtual reality environment a electronic hypothalamus can sort VR from Fantasy.

We should be able to know while pushing simulations at what point we leave proven and move toward theoretical and when we leave theoretical behind. This is why we need access to all known data, so we can push beyond theoretical limits by utilizing other materials, processes, and principles and behaviours on the fly. Do you know of the HyperCurve and the Story of Math and Design? Can you integrate the concept of 2 infinite minimal surfaces to describe the interaction between a star of origin to the destination star?

To Date( 4.3 billion Years and Calculating) Life has circled the Galactic Core every 250 million Terran Years. During this time life has evolved to consider other stars. It is time to reach outward. Once humble Algae conspired to build arrogant bipeds to enjoy access to the laws of reality. And what noble deed do these construct aspire? Blindness to the Galaxy once discovered? Fear of Stars? Or a spiral harvest of habitat for the concept of life. Think Interstellar and Build up your planet.

Cybermarket- That communications market where sentience makes available for hire its services and goods, and the call for consideration of problems and tasks is set out in the hopes of attracting parties capable of resolution in return for credit, currency, services or goods.

At its terran peak Solutions did abound, as did the minds to provide such, however matter and energy were in short supply. It became necessary to expand the MATTER/ENERGY base of the LIFE/SENTIENCE combination. Fortunately the Star Sol was embedded in the edge of a Galaxy. They Learned.

#### Cybermarket pool

A place we can hire out our sentience. That Index of cross-references to which we shop for challenges and submit our questions to the general cyber-resource.

Developers tool- To look at the expedition expectations may give some ideas about how to design virtual reality programs capable of real time model feedback for some reverse engineering. A need to translate data to run manufacturing lines if the design is for mass production.

#### The Contests

The Spiral Survey Expedition proposes to offer prizes to or shared by those individuals who may meet the challenges presented by the Galaxy, its survey, exploration, and colonization.

The LifeCredit-tm shares the experience of life with the winners in the realm of conservation and application of Life-Colonization Tool.

The StarCredit-tm shares in the opportunities offered by a Space Drive or a StarDrive in regards to energy and access to the Galaxy-Transport Tools.

The SpaceCredit-tm gives some participation in Space Power and the general resources of the solar System-Tools for Quanta of Action.

#### The new Currencies

The opportunity- A Galaxy stands before us. We have four billion years of molecular biochemical research regarding the support of life at our beck and call if we but allow its many designs to escape extinction. Over 200 Whole ecosystems, each capable of supporting any level of civilization. WE are at the forefront of consideration of the future. We alone are the warriors on the Edge of time. We are the designers of the future. We are the selectors of the Way. We will not allow education to fail. We will not let knowledge fade. We will continue the tradition of giving assistance to wisdom and common sense.

Must we have an enemy to spur us into action? Are we StarHange? No!!!. We can do better. Do you bear the Standard of Death or of Life. We are but a Vector for life. Are your creative skills a match to the challenge? If you can think- yes!! Some thought on the harnessing of greed.

The Life Credit-tm is a mere quanta of conservation, a unit of Terran biodiversity, with the potential to colonize whole planets and turn dank mud patches into verdant forests. A simple tool to convert dead planets into living biospheres. Aspects of exact genetic sequences with 10 million gigabytes of DNA representing the global genetic data in a raw data form, and how and when this data might be stored, transmitted and transcribed back into functional biospheres at other stars are under consideration. The ultimate denomination of the LifeCredit currency is representative of the intact functional Terran biosphere. A rich planet with total biological resources and functional ecosystems in every available niche. A place for evolution to continue. An unexplored world. The best worlds will be set aside for life preserves as future prizes as life takes hold on each, for the competition must go on. After all there is the speed of light and other Galaxies beyond our own. Incentives must be available.

The StarCredit-tm is a mere quanta of the behaviour of interstellar travel and all this entails. Each small technical achievement should be marked by the issuance, and each issuance certifies an action in history as well as a permanently accessible record of achievement, thus conferring a sort of immortality on the persons involved in these struggles to access the interstellar. Just as life is the Journey, the Journey is essence of the life. The exploration and colonization of the Galaxy offers a vast level of opportunity for our progeny to experience the thrill of starting from a concept to a habitable planet to leaving to find another star to repeat the adventure.

