

RAPID CELLULAR RECONFIGURATION IN HIGH-LEVEL ORGANISMS: A CASE STUDY

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INTRODUCTION

In the spring of 1981 at the Outpost 31 Antarctic science station, part of the incumbent international polar research program, a new species of sub-cellular organism was discovered. This organism is able to transfer itself to a new host in a rapid fashion if necessary and can mimic the host's morphology and behavior. We will describe its discovery and subsequent analysis as far as that is possible in the small laboratory at the outpost's research facilities.

To obtain a better understanding how this newly discovered organism interacts with previously unknown species, we decided to bring the organism into contact with a test subject. For this the author of this article was exposed to about 50 milligrams of the organism for roughly 5 hours. We will describe the results and biological data obtained, as well as a preliminary analysis of the organism's lifecycle, structure and means of survival.

The discovered species propagates by migrating its DNA and even cellular structure directly into a host organism, effectively taking over that organism and in the process mimicking its morphology and behavior completely. This species brings into question several long held assumptions regarding rapid modification and alteration of cell structure and the energy required to do so. We will show that the assumptions regarding energy consumption and generation of morphological mimicking species need to be re-evaluated and we will present an organism that can adjust its energy consumption and output

solely based on immediate survival needs. The species described herein can be shown to have evolved into highly adaptable cell-based higher life forms, for which energy consumption has been solved into a divide and conquer approach in which each cell decides which other cell will become a template for change or a source of energy. This remarkable species has over the course of long periods of gestation and evolution solved four critical problems which we will describe in this article: 1) How to obtain enough energy for rapid reconfiguration of its own and host's cells. 2) How to subdue the host organism rapidly since its own processes, if to be effective, takes considerable time. 3) How to obtain from the host the desired information to successfully generate a new species (ed) performing remarkable feats of mimicry. 4) How to maintain its collective neural state while in cryogenic stasis and how to restart the neural processes from the exact time the stasis set in. Our current hypothesis is that the discovered species originally thrived in an environment in which biological extremes were not present and in this way paving the way for more symbiotic relationships between organisms. In this case we postulate that the symbiosis occurred between an organism composed mostly of gelatinous thin membrane high protein call based organisms and highly complex viruses. We will describe, as far as possible given the small amount of time available to analyze the remains, the cellular mechanisms by which means each of the four problems have been solved by this species.

BACKGROUND

Outpost 31 is a remote research station formerly part of the McMurdo Station permanent Antarctic supply and research base. The station is located at -78.44 Lat, 158.84 Long and has been in operation since 1979 when it started deep ice core drilling. Primary focus of the station is to search for and retrieve deep core samples of glacial structures and where possible larger samples of old world organisms.

McMurdo is operated and supplied by the United States through their Antarctic Program which is an established branch of the National Science Foundation.

As a first expedition in 1981, the Soviet icebreaker Mikhail Somov provided a research platform for respectively 13 Soviet scientists and 13 U.S. scientists. Since Shackleton's famous voyage on Endurance in 1915-1916 researchers went far further into permafrost regions of the Weddell Sea. Through this effort the first comprehensive data was obtained from winter sea ice and permafrost regions.

During this expedition, various supplies and resources were dropped off, which would form in subsequent months what would become Outpost 31, home to twelve crew members tasked with monitoring changing climate conditions and the effects on glacial plate tectonics, as well as bio-oriented investigation of early organisms trapped within the glacial permafrost.

ORGANISM REDISCOVERY AND INITIAL EVALUATION

On the morning of April 5, 1981, a Norwegian transport helicopter crashed just outside Outpost 31 in apparent pursuit of one of their runaway Malamutes. Two team members of the Norwegian unit, later identified as belonging to Norsk Bremuseum Stasjon roughly 86 kilometers south-southwest of Outpost 31, perished when their helicopter hit one of our outpost's power lines and crashed. Unfortunately the two crew members did not survive. Investigation of the Norwegian base provided detailed information as to an ongoing effort to retrieve various recently found samples of unknown origin and nature. No one was found alive at the base and no immediate cause of death could be found.

For more than two weeks, the Norwegian group had been investigating what appeared to be a remote crash site of an unidentified object, found at -78.66 Lat, 159.66 Long. Obtained video from the Norwegian station documents approximately 16 hours of recovery of various fragments and scattered objects.

Through Ground Penetrating Radar (GPR) the Norwegian team managed to generate an outline of the object and estimate its mass and volume. GPR is now frequently used by Antarctic teams for locating deep targets in ice, determining ice and snow thickness. The outpost's team has recently begun using the technology for glaciology studies and crevasse detection. On the day in question GPR revealed a large

continuous structure buried about 35 feet below the ice. Due to a lack of equipment and digging resources, the Norwegian team decided to rapidly-melt the object through the ice, an operation that sadly failed due to the high contents of magnesium substructures used within the interior of the object. First examination of the exterior of the object did not reveal these large quantities of magnesium due to an as of yet unknown layering technique that prevents the outer hull from coming into contact with the inner, more light weight magnesium based support structure. Discovery and retrieval of the object's remains has been left to the appropriate teams at McMurdo who were briefed by radio soon after.

