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Biological Science

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Organs of Juveniles Oreochromis

Generation of Branching Patterns

Highlights

Plant Nutrients in Sweet Sorghum

Availability of Fresh Water Fishes

Discovering Thoughts, Inventing Future

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Techniques for Predicting the Collapse of Branching Patterns and Generation of Branching Patterns in Natural Populations and Artificial Populations

By Christopher Portosa Stevens
University of Virginia Charlottesville

Abstract- Branching patterns are fundamental to science, their simulations in computer science, and their modelling and abstraction in mathematics: different phenomena are considered or classified as branching patterns, including the tree of life, crystals, electric discharges, the cellular differentiation of plants, animals, and other organic branches of life, branching patterns of characteristics across individual organisms in species, and branching patterns of characteristics and adaptive structures across species. I seek to develop techniques for predicting the collapse of branching patterns in natural populations of organisms and also artificial populations, and I seek to describe conditions for generating branching patterns in natural populations and artificial populations. I also seek to rank forces of nature by their capacity to generate branching patterns, and the relevance of constructing artificial populations to rank forces of nature by their capacity to generate branching patterns.

Keywords: branching patterns; speciation; artificial populations; assortative mating; cloning; angiosperms; natural populations.

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Techniques for Predicting the Collapse of Branching Patterns and Generation of Branching Patterns in Natural Populations and Artificial Populations

Christopher Portosa Stevens

Abstract- Branching patterns are fundamental to science, their simulations in computer science, and their modelling and abstraction in mathematics: different phenomena are considered or classified as branching patterns, including the tree of life, crystals, electric discharges, the cellular differentiation of plants, animals, and other organic branches of life, branching patterns of characteristics across individual organisms in species, and branching patterns of characteristics and adaptive structures across species. I seek to develop techniques for predicting the collapse of branching patterns in natural populations of organisms and also artificial populations, and I seek to describe conditions for generating branching patterns in natural populations and artificial populations. I also seek to rank forces of nature by their capacity to generate branching patterns, and the relevance of constructing artificial populations to rank forces of nature by their capacity to generate branching patterns.

Keywords: branching patterns; speciation; artificial populations; assortative mating; cloning; angiosperms; natural populations.

I. Introduction

I seek to introduce techniques of predictive science from physics and computer science to the biological sciences, and also show their relevance to predicting the collapse and generation of branching patterns in natural populations, and potential simulations of natural populations in computer science and biologically inspired computing. Given an individual organism taken at random from the natural population of any species, it is possible to predict that the distribution of characteristics of the natural population (which is a branching pattern of characteristics and adaptive properties across individual organisms in any species), will collapse or reduce in the population of clones derived or taken from the natural population. [1]

Moreover, given an individual unit taken or selected at random from an artificial population (that may simulate or model objects or units based on natural populations of technologies, like cars, cruise ships, space shuttles, cell phones, tanks, aircraft carriers, biological phenomena, like neurons or other cell lines, chloroplasts or mitochondria, individual organisms, colonies of organisms, or physical phenomena, like planets, stars, molecules, or crystal lattices), and cloned to produce a population of clones, it is possible to predict that the distribution of characteristics of the artificial population (or the shape or pattern of the artificial population), will collapse or reduce in the population of clones. As I shall discuss, comparing populations of clones to natural populations or artificial populations may be used to visualize or show branching patterns or other patterns in contrast or in relief to the populations of clones derived from the natural population or simulations of natural populations as artificial populations.

II. Branching Patterns and the Human Species

A simple example is the human species itself: In the event of selecting an individual at random from the natural population of the human species, and cloning the individual to produce a population of clones, the faces and facial characteristics, body types and physical characteristics, and behavioral characteristics including intelligences, talents, capacities, and personality characteristics, collapses or reduces in a population of clones; that is, the branching pattern of characteristics of the human species reduces or collapses in a population of clones. Thus, this strategy reduces or collapses a branching pattern, but it also facilitates the identification and visualization of a branching pattern or series of branching patterns in the evolution of the human species. That is, to reverse the perspective of the comparison of clones to natural populations, human evolution itself, from the earliest human populations to contemporary human populations distributed across societies around the world, involves increasing and diversifying the faces and facial characteristics (including eye, nose, chin, and cheek positioning, hair colors and hair textures, eye colors), body types and physical characteristics, and intelligences, talents, and personality characteristics that are collapsed in a generation of clones. and the capacity for assortative

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mating across categories of dissimilar characteristics and similar characteristics reduces or collapses in the population of clones.