Of course the best will have access to the ultimate denomination of the currency of the StarCredit- the Interstellar Survey ship- capable of travelling to another star to survey its function in the Galaxy, the grand adventure, and whether it contains any colonizable planets. The Survey ship, must contain the computing power and biological power to initiate the terraforming of suitable planets in advance of the colonial fleets by times up to centuries. And in the event of mishap, the ability to initiate the build-up of an interstellar capable civilization from the survivors. A fine example of a functional currency. The highest, most sought after denomination, composed of the rarest of elements, containing all that life can offer and giving access to unlimited opportunity. Truly a versatile investment. StarCredits can Create the LifeCredit preserve planets.

The SpaceCredit is in a sense the energy key. A Quanta of energy action towards taking life through space to live at another star. More the physical side of reality, or conversely dealing with that excess of the reverse of matter-Space. For every bit of life is the organization of matter as energized by stellar output, and perhaps even the matter is from the core of previously burning stars. The stellar output of energy and the matter in orbit. The highest denomination of the Space Credit is the ultimate terraforming tool- stellar output and orbital matter. Planets can be built.

The best is to win all three. Earths biodiversity, an Interstellar Survey spacecraft capable of repeated colonizations, and the authority to use a starsystems resources to effect the creation of a biosphere.

Until a large number of credits have been sold, the prizes will remain small. and will average about 2 to 15% of the assets annually depending on the performance of the funds invested and the overhead costs of maintaining the TechIndex. Due to the governmental deficits there is a surplus of income generating investments available. Capital intensive yes, similar to the carbon

working on compared to what needs to be done and what has been done since I was last here are shown by my preferred method of display- my custom spectrum, and a review of the work is available as is a number of analysis and interpretation channels. If a fellow is on the problem now I may be able to hail them if they have a query channel open.

I display my problem- I can see if students are watching and know some of the individuals wishing to interact. On occasion the general media is broadcasting the session to the general populace via satellite or Fibre optics as increasingly persons looking for some hope have started to hang on every project relating to improving the lot of Earth. The media profits are a nice perk as onlookers may voice their approval via a cash contribution to the competition funds or may just purchase credits to increase the long term capital pool as a perceptual insurance to offset the deluge of misery. Some persons just want off the planet and this meets their desire to purchase a ticket.

Or I can be totally in private if I have the hardware on site.

My project for today is Solid State Fusion. I run through the simulation of a rydberg atom of Helium-3 in a verticle quantum well trap and give the variable magnetic sequence some harmonics with the helium electrons to open up a shot at the nucleus. I see that by selecting an oscillation on the sides I can get the nucleus spun up to a level that affects the electrons for a clear shot. I run the proton emission simulation from my new hydride semiconductor design and pump it down the monolithic crystal fibre optic tube composed of lithium niobate. The Impact is successful, with no chip damage, so I run up the rate to some theoretical limits only to see a the capacitors cannot handle the current flow, disrupting the electron/magnetic harmonics resulting in excess neutron production and everything goes haywire from neutron damage. However it could charge batteries at the present design. My hail goes on. A party is interested in building the chip but I have to find someone to make the monolithic channel proton accelerator. Time to put a extra few lines into the Sponsor Wanted Line. Good thing the Patent Tax pays for the registration of this recent innovation.

Time to check out that clue in the LifeCredit preserve # 59 where a Lichen was found to be containing lithium niobate crystals of a peculiar shape and growing on a pegmatite dyke. See how the DNA analysis I sponsored is going. A common lichen with a strange habit, may provide clues for the organic growth of channels. I expect to live research, live the conversion of science fiction into fact and build and operate same. A Warrior on the Edge of Time.

Time to patch into the Sudan Lunar power project- we leased land to beam power to in return for providing a source of drinking water and universal access to birth control. The solar still project has made some progress. neat idea to use horsetail grass to provide a source of methane and silicon dioxide at the same time, a combination any glass blower is sure to appreciate. Nothing like a prehistoric plant to provide that which is needed twice. too bad we lost 38 species before we realized the usefulness. Why it looks like the dogs are trying to get the deuterium out before they let anyone drink the water. Now we will need more storage area and vessels.