The Malamute belonging to the Norwegian team survived the helicopter crash and joined the Outpost's sled team after having been examined by our onsite veterinarian and dog handler. Upon first contact, between the outpost's guest sled dog and the station's incumbent animals, the first host migration occurred, providing valuable information as to the ideal conditions of transfer. We define migration as the transfer of genetic and structure materials from organism to host, in the first observed case from the discovered organism to a high level species of mammal, an Alaskan Malamute breed. Migration in this case also encompasses absorption of host materials into the transferring organism, in which the host is partially or completely integrated. From first contact between the organism and target hosts, we estimate a minimum of 10 to 15 minutes pass with a maximum of 5 hours, depending on how much physical contact was made and by which method the organism initiated transfer. Small amounts of organism materials transferred account for longer migration times. After the migration is completed the organism is partly or completely absorbed by the host, which morphology and partial cell structure it will mimic.

EXPERIMENTAL DESIGN AND SUBJECT CONTAINMENT

Due to the intrusive nature by which the organism spreads, a strong containment procedure is needed if in the future laboratories are to be studying this species. It became immediately clear that the outpost's quarantine could not be safeguarded if any other land or air roaming species would come into contact with any of the station's inhabitants. There was therefore only one option available to guaranty quarantine, which was to seal off the station permanently and prepare scientific details and analysis in such a way that recovery teams would have a fresh start and would not be exposed to the organism unawares. To ensure a proper conditional setup of the experiment a psychological containment field or barrier was introduced, meaning that two groups were artificially created without the subjects' knowledge. Some team members were informed that they may or may not have been infected and that others might start to see them as a threat to their own survival. The other group was meant to believe they had clearly not been exposed but that there were definite signs of infection in one or more team members.

In reality only the author and three other team members had been known to be exposed. One other test subject, our helicopter pilot, was carefully kept away from other possibly infected team members. The other team members were used as a control group to study the impact of infection both to known infected and not infected humans. In the next sections we will describe our biological findings and preliminary analysis.

INCUBATION PERIOD

There is evidence to suggest that the time delay between infection and exhibition of the organism's spread is not due to a deliberate mechanism but depends on the location of the infected area or first contact. This closely resembles some of the characteristics of parasitic wasps. Parasitic wasps are typically parasitoids, and extremely diverse in habits, many laying their eggs in inert stages of their host

(egg or pupa), or sometimes paralyzing their prey by injecting it with venom through their ovipositor [ref]. They then insert one or more eggs into the host or deposit them upon the host externally. The host remains alive until the parasitoid larvae are mature, usually dying either when the parasitoids pupate, or when they emerge as adults. In the more extreme case of the horsehair worm, the parasite directs the host to kill itself in order to exit its body [ref]. Nematomorpha (sometimes called Gordiacea, and commonly known as horsehair worms or Gordian worms) is a phylum of parasitic animals that are morphologically and ecologically similar to nematode worms, hence the name. They range in size in most species from 50 to 100 centimeters (20 to 39 in) long and can reach in extreme cases up to 2 meters, and 1 to 3 millimeters (0.039 to 0.12 in) in diameter. The example of the horsehair worm is an important one since it demonstrates neural interaction between host and parasite. Once inside the host's body, the hairworm releases proteins that affect its host's central nervous system and chemical signals in its brain. Once the hairworm has reached maturity, the changed chemical signals in the hosts' brain instruct it to seek out a source of water. Upon arrival, the host, most likely a grasshopper, flings its body into the water, where it drowns. At the same time, the hairworm escapes out of the host's body and swims off to find a mate and reproduce, beginning the cycle anew. If this mechanism is identical or closely aligned for the discovered organism is not known at this time and further research is needed to see how it interacts with more complex life forms such as dogs and humans. Unlike the horsehair worm, the discovered species does not stay separate from its host, instead the organism becomes so tightly integrated that it is difficult to determine which cells belong to the original host and which belong to the intruding organism. Since the organism operates as a cellular parasite, it is important to track how it spreads through a target host and by which speed. Since the spread is only at a microscopic level and not on a macro scale (not immediately), we decided to exclusively study the migration habits on the cellular level. Some cellular evidence collected from a malamute in mid migration showed a preference in the organism for homogenous cells, which are mostly found within the brain. This is an important observation since the preference and specialization for brain cells and matter helps the organism to integrate itself and direct the host's behavior.

We deliberately start with a comparison between the organism and the parasitic wasp and horsehair worm. Depending on the species the wasp will either lay its eggs on top of a host or deposit them within. The discovered organism uses a somewhat similar approach but determines the mode of propagation on a number of factors: point of contact with the host, immediate survival/urgency, type of host. In the case of a potential useful host (human vs. dog), the organism will prefer a slow migration in which it can choose which parts to overtake and which parts to keep intact. This allows a much more selective approach allowing the organism to more carefully absorb the host's DNA. In the case the only available host is for instance a dog, a more immediate and direct migration will take place.