No Darwinist or neo-Darwinist has ever identified or recognized this branching pattern or branching geometry of characteristics in the human species. Since no Darwinist has ever identified or recognized this branching pattern in the human species, what explains this larger branching pattern of characteristics?

III. In a Population of Clones Derived or Taken from a Natural Population, Quantities from the Natural Population are Reduced

In the event of an individual organism of the human species selected at random from the natural population of the human species, and cloned to produce a population of clones, it is possible to predict that a number of quantities from the natural population are reduced in the population of clones: faces and facial characteristics, body types and physical characteristics, behavioral characteristics including intelligences, talents, and personality characteristics, and also assortative mating across the categories of similar characteristics and dissimilar characteristics in the population of clones compared to the natural population (or compared to a random sample of the natural population of the human species).

Darwinists and neo-Darwinists commonly treat natural selection as a constant or near constant across primate species and also species in the Genus *Homo* including the human species. However, assortative mating has been increasing in the evolution of primordial human species in the Genus *Homo*, and assortative mating has been increasing in the evolution of the human species; that is, dissimilar characteristics across individual organisms in the evolution of the Genus *Homo*, and categories of similar characteristics in the evolution of the Genus *Homo*, have been increasing and diversifying (particularly compared to primates species), and thus assortative mating across categories of similar characteristics and categories of dissimilar characteristics has been increasing in the evolution of the Genus *Homo* and in the evolution of the human species (particularly compared to primates). As suggested, biologists and sociobiologists in the Darwinist theoretical tradition commonly treat natural selection as a constant or near constant across primates, species in the Genus *Homo*, and the human species. However, for centuries, physicists have recognized that explaining a variable with a constant is not possible.

Thus, it is possible to suggest that the principle of organization of the branching pattern of human evolution, or series of branching patterns of characteristics of human evolution, is assortative mating. It is possible to recognize that assortative mating across dissimilar characteristics and categories of similar characteristics has been increasing in the evolution of the genus *Homo* including the human species; by contrast, Darwinist commonly treat natural selection as a constant or near constant across primates, the Genus *Homo,* and the human species, i.e., Darwinists claim that natural selection explains the evolution of primate species and Darwinists claim that natural selection explains the evolution of the Genus *Homo* including the human species. The strategy of this section also suggests that in a artificial population of clones derived from an artificial population (that simulates some natural population, or functions as a simulation of some branching pattern or other pattern or shapes), the distribution of quantities of the artificial population reduces in the population of clones derived or taken from the artificial population. The exception or set of exceptions is if the artificial population from which the population of artificial clones was derived was itself a population of clones.

IV. On the Nature of Language and Culture in the Evolution of the Human Species

It is also interesting to ask, what is the nature of culture and language in the evolution of the Genus *Homo* and the human species? There is a substantial literature in the biological sciences and related fields that are concerned with the emergence of greater complexity in the evolution of species, from the simplest life forms, prokaryotes and eukaryotes, to the evolution and differentiation of complex multicellular organisms across species, to the emergence of language and culture (including technology) in human species. [2-9]

Functionalist perspectives in linguistics, anthropology, and biology have asked what culture does and what language does. [9-17] Language and culture increase the number and diversity of qualities across individual organisms in the genus *Homo* including the human species; thus, language and culture increase assortative mating in the evolution of the Genus *Homo* including the human species by increasing the number and diversity of qualities across individuals and groups. By contrast, primates do not have assortative mating within particular cultural patterns, i.e., languages, ethnic groups, religions, or access and familiarity with particular sets of technologies of human societies; moreover, primates have far less assortative mating across dissimilar characteristics and categories of similar characteristics, i.e., 'opposites attract' or mating and interaction across dissimilar or complementary characteristics, and 'like with like' or mating across similar characteristics; in the language of contemporary social media, human culture

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generates 'likes' and 'dislikes' across individuals that are entirely absent in primates.

Thus, culture and language increase the number and differentiation of qualities across human faces or across human individuals.

