ORIGIN OF LIFE PROBLEM

When somebody is studying the phenomenon of

viruses ,he can see that when viruses are not coming in contact with a host

organism, they are a sum of chemical compounds that do not fulfill the

criteria to be considered alive.While on the other hand they start reacting with a

host, or in other words they start making chemical reactions with the compounds

of the host,they become alive.The same thing happens with prions ,which are

proteinaceous compounds that while they react with proteins of the host, they

become alive in a way…..Lets hypothesize that we make the hypothesis

that:No living organism is possible to remain unchanged structurally.Lets

hypothesize that this rule is principal in nature and nothing could go beyond it or prove

that it is untrue.In other words, if we let viruses dictate what is life and

what is not, what would the result be? What would that mean to the way that we see

the world? First of all lets make clear what we mean: An

organism that would remain unchanged structurally during a very small

period of time,would be considered as not living for that period. When we say

unchanged we mean of course that there are not taking place any chemical reactions

inside it.Maybe there is a single cell inside an organism that is unchanged,but

the rest of the cells are changing.In that

case, we say that this organism

has a dead cell,but the organism as a whole is alive.Maybe this cell would be

able to regain life if it reacts with the appropriate signals. But maybe not.

If we want to see the consequences of our

hypothesis in the nature we meet the question:what is the least that can be

considered as life?For example, a mitohondrion can be considered life according

to what we said, but a simple chemical molecule cannot,unless it reacts with

another molecule or substance.At the moment of the reaction these two

substances are the least that is considered life.So, a simple chemical reaction, while happening ,is the simpliest

form of life, or else, the sparkle of life.This means that the superior organisms as well asall organisms are summations of chemical reactions.

Another important consequence of the

hypothesis is this:Living creatures are the sum of their chemical reactions as we said.While

they are getting older,they are suffering a process that is called aging.They

are changing, especially structurally.Obviously they are getting

different.This means that the chemical reactions that are composing their body,are

different from that before.If these chemical reactions were

remaining unchanged forever,then the body would be the same,and that means that the body

would stay forever young and forever alive.

Lets make an imaginary experiment:

Assume a simple chemical reaction A+B->C+D.Lets

consider that C and D are gases and are expelled from the place of

the reaction.The quantities of A and B will get lesser and lesser because they are

becoming C and D,Or else they are suffering a chemical transformation.

Lets see now another chemical reaction:A+B->C+D->E+F .Lets consider that E and F are gasses.That

means that the quantities of A,B,C,D will be lowering unless we put in the mixture

exactly the quantities of A and B that are being transformed into C and D every

moment.So there is an exact amount, as well as exact rhythm of adding A

and B that would keep the reaction unchangeable.Lets consider now a very simple

organism that is composed from the reactions :A+B->C+D->E+F…………->Y+Z.Lets say that A and B

are food supplements and Y and Z are compounds expelled

from the organism.Of course the real organisms are much more complicated.If

that organism ate theoretically a certain amount of food in a certain way,

then the reactions of this organism would remained the same forever.[C,D,E,F……are

all compounds of the organism.].If we didn't give the exact food

,then the reactions would change ,dependently on the how far we are from that

ideal food .In the same manner we can say that all living organisms are a sum of

chemical reactions that start with digestion,and end up with the waste products

of metabolism.

As a result we can say that, in a theoretical

basis,if an organism ate exactly a certain amount,quality and quantity of foods

in a certain way,then it could prevent the changing of its reactions and as a

result it could prevent the aging process,expanding its lifespan.Of course this

is something very difficult to happen in real life because there are numerous things

that plays their role and of course things are not that simple. One important clue that suggests that what we

said is true, is the recent discovery that living organisms that follow a

calorie restricted diet,can expand their lifespan, in some cases as much as 60 per cent.This is not a proof that what we said is true,but it is positive for the

theory the fact that that the changing

of caloric menu has as a result a change in lifespan.Perhaps a certain

diet causes an ever greater extension.It remains to be proved…(I think

this is an easy way also to test

experimentally if living organisms are behaving like a sum of chemical

reactions, or something else, for instance like self regulating objects.One can

also study the decaying pattern of living organisms when we are moving into

more and more hostile environments.In other words, what we assumed, is easily

testable and falsifiable.)