We identified two means of migration, either the organism uses a dart like attack using thin calcium based needles to rapidly deposit its DNA in the hosts skin, together with a numbing agent, or the organism uses a slow fungal transfer in which the organism uses a combination of mitosis and phagocytosis. Both methods have their advantages and disadvantages. We suspect that the dart infection mechanism is the oldest form of delivery and the fungal-spread a more recent addition. Since the darts are part of the organism's skin structure, they need to be clearly exposed in order to be effective. Any hirsute areas do not work too well and we suspect that exposed areas of skin that do contain the darts are of a specific structure and take considerable time to form. Because of this they only constitute a small portion of the organism's outer appearance. Furthermore, the organism's skin containing these darts needs to be of a specific temperature and moisture contents for the darts to remain viable. All these requirements taken together greatly reduce the benefits the organism derives from being able to mimic its host since not all hosts provide morphology conducive to the type of skin required for migration. This potentially explains the organism's preference for human contact since the skin is openly exposed and homogenous over large areas.

Unknown at this point is how the organism's cells determine which parts of the host to overwrite and which parts to keep. Also unknown at the time of writing is how much of the organism transfers and how much is kept intact, which would give an indication as to how prolific the organism is and how fast it can

spread. Since the organism can use a form of cell mitosis, which is considerably different than known forms of cell division and since the organism does not differentiate between complete organism propagation and cell based propagation, we need to describe the process using different terms.

In the following sections we will present the results of cell tissue analysis as well as comparative biology with various known species from the animal kingdom.

!!Observation: 08:00pm, Dissection and preliminary analysis of organism completed. Much needs to be learned and understood but the basics are all there and can be written up. Macro behavior and propagation well understood but cell-based transfer needs more work. Some findings not disclosed to team to prevent test effect on experimental results. Subjects at initial stage of confusion. If only they knew!!

MORPHOLOGY

Since the organism at any point in time only appeared in half or fully adapted form it is not possible to estimate the original forms or characteristic shape. Due to the symbiotic nature of the two organisms (virus and cell) of which the creature is composed, there may not be an originating eidonomy and instead the latest host or hosts determine its current base morphology. We do know that the organism expresses preferences for certain base shapes, mostly dictated by its way of migration and propagation. It appears most effective through areas of least nerve ending density to decrease the chances of transfer detection. By transfer we mean the deliberate displacement of organic materials from organism to host for propagation purposes, as opposed to migration in which we mean to indicate the entire process of organism into host absorption.

CELL STRUCTURE

Other than the discovered organism, not many other species are known that exhibit all the survival and propagation characteristics outlined in this article. For instance, the discovered species' cell structure and hibernating behavior resembles that of tardigrades [ref], which are able to withstand extremely hostile conditions. Some tardigrades can survive in temperatures as low as minus 200 degrees Celsius (minus 328 F). However, unlike tardigrades, the discovered species is not restricted to microscopic scale and can form larger life forms, requiring a more advanced cell organization. If their environment dries up, the tardigrades undergo a process called anhydrobiosis . A sugar called trehalose moves into their cells to replace the lost water, and the tardigrade compresses itself into a little ball sometimes called a "tun". Their metabolism lowers to a death-like 0.01% of normal operation, or is undetectable altogether. Depending on how long they have been in an anhydrobiotic state, tardigrades can active rapidly within a few hours or even a few minutes after exposure to water, much like triops [ref]. In this state tardigrades can survive for hundreds of years and can be revived or resuscitated by simply adding water. The discovered organism exhibits the same rapid awakening behavior but differs on some significant points. Hibernation is not an externally driven process started by climate or temperature changes; instead it originates from within the organism itself. Furthermore the discovered organism's cells more resemble eggs in themselves, where they are mostly homogenous instead of the heterogeneous nature of other more complex life forms, which require cells structured around dedicated biological tasks. When in hibernation state the organisms' cells change focus as to their functioning but not their structure. The cell's membrane stiffens up and the cells will partially absorb other nearby cells to store energy in case of reawakening. This closely resembles the hibernation process triops undergo but triops only exhibit this behavior in egg state while tardigrades and discovered species hibernate when fully developed. This creates a rather remarkable comparison with the discovered species since it not only combines the extreme behavior of both triops and tardigrades but can do so being a highly complex organism of the same level as humans.

!!Observation: 9:00pm, All designated team members have been successfully infected. None seem to be aware so far of their predicament. If you can call it a predicament, they should soon be feeling much

better than they have ever felt. Regarding the blood plasma supply which has been destroyed, either one of the team members has been infected earlier without the author's knowledge or for one of the subjects the organism's transference is happening much faster than expected!!