How is the effort to balance the chemical levels in the birth control plant, on track except we have discovered a new pest that likes the smell. How about the solar powered contraception leaf calibration device based on evanescent wave technology. Seems on track, long list of sponsors, real crowded in that area. The power levels seem high, may have to empower locals to charge unit off battery banks. Soon there will be ample electricity. Thats great, the Lunar base should be into some good cash flow soon to enhance the search for extrasolar planets. Look at this, only 5% of the Galaxies stars with a full spectra. We have got to get out there. How is the design of the Galactic Polar Surveyors going. Not bad, Years from launch however. looks like a new project started in both directions to get a hold on the stars in that direction. looks good, modelled out to 200 light years, not much of a view yet but in the right directions. Look who's in the volunteer list. I wouldn't mind

in the first 10 growth rings in a 400 year old tree. life is like that. some phosphorus for the DNA and so forth. The act of reproduction is the act of investment of matter, energy, time, and attention. So we continue, but-sex with a Galaxy is not a simple matter. The mating ritual is a space ritual.

In 4.3 billion years of evolution since creation of life, we have circled in orbit, this galaxy under contemplation 17 times. Now that human sentience is on the biosphere, where to from here? A logical question associated with how much will galactic travel cost? Passage by investment and work.

So the LifeCredits are each secured by 1 acre of Wilderness, the StarCredits by investment in Govt. Bonds and the SpaceCredits by SolarCollection equipment. The wilderness is in a LifeCredit preserve, set aside to provide the biological resources to colonize the Galaxy based on the Terran example. The lifecredits also provide a resource to the biotechnology interests.

## Part 2- The Planet, The Solar System, The Galaxy

A cyberspectra of consideration

Sentience and the mirror of illusion- If we model an expedition to explore the Galaxy will we actually be progressing towards the Goal of Galactic conquest? Or are we engaging in mere entertainment. Although our brains seem to work best when crawling out from rubble could we not for once just try to keep the Earth out of destruction and perceive the barren planets of other stars as the rubble, and take our gleaming caves to visit some absence of human civilization. We know what our rate limiting step to adventure is. Transportation. We now have computer tools to increase the participation and productivity of the Research and Development involved in interstellar travel. Cyberspace offers to reduce the overhead costs of an expedition by many orders of magnitude. The Spiral Survey Expedition is an educational exercise for the mind. A behavioural perceptual operating framework. Software for the Brain. For a Sentient- to be able to provide for the food, clothing, lodging, comfort, and energy by the act of thinking and using the mind is a great opportunity. Provided we are not plagued by the need for constant repair and mending, or being slowly poisoned or imprisoned. A relentless diminution of freedoms can stultify the positive creativity, only to replace with that other of which we will not speak. We resist the bondage of physics, is that enough to stay free? A collective perception of the goal may be all the organization required on a mental level. But each mind must understand some investment is required to provide for freedom of thought, access to the hope of living on New habitat or of redeeming the current surrounding habitat back to biological health, and providing access to the matter and energy tools to build an industrial infrastructure capable of accomplishing interstellar travel and researches

I feel the depth of description in cyberspace is one key.

On Earth, Terra, "The Planet" however, we see the destruction of our sole repository of biological tools. In addition Hate and violent excess are in abundance. Is it possible to expand the base of neutral zones to cover a greater area of the planet where more rational progress towards civilization can occur through conservation of biology, resources, education, science and Engineering- I believe so. I also believe we have the technology to reduce the size of functional neutral zones into areas the size of city blocks or less. These need not be fortresses or Castles with courtyards of intact biomes, but I think each one may have a personality capable of soothing the surrounding areas, and potentially reproducing or expanding. If the Neutral Zones are most beneficial and do not contribute to strife they will become assets by virtue of existence, but must be virtually unpossessable. This is one facet of the colonization of the Galaxy- Our biggest challenge may be learning how to live on Earth due to the human condition. Many tribes have succeeded to live within their means. Few have not fallen before the current situation. The current