As we said, living organisms are summations of chemical reactions.What happens now when they die? There is a disorder

in a system of reactions (for example brain necrosis, which means that in a

large number of neural cells there is a stop in the reactions happening there)

that leads in a chain reaction way to a disorder in other reactions and then in others

and so on.The final result is that there is a necrosis in the whole body, in a chain reaction way.

What is the difference between a man that is

alive and a man that is dead?In both cases the body is consisted from the same

elements and compounds.But in the first case these compounds are reacting

with each other and the structure of the body changes every moment.In the second

case the chemical reactions of the body are lead to an equillibrium and so the

composition of the body remains unchanged.The structure of a dead man cannot

change if there are no microorganisms in its environment.

The new hypothesis also assumes that life

existed before the first cell,in the form of chemical reactions. Scientists generally accepts that life was

originated from the first cell,which was the first cell on earth, and composed the first

thing that was a form of life. The evolution of this cell had as a result the

formation of life the way that we know and see today. A problem with this idea is

that, as we know, if we had just a single cell in earth right now, and out of it

there was nothing, then not only this would not lead to the formation of more

complicated forms of life,but this single cell soon would be dead.The new theory that we

introduced claims that it was not necessary to be a first single cell to start the evolutionary

process that would lead to life as we know it today, but assumes that life preexisted , because even a single

chemical reaction is a form of life.The creation of the

first cell actually is the result of the existence of life.

Lets see now another problem: In the

beginning, life on earth was simpler than today. That means that there was a system(network)

of chemical reactions that gave its place to a more complicated one, and the

system was getting more and more complicated, with more reactions happening.This

sounds a bit strange because if a system of chemical reactions does not get energy from

outside, leads to an equilibrium state. If we accept that our new theory is

true,this means that there had to be an external source of energy{probably the large

quantities of energy that comes everyday on earth from the light of the sun)

that lead not only to the survival of the first forms of life, but also in their

evolution.

To make it clear, imagine that with the help

of a source of light we cultivate in a way,some chemical reactions in a small place.After a

period of time,they are getting more and more complicated.Lets hypothesize that

someday the whole system becomes extremely complicated.We get to a point where

we see nothing more but a mixture of colors and shapes.This is life.But human is a part of

this complicated system which means that he sees things in a mirror like

way,because he is in the system.So it is very difficult for him to see life in an objective

way, because he is running inside the whole system.It is all a matter of

perspective. It is clear from this point of view that

nature does not promote a certain form of life,but what we

see,is the result of the sum of the reactions that happened through history. The

complex organic compounds that are composing living creatures probably are the results of many years of reactions, or else they are the fingerprints

of the reactions from the beginning of all the reactions till today.

Question:

How can chemical reactions that occur in a random way, lead to the formation of the structures we see

and perceive as animals, plants, organisms, etc. Why don’t we see a random soup

and mixture of gasses and fluids?

Answer:

If you put

some living cells inside a flask in the lab and leave it untouched for some

days, you realize that the difference between living cells and dead cells is

this: Dead cells float in the fluid while living cells are strongly attached to the flask walls. It is therefore a property

of living cells to adhere and stick with on another and to surfaces.

Similarly

many random chemical reactions will eventually lead to some reactions that

gives some molecules the ability to

adhere with one another and also to surfaces. These reactions will eventually

prevail and become the basis for further complexity, because the chemical

compounds will not go away and lead to dead ends. This makes the process

multifocal rather than diffuse. Thereafter, these focal sites of increasing

complexity will interact with one another and the systems with the greatest

capacity to survive will continue happening and will become more complicated,

leading eventually to what we perceive as natural selection… The rest is

already known..