Anhydrobiosis is just one type of a range of adaptation techniques to extreme environments. This form of survival is generically called cryptobiosis. The other types of cryptobiosis are cryobiosis (survival in very cold temperatures), osmobiosis (surviving and even thriving in salt water environments), and anoxybiosis (reduction or even depletion of oxygen). Ironically cryptobiotic animals were first clearly described in 1702 by Anton van Leeuwenhoek, as he analyzed and observed microscopic life forms he found in water and detritus collected from rooftops. He dried and preserved what he termed the "animalcules" and when he later added water he saw the completely inanimate creatures begin to revive again. A fair guess would be to say that Van Leeuwenhoek most likely examined the life cycle of rotifers-a microscopic organism that uses a wheel-like protuberances to navigate and eat. It is ironic that the scientist who discovered the modern microscope (Van Leeuwenhoek) immediately stumbled upon creates exhibiting remarkable feats of survival. It should therefore not be completely surprising to find an organism that performs the same tasks at a much more advanced level. That is not to say that we should be careful in comparing the earth bound species described here with the complex organism discovered under the ice. The organism is apparently capable of applying a preferred method of survival (stasis) depending on the current environmental conditions. We do believe that the preferred method of stasis is a subtle alteration of cell structure that turns normal cells into something resembling eggs, mostly comparable to triops eggs.

CELL STRUCTURE AND VIRAL DELIVERY

As outlined earlier, one of the means by which the organism migrates into a new host is through a multi-step migration process much like the attack mechanism of various spiders and mosquitoes, in which the predator first locally sedates the immediate area of contact. In order for a mosquito to obtain a blood

meal it must circumvent normal physiological responses in its victim. Therefore the mosquito, as with all blood-feeding arthropods, has specialized mechanisms to block the hemostasis system with their saliva. This saliva contains a mixture of secreted proteins and coagulants, which allow the mosquito to countermand vascular constriction, blood clotting, platelet aggregation, angiogenesis and immunity. The result of this process generates inflammation [ref], something an infection from the organism doesn't. Although the target host does undergo drastical changes in anatomy as it accommodates its new structure, but these swellings cannot be determined to be inflammations as such. At this point in time, with limited knowledge of the organism's means of transfer, we cannot assume that the comparison with blood-feeding arthropods is consistent since the organism cannot make assumptions a-priori about the biological makeup and cell structure. Instead the organism either rapidly adjusts upon first contact, which might mean a drastically longer migration time, or the biological structure of most living creatures is more or less similar enough for the described techniques to work effectively enough without little adjustment per migration.

!!Observation: 10:30am, Infection appears to be spreading faster than expected. Must do section on organism's psychology. Unknown how many members of the outpost are infected. Organism appears to form loosely organized social structures each member of which sometimes even sacrifices itself when the entire organism's survival is threatened. No noticeable hierarchy can be detected although there seems to be some differentiation based on how a host was infected. Direct slow infection appears to raise a host's status, making me the de facto leader. So far no personal effect of infection noticed!!

We can say that the organism transfers its cellular structure and DNA code into the host while at once absorbing those salient features of the host that allow it to remain undetected. During this process we estimate that about 30% of the original organism remains intact, 20% of the host remains preserved and the remaining 50% is merged material, which is slowly converted into an appropriate substrate for further propagation.

As we shall describe in later sections, cells from the organism that come into contact with a suitable host will first rapidly shoot microscopic needles of genetic code into the host's cells through a viral catalyst. This mechanism closely resembles the hard, long, sharp, calcareous or chitinous dart which some hermaphroditic land snails and slugs create [ref]. See figure 1, showing a view of the gypsobelum of the snail *Helix pomatia*. In comparison, the functionally similar dart in the discovered organism appears quite similar in structure, although smaller. See figure 2 for a rough estimate obtained through traditional microscope observation (the laboratory's microscopes did not have mounted camera equipment). These gypsobelum, like the snail's reproductive counterpart (for example the *Norelona pyrenaica* and the *Elona quimperiana*) [ref], are made of calcium carbonate which is produced by a specialized organ within the reproductive system of several families of air-breathing snails and slugs. However, unlike the typical gypsobellum, which varies from thick and straight to slightly curved, as is the case with *Philomycus carolinianus* [ref], the viral darts of the examined organism are extremely thin and straight. We believe this to be such that transfer of materials is immediate. Combined with the fact that the organism's gypsobelli are much shorter than the known varieties, the host will not notice much when penetration happens. Many such gypsobelli are fired simultaneously upon contact and with great force, able to penetrate beyond the epidermis and most areas of the host's epithelium.

Op dit moment is het niet mogelijk om te voorkomen dat het organisme zich niet zal verspreiden. Er zijn nu twee opties: of we laten toe dat het laboratorium vernietigt word of we isoleren al het toebehoren en zorgen ervoor dat op den lange duur een deel van het organism intact overleeft. Op dit moment is de auteur er van overtuigt dat absolute isolatie de beste optie is.