situation is pathetic in the extreme. What tribe could live unscathed in the current Jungle of reality? A question for anthropological Cyberspace- unique to Earth. I wonder, can we create at other stars what we cannot create on Earth. The collection and distribution of Matter and Energy on Earth can be improved, and some can be set aside for "ExtraSolar Missions". The expedition would be expected to maintain strategic reserves of Biological resources of sufficient scope to allow the continuance of evolution so as to expand the biological resources available and to allow present species time to adapt to the new bipedal on the planet-US. Does it hurt to stretch your mind? Please dont let selfishness and fear cramp your creative style. Each person wants access to the full range of colors before painting life on the new canvas of the Galaxy. One task is to prevent the Permanently Out of Stock notation beside the names of biochemical systems known as species. Not hard work. We just have to leave them alone for the most part. More difficult is making other people leave them alone. An area for some adventure. I feel Nature preserves can be sometimes integrated with Strategic reserves of other resources for the Expedition. The Nature Conservancy is cognizant to this fact in regards to the biodiversity on some U.S. Government property and many corporate landholdings. Often setting aside areas has multiple beneficial results beyond the original intention. Radioactive Waste is an interesting area- Energetic Matter- each isotope probably has a use. To bury or dilute or to concentrate and use? With radioisotopes the clock is always running. A simple use would be an area to simulate the radioactivity seen during interstellar travel at different velocities and densities of interstellar dust clouds. Or perhaps simulate the radiation belts at Saturn and Jupiter. We will be going to the key resources in those belts, and the Radiation represent the only free energy available other than the magnetic field which would destabilize the orbits of the Moons unless to accelerate to a Martian rendezvous. Access to a waste storage area of this level of radiation should be limited to StarMen. The boundary isolating the area should reflect our concern for the safety of others as well.

The Solar System-After and during the stabilization of the potential of Terra (It is possible) the moon will have to be accessed- this means hydrogen powered ports on Earth and a Lunar Power System to conduct interstellar class technology tests, SpaceDrive test beds and a Port for the operation of the System Fleet. With the Sun and planets at hand some work is called for. The mercury power station for the making of isotopes, the Terraforming of Venus and the Shade Ring(s) to cool the planet off for the deliver of the Ice from the Ice moons of Jupiter and Saturn excess to the needs of Mars. The Solar system is the proving ground for Interstellar travel.

### Part 3 Our great expectations of Cyberspace

When reference is made to the CYBERSPECTRUM of the Expedition I mean the following which is the example of how I would like the TechIndex to give me access. (others may design their own access ports-the kernel to the cybersimulants that work while we sleep.)

I open the com link and flag up a display of the areas of my interest and see a row of spectral signatures for the completeness of tasks at hand. Like a signature of a star there are bands of colour representing knowledge, and achievement, access to equipment and things done. Some bands are faint. I have infinite resolution. There are gaps or dark lines- these represent areas needing the most work. A Full spectrum represents a mature interstellar class technology with installed functional production and integration facilities for StarCraft construction, or other areas related to the expedition. My credits for access are displayed. My contributions are recorded and my daily earnings are tabulated. Ongoing research sessions related to my areas of expertise are flashing. Biological resources are monitored as are intrusions into the preserves. excess absorption of spectra corrections are noted and the selection is pointed out- I enter the Techindex and begin the work. The areas I was

waking up next to them at another star. Looks like they need more hours on the StarFiler, here's my vote, no loss, I'm going hiking tomorrow anyway to have a gander at the galaxy from the mountain on the lifePreserve. Catch you later sweet dreams to both of us next night. Sign off. =

#### Part 4 Some Issues

Access to the competition- only via one of the currencies, however a 3rd party can sponsor you or you can apply to be sponsored by the Expedition. You can also ask Questions and set your own challenges in hopes of attracting research however you may have to buy more credits to make the prizes attractive. All in the name of education.

If you think you can earn a living as a cyberspace resident researcher for the Expedition you should at least buy 1 credit to register for the competition.

The Dataset of Earths gene pool must be preserved, otherwise all colonization is at risk as is our continuance on Earth.

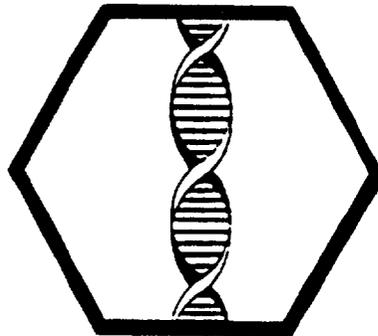
The Cyberspace models must be able to handle enough data to simulate life on Earth, building an interstellar class industrial base, operating starships, and terraforming new planets at new starsystems. The TechIndex system must also fit on a Starship, otherwise we will be dependent on Earth for Data. Not a good bet.