The property of reproduction in living beings

that are chemical reactions seems to actually be a result of the energy that

forces the chemical reactions to continue happening.Life continues because chemical

reactions continue.We, as an internal part of this system, see this as regeneration

of the creatures, but its only because we are running inside the system.

But someone might ask: :How can random chemical reactions manage to replicate themselves?

But….. I

think its obvious that in a chaos of chemical reactions, only those with some

kind of repeatedness and periodicity will not lead to a dead end and will be

able to continue In the long term. So, generally, these are the ones that

survived, and that's what through our perspective receive as reproduction.

What happens with the entropy of living

systems that are chemical reactions?The energy that comes externally on earth in the

form of light could explain the lowering of entropy.However ,if in the

begining there where 2 or 3 reactions and after a while there were getting more and more complicated, seems that the entropy of the whole living system on earth or

else nature, is raising.But remember that previously we said that human is

not a neutral observer of things, but he is changing together with the

system.This confuses him.What impact has that?It means that if human entropy is raising

slower than the whole living systems entropy ,he will think that his entropy is

lowering.Its something like relativity of motion.One example is this :Imagine a large

number of birds that are flying one next to other to the same direction.If we tell

them to fly one apart from the other,so the group will start separating, the entropy

of the system will start raising.Imagine also that there are three

birds that are very close to each other,somewhere in the group.If they separate

with less speed than the others and we consider these 3 birds as a system,the

systems entropy will actually lower relatively with the whole system of the birds.To conclude, human can only judge entropy only

in a relativistic manner, due to the subjectivity in which he is doomed!

Living organisms normally are not dying

because the chemical reactions that are composing them are continuing happening.If we

analyze all these reactions we will have a very good view of their homeostasis and the way they sustain themselves.As we said we are seeing the world

from the inside , or else in a mirror like direction, because we ourselves

are a part of things, so we appreciate things from its results.We think that homeostasis

and self-sustainability are very magical and perfect mechanisms, because we are

the result of homeostasis, but the theory that we analyzed says that

homeostasis simply is the cataloge of the chemical reactions that are still happening,

and just because they keep happening, the organism is alive.In other

words, we find a purpose in every single reaction or procedure, but it's only

because of our perspective.

Lets come now to the position to answer if the

spores that some microorganisms form(e.g.

cryptobiosis, anhydrobiosis etc) are living forms.If their metabolism exists but it cant be detected because it is

so weak, then they don't differ in anything from

the other organisms.If their metabolism is absolute zero, then the answer

gets more complicated.The fact is that it doesn't matter what it is, because the

question is useless.Life as we see it is simply the result of the chemical reactions

on earth.As we said ,we are part of the system and we don't realize it, but if we

were alien forms of life for example, and we were watching the earth from outer

space, then we would see only a very complicated network of reactions that are

becoming more and more complicated because of the energy of light.This system

would have different structural forms, colors, etc.So, what happens with the spores

is that because they face very unfriendly conditions ,the certain chemical

reactions stop happening or they are lowering their rate.According to our

definition, they are not life, but what is life?Life seems to be more an invention of

us,or else a term that we use to describe anything that looks like us

functionally.This is the reason why simple chemical reactions in the lab, or

even fire are not considered life ,even though they are chemical reactions

too.The are way too simple , and they don't resemble us enough functionally so

they can be perceived by us as alive. An organism is the reactions that we see, and

we think they are something amazing because we see them

separately from all the other reactions that are happening in the world.We judge them

from their result, which is that they become like us.We are a part of the

reactions that are happening as well, and while we see organisms that look like us,

we think they are independent creatures, but actually they cant be separated

from the whole soup of reactions.The spores are becoming as they were

before because their reactions start happening, and they start looking like

us.There is not such a thing as homeostasis actually.