The catalyst or migration virus, delivered through the gypsobellum, has the task of fooling the autoimmune system that an attack is underway. At the same time the virus breaks down the host's genetic code into fragments, which can be re-sequenced by the genetic materials from the organism's cells, which immediately attach themselves to the affected area after viral infestation has manifested itself !!keine ahnung!!

Little is known of the exact onset of the organism's initiation of transfer from this limited number of observed events other than that the species prefers dark surroundings with as little surrounding movement as possible. It should be noted that the infection of the author occurred under controlled conditions and can therefore not be compared to the organism's normal preferences. Once transfer is underway and direct contact has been established, the migration rate of viral and cellular materials drastically increases, see the section on phagocytosis.

MEMBRANE

As mentioned earlier, the structure of one cell of this organism resembles more an egg in the gestative stage than it does a particle in vivo. Most important for the organism's survival is the specialized membrane which both holds the gypsobella as well as the viral payload in dormant form. A membrane in plants and prokaryotes protects the cytoplasm of and serves to separate and protect a cell from its surrounding environment. It is mostly made from a double layer of lipids (hydrophobic or colloquially: fat-like molecules) as well as hydrophilic phosphorus molecules. Because of this duality the layer is called a phospholipid bilayer and is also known as a fluid mosaic membrane. Embedded within the membrane is a variety of protein molecules that act as channels and pumps that move different molecules into and out of the cell. We will discuss this channeling process in a different section when we elaborate on how cells interact with each other and foreign cells/bodies. Every cell, including those of the discovered organism has a membrane which is semi-permeable, which means that it can either let a substance (molecule or ion) pass through freely, pass through to a limited extent or not pass through at all. Cells of the foreign organism have evolved this mechanism to the point where it can make this decision for very specific substances and molecular contents, making it extraordinarily selective as to what matter it allows to be absorbed. The organism's cell surface membranes, besides containing the means of propagation, also contain receptor proteins that allow cells to detect external signaling molecules such as fresh water, human or animal hormones, etc.

!!Observation: 11:00am, More team members have been overtaken by the organism but it is difficult to make out whom is one of us and whom is one of them. Have been getting scattered reports from fellow infectees but because of chaotic situations access is very limited. Apparently the leader of the unaffected subject group has figured out a means to directly test blood samples. Should have thought of that!!

CYTOSKELETON

In the case of the discovered species, its cell's cytoskeleton acts to organize and maintain the primary shape (currently chosen shape which might or might not be dynamic). It also anchors internally organelles in place; plus it assists during endocytosis. Furthermore it promotes the uptake of external materials by a cell and supports cytokinesis. Cytokinesis is the separation of daughter cells after cell division. The cytoskeleton finally moves parts of the cell in processes of growth and mobility and in the case of the organism can do this with remarkable speed and agility, which explains the extraordinary feats of mimicry. As can be determined at this point in time, one cell of the organism's eukaryotic cytoskeleton is composed of familiar microfilaments, traditional intermediate filaments and common microtubules. As with standard terrestrial biology the organism's cells have a great number of proteins associated with them, each controlling a cell's external and internal organization and structure by directing, bundling, and aligning filaments.

GENETIC MATERIAL ORGANIZATION

We know that there exist two different kinds of genetic material:: deoxyribonucleic acid (DNA) and ribonucleic acid (RNA). Most organisms, including the discovered organism, use DNA for their long-term information storage, but some viruses (e.g., retroviruses) have RNA as their genetic material. At this point we do not know what the relationship is between RNA and DNA in the discovered organism other than that the two are highly interactive and are perhaps more similar than in known life forms. At this point any analysis of DNA or RNA functionality or organization is speculative. We do assume that, as in humans and animals, RNA is also used for information transport and enzymatic functions. Prokaryotic genetic material is organized in a simple circular DNA molecule, for example the bacterial chromosome, in the nucleoid region of the cytoplasm and we highly suspect this to be the case in the remarkable organism of which we still do not know much regarding its genetic makeup. The little we can say about the molecular structure of a cell from a sample of the organism revolves around chromosomal analysis. As we know,

eukaryotic genetic material is divided into different, linear molecules called chromosomes which reside inside a discrete nucleus, usually with additional genetic material in some organelles like mitochondria and chloroplasts. Human cells as well as the cells of the discovered organism have genetic material contained in the cell nucleus (also known as the nuclear genome) and in the mitochondria (or the mitochondrial genome). In humans the nuclear genome is divided into 23 pairs of linear DNA molecules called chromosomes. However in the organism an additional string of molecules is present creating molecule triples. This allows the organism to perform active comparisons between its "core" sample or originating sample and the host's sample. Foreign genetic material (most commonly DNA) can also be artificially introduced into a cell by a process called transfection and it is this process which is suspected to be primarily responsible for genetic transference from organism to host. This can be transient, if the DNA is not inserted into the cell's genome, or stable, if it is. Like the discovered organism, certain viruses also insert their genetic material into the genome and again this provides a remarkable link between the organism and established biological processes.