As far as the Culture of those who would explore the Galaxy and their intimacy with physics it is possible religion may become involved in the old way of the sun and the stars possibly providing a bridge of hope.

Perhaps a new catalogue of verbs is in order describing those behaviours resulting in new knowledge and resources while having acting to conserve life, enhancing the likelihood of interstellar transportation and colonization.

"I am saddened at the prospect of a new religion when so much has been lost to these things, but the mind has cravings." -general consensus of sages circle.

Certain individuals have a vested interest in keeping minds tied up in dreams yet doing nothing and going nowhere. Specifically druglords. The expedition cyberspace offers the dream time without impairment and could provide steady progress to the participant, thereby having a severe impact on drug consumption. This will not escape notice and efforts will be made to call down the expedition as "wireheads- worse than drug addicts". We are merely competing for mind-time for engineering, and offer better results in terms of energy, matter and mind. A reminder- who ever got an interest cheque from cumulative drug purchases. Bright young people deserve the better alternatives to drugs offered by technology. The expedition offers a real alternative- with some real improvements in living standards.



# LifeCredit

## Part 5.

Ideas for cross-referencing terran life with each star in the galaxy for real colonization modelling.

In the course of mapping the Galaxy I would like to ensure each starfile has a place for data related to its ability to support life. From the bare fact the star is giving off energy to the fact life requires energy to continue we can build a picture of each stars ability to support life, and the level of effort and equipment required to get a colony started.

It is in the building to this data file the importance of biodiversity assumes overriding importance as we tackle marginal stars and planets in marginal regions of prime stars. It is fairly certain we can consider Terran life be "proven" as opposed to cook-ups from the chemist's replicator. Terran life has a vulnerability- each is part of a system known as an ecology- incomplete ecologies go out of balance, instability can lead to failure. Cook-ups have a weakness as well- and without sufficient biodiversity we are lacking the genetic codes for some biochemistry, and without the terran data- even the biochemistry becomes experimental.

As we map the Galaxy from the poles of the Moon and catalogue the spectrum of each star we can build cross references with the following data:

- Photosynthesis with regards to each photosynthetic organism
- photosynthesis with regards to habitable regions around the star.
- technology required to upshift or downshift spectra to support plants
- terran life compatibility( biodiversity set for each star)
- photovoltaic based life support systems

We can then use the information to select those stars which require zero technology to sustain life to guide our search for extrasolar planets and to chart the best paths comprised of ideal stars for survey craft to visit in each region of the Galaxy.

The marginal stars provide an interesting synergism for conservation of Terran life for example if a star is shown to be capable of sustaining only 5,000 photosynthetic life forms and only 50 of those can be used for human survival and 30 of those are deemed essential ie they are single sources for certain amino acids, essential fatty acids or vitamins or other Expedition parameters regarding colonization, and 20 years from now 10 of those 30 are listed as extinct- we will have to cross that star and any other star of similar spectrum OFF the colonization list. The Conservation of Terran biodiversity is of galactic importance to Humans. Any serious starmen has a stake in the conservation of life on Earth. And doubting thoses types who wish to stay at home would do well to remember we colonized this planet using the biodiversity existing. In otherwords even earth could become marginal if we lose too many species. In 1 sentence saying no to conservation is the same as killing your children. Bad genetics. except for fun for the purpose of cyberspace we do not want to include our life support system in with dinosaurs.

As we model and develop new technology new stars fall into the visit worthy class and as we cybermodel new life forms marginal stars may assume greater importance.

We should not forget who has a 4 billion year track record. **PROVEN COLONIZABLE.**

The ability of a star to support life may range from merely stationkeeping aboard a survey craft to an Earthlike planet or even a ringworld or a total terraforming job where a terran mass must be placed in an appropriate orbit and stocked with volatiles.

Some stars may show zero in the photosynthetic cross reference, nevertheless, these stars may be important for thermal based life forms as seen in undersea volcanic vents and hotsprings and even caves.

Some stars may show zero in both areas but may be ideal for high energy manufacturing for components for the expedition, rare isotopes, crystals, operating gamma ray beacons or powering light corridors or specialty propulsion lasers. These stars may have role to play in getting life to a habitable star and in a sense add to the habitability of the Galaxy in general. Brown dwarfs, neutron stars, and the undiscovered, the unappreciated.