Of course, when we are talking about chains of

chemical reactions, we do not mean it in the simplistic way, that they are

in a chain, and everything is happening in an order, where the formed

substance goes to the next position to react with the next substrate etc. Things in

nature are much more random, and it is difficult sometimes for us to detect which

is the next step.One of the major difficulties are some passive phenomena that

happen, such as plasma flow, passive diffusion through membranes because of

differences in concentration, or electrical gradients, excretion through ducts,

etc.The latter are phenomena that happen passively ,due to the laws of nature

and are not defining life, the way the chemical reactions do. To be more symbolical,

they play the role that scientists play in a chemical lab:they transfer the

substances from one tube to another, arrange the conditions, etc.But the chemical

reactions are the big difference.

In this point, someone would ask:Why are the forms of life the way they

are today?In other words, what gave them their shape, and their characteristics?How can

simple reactions lead to the complicated forms we see today?The answer is that the forms we

see today are the result of what had happened, so we(the results), see ourselves as the

most capable to survive, which is true, because that's what happened.One way or another,

the results(the final reactions) survived a procedure, and so, for their own eyes, they are

the most capable to survive.Even a single

characteristic has its meaning.

Somebody might ask: ok the basic forms of life is

chemistry , but as we go higher , we find levels of organisation.

answer:

no!!there is no organization the way we mean it.functions

like killing, walking ,talking etc gives some reactions an advantage to survive

over others.But ,surviving is only important because of us.If you ask an

observer outside the system of life, he will not find any organization in these

functions, because their results mean nothing to them

Proposed experimental testing:

Due to the fact that even the most simple organisms are very complicating and their precise inter reactions with the environment are difficult to be estimated, it is difficult to create an experiment to test IF living beings actually behave as chemical automatons. Here are some ideas though:

 A If a living organism is a sum of chemical reactions, then the components of food intake are the first substrates and the excreted products are the last elements. By changing the food and also the pace of feeding, one can observe the way the organism performs some functions, for instance if the organism is an automaton, in certain feeding conditions one can observe extreme outlier values. The latter won’t be observed if the organism is self-regulating (self sustained).

B) Testing if feeding identical organisms (clones) with the same food in an identical manner and under identical conditions would produce exactly the same amount of waste products plus the error factor ε, or noise, produced by various unpredictable factors. Only if the organism is a system of random chemical reactions, it will behave mechanistically and will produce reproducible results.

The factor ε must follow a normal distribution as known by statistics.

C) If we have clones of the same simple organism and we study them into the same conditions and we give the exact food, then if these organisms are just random chemical reactions, their lifespan could be predicted as a result of multiple linear regression. The dependent variable y (or else the lifespan) would be: y=a+a1x1+a2x2+…….aνxν+aωxω+ε where ε is the error variable and x1,x2…xν the various explanatory variables and a,a1,a2…av the effects or regresor coefficients and aωxω measures the feeding speed effect.

If these clones share everything in common(e.g environmental factors, temperature etc) except the pace with which they are fed and if we secure that actually these organisms absorb exactly the same nutrients, but differ only in the pace they absorb them, then all the parameters of the linear regression will be the same for all clones except the speed factor, or else lifespan=y=aωxω+B+ε (where B=a+a1x1+a2x2+….avxv and it is the same for all organisms), or else we have a simple linear regression. Thus, if we avoid extremes in feeding pace and we assume no colinearities caused by it, then at a certain pace range we would expect lifespan to be linearly correlated with the feeding pace. (ATTENTION: The regresors x do not represent the reactions, but rather represent the effects of some “x” factors. Once again, if the organism is a system of random chemical reactions, it will behave mechanistically and will produce reproducible results. I agree that it is difficult to completely isolate the system from all possible disturbing factors, but if their influence is chaotic and random for all experimental individuals, i think that their influence as a total can be satisfactorily represented by ε , or else the error term or noise in the formula of the final linear regression.

D) One can also test the way the living forms and their functions are decaying when they move to more hostile conditions on earth, such as extreme temperatures, deep ocean etc. Do they decay as if they where random chemical reactions or in an other way, e.g. self-sustaining organisms?