!!AMAZING!!

ORGANELLES

The human body contains many different organs, such as the heart, lung, and kidney, with each organ performing a different function. Cells also have a set of "micro organs", called organelles, that are adapted and/or specialized for carrying out one or more vital functions. Both eukaryotic and prokaryotic cells have organelles but organelles in eukaryotes are generally more complex and may be membrane bound. There are several types of organelles in a cell. Some (such as the nucleus and golgi apparatus) are typically solitary, while others (such as mitochondria, peroxisomes and lysosomes) can be numerous (hundreds to thousands). The cytosol is the gelatinous fluid that fills the cell and surrounds the organelles.

HOST MIGRATION THROUGH FUNGAL-LIKE RAPID MITOSIS

!!Observation: 01:00am, Direct infection seems to result in no noticeable fever or swelling. In fact the skin area directly exposed to the organism's cells have re-generated remarkably. Must do more analysis. Need laboratory access, need to get out of this fucking shack!!

Most direct contact and material transference from organism to host operates directly through the skin, preferably limbs and most likely fingers and other such extremities. The organism first reaches out through tendril detachments which deliver a first dosage of viral pathogen into the host's bloodstream through modified red blood cells. Using blood cells prevents an immediate reaction on the side of the host and we've found no immediate signs of fever or other characteristic autoimmune responses upon such first contact. We cannot determine what carrier cells the organism previously used before contact occurred with the Norwegian scientists and we can only speculate which part of the organism (viral or cellular) determines the carrier cells. See figure 4 for an electron microscope picture of a human cell beginning mitosis, or reproductive division. (from Pines' pamphlet [ref]). After preliminary investigation of the viral payload, we can at least establish that this part of the organism most likely has not changed since its first symbiotic merger and might be part of the original configuration of the species. This would make the behavior of the species almost inverse to life on earth since here cells are mostly inactive and change only their form, not their structure and viruses change their structure and not their morphology. In the case of fungal spread of the organism, we can only speculate as to the means by which the individual cells attach themselves initially to the host's epidermis. In figure 5 we can see an illustration of the so-far proposed means of cell mitosis as partially observed in the found organism.

Many fungi produce compounds with biologically active properties. Some of these compounds can be highly toxic to organisms they come into contact with and are called mycotoxins, referring to both their fungal origin as well as toxic activity. Of particular relevance to the research into the organism's mode of propagation are those mycotoxins that are produced by moulds causing food spoilage and poisonous

mushrooms. Particularly infamous are the aflatoxins, which are insidious liver toxins and highly carcinogenic metabolites produced by *Aspergillus* species often growing in or on grains and nuts consumed by humans, and the lethal amatoxins produced by mushrooms of the genus *Amanita*. Other notable mycotoxins include ochratoxins, patulin, ergot alkaloids, and trichothecenes and fumonisins, all of which have significant impact on human food supplies or animal livestock.

Mycotoxins belong to the group of secondary metabolites (or natural products). Originally, this group of compounds had been thought to be mere byproducts of primary metabolism, hence the name "secondary" metabolites. However, recent research has shown the existence of biochemical pathways solely for the purpose of producing mycotoxins and other natural products in fungi. Mycotoxins provide a number of fitness benefits to the fungi that produce them in terms of physiological adaptation, competition with other microbes and fungi, and protection from fungivory. These fitness benefits and the existence of dedicated biosynthetic pathways for mycotoxin production suggest that the mycotoxins are important for fungal persistence and survival.

PHAGOCYTOSIS

Phagocytosis is sometimes called cell eating and is a rather appropriate term given the circumstances. It is a process that requires energy and is used by cells to move solid particles like bacteria across the plasma membrane. Finger-like projections from the plasma membrane surround the bacteria and engulf. Once within the cell, enzymes produced by the lysosomes of the cell destroy the bacteria. See figure 3 for an illustration of normal Phagocytosis. The destruction of bacteria and other foreign substance by white blood cells by the process of phagocytosis is a vital part of the defense mechanisms of a normally regulated body.

PINOCYTOSIS

Pinocytosis colloquially known as "cell drinking" is a very similar process to phagocytosis but is used by cells to migrate fluids across the plasma membrane. Most known cells carry out pinocytosis of some sort

and this is no exception in the discovered organism. In the case of that species, pinocytosis the process has evolved to the extreme and has been subjugated to the task of reproduction of the entire species rather than mere cell replication. Pinocytosis in this organism is more akin to phagocytosis in that incoming materials are immediately split into energy valued and information valued substances. Energy valued substances are stored between the cell wall and the nucleus, whereas information valued substances migrate directly into the cell's core where they are re-sequenced.