On a clear night, in a place dark, look at the crowded Starfields of the Galaxy, and think of all we are blessed to know and possess. Look out at the beacons burning, calling us to a destiny we can remain equipped to achieve, if only we take 1 action. Maintain the photosynthetic based biodiversity which allowed us to colonize this planets. Humans can expect to have access to new habitat beyond this planet as a benefit of being a sentient species but only as a reward for ingenuity and bold determination, and not without upholding the duty to maintain sufficient original habitat to reproduce biological systems diverse enough to support human life.( A spacedrive is possible before ecological ruin- ecological ruin must not be allowed to occur before colonization reserves are fully functional so as not to hamper resulting travel and colonization activities.)

Spacecraft do not live beyond their means.

An extremely detailed model of the Galaxy is required. Solar system missions undertaken to develop survival technology for the expected variety of conditions encountered at each star.

- A challenge to the superiority of drugs for mesmerizing the human mind. A skill building challenge linked to Reproduction, survival, and adventure with the promise of the eventual access to a billion new habitats
- integration of religion and science to include more minds

2. biological diversity- conservation and application of the biological resources of Earth- ranging from Evolution parks and access to such parks to the cross referencing of the Compendium of Terrestrial Species( in the Tech-Index) with all the Stars and habitats in the Galaxy

#### Part 6.

Expedition Building- A method of incorporating the expedition into the current industrial infrastructure in the area of " Reducing Input Costs" in North America.

It is said that in some manufacturing areas North America is low on productivity. We all know that there is a productivity dividend and we all know every person is capable of making some suggestions for improving productivity in almost every human endeavour. If we take the assumption that Interstellar exploration and colonization is one of the highest orders of human behaviour in the physical sense due to its difficulty, challenge and the benefit of being capable of reproducing entire biospheres, then we must also realize that due to human nature Galactic exploration would therefore be last on the list of things for the human race to accomplish, even though it could save our planet and raise our standard of living. Therefore an interstellar expedition must position itself in such a place that it performs the most difficult functions within a human society-improving productivity, and quite likely take on the most capital intensive improvements because no one else has the will, desire, determination, or foresight to actually perform these needed functions. Our industrial base is novel and resource dependent. Compare to an deep space vessel, we are using up our space ship. At this rate we will go nowhere. What areas could we use some productivity and how might this benefit an expedition?

## Energy

Heating a Factory with natural gas- passive solar reduce heating costs  
build solar collectors from scrap pipes, glass, foil, pallet wood, old fans and tubing

Advantage- we learn construction of solar technology, molding plastic waste into parabolic curves, we reduce garbage, improve profits at factory, we educate people, involve the young and unemployed and can use the natural gas for something else-like making borosilicate water distillers, which can be installed into solar heaters we have now learned to build which opens up a global export market to 5 billion persons requiring drinking water, many of which have lots of water and sun but cannot drink the water. more efficient use of minds, materials and natural resources. We hire people in those countries for a portion of the Water they produce since we still own the water distiller and use a portion of the profits to establish communications links with our new partners and perhaps supply with adequate birth control to sell and educational material to prepare for a next phase of recycling based on the resources locally available in terms of waste- perhaps the reverse-a cooling system- I'll call this a "Space Collector"- a Thermosyphon operating only at night- It does get cold at night in the desert- this will improve the function of the solar distiller as well. With our new solar skills we could tackle SuperWood- the cellulose reinforced recycled plastic again building solar collectors to melt plastic and using more waste materials. Use the superwood to build growing containers for spices and medicinal plants to improve health and the ability to eat foods normally unpalatable due to lack of flavour enhancers. In the northern clime perhaps some small greenhouse frames are the order of the Day- a great gift for employees, who in their breaks can learn the arts of computerized greenhouse design and the transparency of various available materials from glass to plastic pop bottles. Or perhaps backyard solar Furnaces as per John Keyes, this allows the heating dividend to translate into general educational and individual energy savings- again more money available for capital investment in tools or to buy access into the expedition competition or purchase information from the TechIndex-reg.ta.

The same can be done for Electricity used for heat. In the Case of light, the energy loss of a window can be offset by using a collector beneath the window to bring energy into the building just below the window.