EXOCYTOSIS

Exocytosis is the process by means of which substances formed in the cell are moved through the plasma membrane into the fluid outside the cell (or extra-cellular fluid). It occurs in all cells but is most important in secretory cells (e.g. cells that produce digestive enzymes) and nerve cells. Within the discovered species a much tighter integration exists between its cell core, containing the viral payload, and the interior of the cell. In normal unaffected cells the interior is mostly composed of fluids, but in this organism the fluids have been replaced by a solid much like the common egg white. We suspect that this is to ensure enough energy can be stored in such instances where the target host cannot supply enough materials for rapid reconfiguration. For instance when encountering small mammals or insects.

!!Observation: 01:00am, The psychology of this organism is beyond amazing. Whereas we all mortals gather more and more information and are impressed by those who can correlate vast quantities of memorized junk, this species has clarity. It understands without fail what is important and what is trivial, what is fact and what is intuition. It has evolved this sense over millennia and has become a fine tuned intuition. The act of learning for this race is a process of absorb-and-discard. Humans need to look at each piece of information over and over again to see if it fits into a puzzle. The foreign race has no such need. It starts with a permanent doubt of the validity of the puzzle and sees its shape as permanently dynamic. How wonderful to see the world as both ever changing and perfectly cohesive. Every scientific discipline in this way becomes a form of the same root investigative principle and each can be understood by all once the basic clarification principles are absorbed!!

ENERGY CONSUMPTION DURING MIGRATION

We've previously mentioned the remarkable similarity between the organism's cells and eggs. Even its macro behavior and organic structure is designed to survive in egg "mode". It is therefore perhaps prudent to include a general discussion on the relationship between eggs as a means of organism deployment. For this we turn to bird eggs since those are both the best understood forms as well as the easiest to study in a laboratory where it can be subjected to varied environments and circumstances. Energy within an avian egg is used primarily to support the metabolic costs of growth and maintenance, deposited in embryonic tissues, or retained in residual yolk. In altricial species, embryonic growth rate and metabolic rate increase continuously during incubation, whereas in precocial species, embryonic growth rate declines shortly before hatching so that metabolic rate usually reaches a plateau before hatching. These differences mean that when altricial and precocial birds are compared using egg mass as a scaling variable, altricial species have lower costs of development, smaller hatchlings, and shorter incubation periods. What this means for the discovered organism is that the cost of rapid recombination and propagation comes at a tremendous cost. It has therefore developed two separate propagation tracks. Propagation designed for the survival of the species consistently takes place over longer periods of time, in excess of hours or even days. A different mode of what appears to be propagation is in actuality an elaborate defense mechanism designed to ward off short term threats. From the organism's perspective any mobile animal or human automatically falls into the "threat" category. For successful propagation to be accomplished the host needs to be partially or preferably completely immobile. In our experimental group those members infected were either seated for longer periods of time or asleep.

INVERSE LIFECYCLE

Whereas most organism's biological focus is on the active state of living, as in: not being in egg state, the discovered species has specialized in sustaining a gestative state, much like species of Triops [ref]. Triops are a species of crustaceans that have survived on earth for millions of years. They have found a tradeoff

between a natural need to evolve and a natural need to survive. Triops as a whole have not changed much during their existence on earth and can be said not to have evolved, as in: actively adapted to their environment. The Triops adaptation mechanism allows them to survive periods in which other species need dynamic adaptation since the adaptation of most species occurs in the active state, as opposed to triops, which adapted in the egg gestative state. As a result a triops egg is far more advanced than any other egg form of any other species. When needed, triops eggs can survive for up to 20 years or more before activation and are more likely to be able to survive for many more such years.

Using triops as a starting point for examining the found organism gives us a much better understanding of their lifecycle. For instance, much like triops, this species' eggs contain a chemical composition that allows life activity to be "kick started" upon contact with life sustaining materials. In the case of triops this medium is water found in stagnant pools. In the case of the discovered organism various substrates might be used for activation and further research is needed to identify the specific characteristics of the ideal activation agent. More importantly the organism appears highly selective as to the chemical state of the carrier and prefers warm and humid conditions for propagation.

In the short amount of time in which the team has been examining the organism, it has been unable to establish what the chemical carrier is that kick-starts the neural activity within the species after contact with the reviving chemical. Small experiments showed that quick freezing a small sample of tissue immediately alters the structure of the organism and triggers stasis. However, unfreezing the specimen did not provide any clear results since not only a specific temperature is at play but rate of temperature increase, lighting conditions and even barometric pressure appeared to play a role. This similar behavior can be found in other species like triops in which specific chemical as well as weather conditions need to be present before the kick-start from stasis occurs. In the case of triops even the strength of river currents or people wading through the mud might prevent the triggering of egg hatching.

!!Observation: 02:00am, Organism is completely solipsistic, it does not see others as external, internal, or otherwise. It behaves rational in the extreme and does not seem to have any sense of empathy or other such reciprocal understanding either to humans or each other. Lost more outposts members. Unknown how many uninfected. Locked up!!

INTERNAL MACRO STRUCTURE

Of all the information gathered regarding the organism, we know the least about the internal organization and layout of organs, musculature, nervous system, etc. Most, if not all, specimens collected were either in between migrations or were only mostly migrated. It is therefore possible that once the organism has fully integrated the host species, a new internal structure is sought and tried independent of what the host provides and the organism has previously used. We do know that the organism prefers remarkable amounts of redundancy. We've already seen this to be the case on the cellular level but this is apparently also the case after migration is almost or mostly completed. As such a host might be composed of a number of independent sub parts orchestrating the original behavior of the host.

CONTAINMENT AND ORGANISM SPREAD ASSUMPTIONS

Up until this point the organism has only encountered land roaming animals and humans. We do not know if there is a limit to the organism's neural ability to rapidly master other forms of locomotion. In other words, has it up until now only migrated to quadrupeds and bipeds or is it also familiar with winged animals. If so then the rate of contamination on a larger scale might be difficult to estimate since it would effectively have the same spreading characteristics as airborne viral material. We can exclude water based life forms in the contamination equation since we know that airborne infections through fecal matter are many times faster than any ocean or water based spreading. At this point, with the limited amount of data available it is difficult to approximate containment procedures since we have only been able to directly study host migration at the cellular level and have little data on macro migration.

!!Observation: 03:10am, Organism more intrusive than expected. Difficult to remain partial. NO longer have access to other infected team members. Observations more indirect!!

A critical assumption in the calculations on spreading speed is the minimal volume and density needed for critical migration mass. In other words, how much of the organism is required and in what cohesive substance for migration to occur. If we take into account the two modes of migration then even with the rapid spreading through gyptobella a considerable amount of time is still required to appropriate critical mass. A sample of the organism exposed to life threatening circumstances such as intense heat might exhibit host migration behaviors, but is expressly designed as a protective divergence while a part of the organism separates for survival purposes. This form of protective reflex has been observed in at least two instances and forms a highly advanced means of survival, however if the minimal mass is less than most birds then contamination by air becomes less likely.

EXPERIMENTAL RESULTS

If we start with an evaluation of the results of the group study we have to conclude that due to a lack of understanding of the foreign organism an unclear end result must be reported, at least not without going into speculation. A crucial difficulty was the lack of direct observations due to the onset of symptoms in the author's own migration progress. The forced segregation of the author from the rest of the group made it practically impossible to obtain reliable information other than in-direct reports from infrequent visits by crew members. We can now think of the organism as a species whose primary capabilities do not lie in its ability to rapidly transform its own and its host's cells, but to quickly adjust its neural makeup to seamlessly integrate into a foreign body.

!!Observation: 04:01:01001030303am, Organism can no longer be seen as neurologically separate from host. Me? Astigmatism completely eradicated. Other bodily functions either enhanced or completely

redundant. Eyes now operate in infrared as well as ultraviolet, a specialization only known to be possessed by certain crustaceans. Blood highly diluted in extremities but much thicker in central areas. Partial necrosis in useless organs and extremities. Body temperature dropped by 10 degrees!!

At the time of writing it is rather difficult for us to keep all the different aspects and subtleties of ourselves separate and it is becoming increasingly impossible to take notes from an independent perspective. As to the group behavior, screw them. They landed themselves with a higher level species than they have ever seen and are convinced they need to eradicate it. Outside we can hear explosions, most likely instigated by our former helicopter pilot. It was a mistake to select him to be the team lead of the control group. His determination not only to resist us but to destroy us has polluted the experimental results. It was assumed from the onset that those infected would realize the tremendous benefit of the integration process. What species would willingly refuse an opportunity for faster evolution and instant knowledge?

!!Observation: 03:10am, Exit nearly complete. Need additional heating to preserve cell cohesion. Difficult to concentrate on task. Many small tendrils. Trajectory firatema ridocet0 d0 migra. From per-atema prio luc forra!!

FURTHER STUDY AND RECOMMENDED EXPERIMENTAL CONDITIONS

If experimentation with this species is to continue, drastic changes in containment and handling are needed to further examine the organism. Even though class 100 clean rooms are readily and achievable they might not be sufficient due to the microscopic nature of the carrier cells. Since each cell is capable, upon proper contact with a host, to propagate the species, additional bio filters will be needed to ensure a clean separation between lab and surroundings.

FURTHER RESEA@%-\$

!!ObservatiOn: 05:20am, Organism is far superiOr and m0re c0mplex than anticipated!!

T0 furth# enahcne Our understanding Of the mechanism by which the Organism judges which parts Of the h0st t0 c0py and keep intact, m0re analysis is needed, preferably with purer specimens. At the time Of writing Our pla supppppppppppply has been deppleted and we're having a hard time keeping the Organism fr0m spreading.

S0me Of the team ##### membe##### l0cal infestat0n has decided t0 prevent us fr0m spreading. Their limited intellect has re-disc0vered fire and they are trying t0 engulf the c0mp0und in heat. Unless they als0 figure Out h0w t0 prevent cells fr0m freezing they will n0t c0me any cl0ser t0 rem0ving us fr0m their life cycle.

DISCUSSION

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