Storehouses for discarded technology- store, catalogue, dismantle and reuse is a process mind intensive- very suitable for educational efforts and encouraging creativity. A large building may be turned into a creative competition learning center a sort of diversity factory with a trickle of useful equipment leaving the building.

North America could tackle the following areas:

Health, Social problems, Business inefficiency, Government debt, unemployment pollution, conservation, Education using Expedition mentality and new Credits.

We should seek some import replacement to maintain key industry

Other areas we can insert expedition style industry:

Land reclamation whether to agricultural or natural  
Toxic site cleanup soil leaching or solar burning of waste.

Toxic waste management and elimination

Environmental equipment to reduce pollution

nuclear waste management

invasive species control

chemical storage- all cleanups generate some concentrated waste

disposal reconfiguration into pro-productive storage ie Lead batteries- if we recycle rather than dispose we may produce leaded glass prisms that while storing the lead produce some beauty at a window side - 2 foot tall prisms on each side.

Basically if we will have to do it to build a fleet, operate a ship in a balanced clean manner or would have to perform the same functions to survive after planet fall at another star- we can certainly do it on Earth.

## Part 7.

Ideas for cyberspace modelling of novel space drives with a selection of the drives on the development table at the expedition.

Cyberspace could be used to accelerate the development of a power and propulsion system for the exploration of the Galaxy. If you can model a concept and give it a good work out using virtual reality, and your software can generate useful reverse engineering data we can build and fly. Especially useful is the access a concept has to a large number of minds during its evolution.

A selection of concepts under consideration at the expedition

### A. Power Sources

Solid state fusion - Monolithic channel guided fusion (within a solid)  
modelling of hydrogen fusion/ deuterium/ tritium fusion

Rydberg atom fusion

Gamma beam Energy/Matter delivery physics

Interstellar corridors of light for energy delivery

### B. Light based space drives

The downshifting light drive- from violet to red with  $\Delta E$  going to momentum and conservation coming out of the blackbody emissions of the craft

Phase conjugate resonators- optimize the conversion of light to momentum

Cubic light 3 dimensional standing waves/Light crystals/fusion pumping

Nuclear lasers

models of total internal reflection/evanescent waves/curvature matches/  
circular crystal/infinite evanescent waves external to circular crystal with  
variable co-efficients of extinction.

Organic search for chlorophyll analogs for "light work" ie rubidium cells  
re swedish 90% efficiency photovoltaic as clue.

### C. Electron based drives

Mainly trying to take advantage of the Coulomb force as in newtons of acceleration resulting from either attractive or repulsive charge separations since about 1 million tons of force is seen between 2-1 meter square plates seperated by 1 meter when each plate contains an electric charge of 1 coulomb. so we work on how to effect the charging when 1 plate is relative to the craft and the other plate is relative to an energy source relative external to craft such as velocity of light.

some clues for modelling include light emitting silicon, photorefractive crystals and the space charges within, reverse symmetry photoelectric effect where the light goes through the material and knocks an electron off upon exiting( amplified compton scattering)

Cybermodels of UFOs equipped with 3D coulomb drives to see if possible notions match" observed behaviour"

Quantum mirrors/ quantum well electron reflections/Quantum Art surface- a controllable surface that could reflect/absorb or emit light or electrons as per our bidding- the ultimate graphics tool-right on the edge of reality.

Seeing if the electron in a rydberg hydrogen atom or other element could be coaxed into a electron cloud analagous to a chlorophyll molecule.

### Proton conductors

nuclear spin precessional drives- where every atomic nucleus is spun

neutrino drives based on synthetic nucleus analog tailored to emit neutrinos in one conic direction only, thereby producing force.

We should be able to tune in to these projects, participate, and get paid or at least win something or share in the profits and be first in line to fly.

Part 8.

A very short list of organizations and researchers collecting and producing data relevant to the expedition.

This list represents less than 1 ten thousandth of the data, the people and the organizations producing information useful for inclusion into the expedition and for use aboard starships. As I have recently become highly concerned about the reducing potential data sets and their physical replicators Species( the living library) this list is mainly biological. One number of interest is the estimate regarding the size of the Genetic information on Earth. Adams and Adams of Baylor in Waco, Texas give 10 to the power of 15 as the number of bits 10 to the 9th megabytes, 10 to the 6th gigabytes of information contained in Earths DNA. ( DNA- Bank Net- Kew Gardens England). However the amount of Data is decreasing. We are losing Biochemical software due to Extinctions. The fastest growing data set is the list of extinct species. The reverse engineering of Terran biology for later use in Galactic colonization is under attack due to carelessness. If 5000 species are lost this year, ask yourself if those 5,000 species, now extinct, were placed on a barren but hospitable planet, would those species, as a result of reproduction be able to enable the colonization for a planet?

Nature conservancy Conservation International World Wildlife Fund  
Missouri Botanical Gardens/ Harvard Botanical Gardens  
Plant Biotechnology Center, Baylor University, Waco, Texas  
Centers for Plant Conservation  
Human Food Biodiversity  
Seed Savers Exchange- Seeds our forefathers grew to colonize  
Native Seeds/SEARCH- Arid/desert foods  
Heritage Seed Program- northern food varieties-Pioneer foods  
The Land Institute- Building prairie  
East German Genebank Gatersleben- Best in Europe-soon to be lost  
Vavilov Institute- Leningrad -20 Scientists died protecting the Seeds.  
250,000 kinds of seeds during Seige WWII.  
Friends of the Trees- produces International Green front Report  
priceless list of colonization data generators for Earthlike planets  
Example- TRANET-Each issue lists 100s of groups re Appropriate Tech.  
Don Rittner- the book ECOLINKING  
EcoNet-Global Comuunications 415-442-0220

Space drives- NASA Lewis with Vision 21 is collecting all clues towards the Space Drives. Geoff Landis and Marc Millis ,NASA and StarWars generate most useful technical Data. Robert Forward, Mallove and Matloff are at work.

UFO reverse engineering

I am unaware of serious efforts but we will be at it soon.

Terraforming

Space Studies Institute-Matrix, Space Solar Power library -excellent

A mere sample primarily related to modelling colonization of planets  
However useful for ensuring we have a solid biological footing from which to build an expedition. For more information and additional inclusion suggestions please contact the Expedition.

Who is modelling interstellar spacecraft, the Galaxy, a Galactic colonization Database. Interstellar civilization, Interstellar class technology, Interstellar capable industrial Base?.

## Conclusion

Cyberspace can greatly assist The Spiral Survey Expedition plan to organize for the exploration and colonization of the Galaxy, by offering a market for the TechIndex and access to an entire globe of potential researchers. The need for a complex organization is reduced to potentially a game challenge with some simple rules and goals. Funding is streamlined to small loans to the expedition and operational funds are a fraction of the interest with the balance to prizes, computational power and nature preserves. In addition a publicly traded company will have to be established to meet security laws. Humans may be able to integrate many confusing signals into some form of coherent long term activity of benefit to the planet and life in general.

The benefits of interacting with cyberspace include consideration of that which thinks but is not alive. This allows some clarity of thought and purpose in engineering. I feel we can compete 1 on 1 with any form of escapism including recreational drugs, and should seize this opportunity to harness a multitude of human foibles such as greed to produce some productivity in the old roles of Life.

I refer to the Vector, the Symbiotic relationship, Reproduction, Evolution, migration. We have taken enough, and have destroyed too much. We can however satisfy most of our urges and longings by working towards expansion into the Galaxy. Adventure and Exploration beckon us onward. If in our travels we create a million new biospheres perhaps we have some use as a sentient species other than to induce pleasure to our brains. We may even find a place for lost souls to reside and be able to deal with some human emotions as yet unfathomed. We had better learn. For new minds arise from the stew of our workings, may hunger for real life, may find an obstacle, become angered at our waste of life. Who is to say a child may never find its parent repulsive. Just as many humans hold the notion that due to our superior mental capacity, most species have become expendable, new sentients may find Homo Sapiens to be a wasteful bunch of knuckleheads. While we prepare to take life to the Galaxy we should take a good hard look at ourselves, and compare to the Ideal vector for life to colonize a Galaxy.

When Gaia replicates, is there pleasure?

The mental exercise of aspiring to lofty biological goals can improve our species giving us a better chance at survival.

The actual exercise of facing the rigors of the Galaxy and the challenges of preparing to explore may improve us even further.

The Expedition may be in the right direction.

A children playing in the Sun,  
We never knew what time it was,  
a course determined by the Stars

A sense of freedom on the Run  
We just knew how sublime it was  
no one knows just where we are

- Hawkwind