Physicist and mathematician Michio Kaku [18] comments that computer scientists have greater difficulties in accurately simulating the features of human faces, such as in live action video games or live action films using computer graphics than any other object, including other organisms, cities, or mountains. This suggests that the human brain has developed cognitive abilities to consciously and unconsciously discern facial differences and facial variation related to assortative mating; since culture and language increase the qualities across faces even more than the physical variation across faces themselves, increasing culture may have played a role in increasing the number, diversity, and differentiation of facial characteristics and inheritable behavioral characteristics, intelligences, talents, capacities, and personality characteristics that interact with and express themselves in cultural patterns (i.e., languages, religion, science, mathematics, technology, literature, the arts, or different divisions of labor in economies, organizations, or families).

Darwinists in the biological sciences commonly treat natural selection as a force of evolution that is constant or near constant across primate species, proto-human species in the Genus *Homo*, and the human species. By contrast, intraspecific assortative mating has been increasing in the evolution of the Genus *Homo* and the human species, and culture has been increasing in the evolution of the Genus *Homo* and the human species.

V. Brain Encephalization and Branching Patterns

Eminent biologist Edward O. Wilson, in his *Sociobiology*, provides a classic discussion of a paradox of human evolution: Darwinism posits that evolution is intensely gradual; however, the evolution of species in the genus *Homo* is faster than the evolution of primates and various mammals, and the evolution of *Homo Sapiens* is faster than the evolution of primordial human species in the genus *Homo*: "The cerebrum of *Homo* was expanded enormously during a relatively short span of evolutionary time . . . Three million years ago *Australopithecus* had an adult cranial capacity of 400-500 cubic centimeters, comparable to that of the chimpanzee and gorilla. Two million years later its presumptive descendant *Homo erectus* had a capacity of about 1000 cubic centimeters. The next million years saw an increase to 1400-1700 cubic centimeters in Neanderthal man and 900-2000 cubic centimeters in modern *Homo sapiens.* The growth in intelligence that accompanied this enlargement was so great that it cannot yet be measured in any meaningful way . . . no scale has been invented that can objectively compare man with chimpanzees and other living primates." [19, cf. 20-21]

Thus, it is possible to ask, what explains the faster rates of evolution of primordial species in the Genus *Homo* and the human species itself compared to primates, and what explains greater brain encephalization in the evolution of the Genus *Homo* and the human species compared to primates? In the co-evolution of human biology and culture, culture and assortative mating explain greater brain encephalization in humans compared to primates, and explain the greater branching pattern or branching geometry of characteristics across individual organisms (faces and facial characteristics, body types and physical characteristics, and behavioral characteristics, intelligences, personality characteristics, and talents) than primates. (It is also possible to conjecture that increasing faces and facial characteristics, body types and physical characteristics and behavioral characteristics including intelligences, personality characteristics, and talents, are isomorphic or partly isomorphic with increasing brain encephalization and increasing structural and functional differentiation and complexity in the evolution of the brain in the Genus *Homo*, and, more generally, in the evolution of mammals, marsupials, birds, reptiles, amphibians, fish, sharks, and rays).

VI. Darwin's "Abominable Mystery" and the Co-Evolution of Angiosperms and Insects, Bees, and Birds by Assortative Mating

Charles Darwin claimed that the faster rate of evolution of angiosperm plants compared to ancestral species of plants and non-flowering plants was an "abominable mystery," and Darwin's "abominable mystery" is still debated by contemporary botanists. In addition to the faster rate of evolution of angiosperm plants compared to ancestral species of plants and non-flowering plants, angiosperm plants also have a greater diversity of characteristics than ancestral species of plants (e.g., ferns) and non-flowering plants. Darwinists commonly treat natural selection as a constant or near constant across angiosperm species of plants, ancestral species of plants, and non-flowering plants; however, the general pattern is that *interspecific assortative mating* between angiosperm plants and bee species, insect species, and bird species has been increasing in the evolution of angiosperm plants compared to ancestral species and plants and non-flowering plants (in which such interspecific assortative mating is absent or largely absent).

Moreover, it is possible to recognize that interspecific assortative mating has been increasing in

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the co-evolution of angiosperms or flowering plant species, and bees, insects, and birds, and that the number of insect species and bird species that co-evolve with flowering plants has been increasing in the evolution and diversification of angiosperm species. Thus, interspecific assortative mating may play a role in increasing the rate of evolution of angiosperm plants compared to ancestral species of plants and non-flowering plants, and also increasing the rate of speciation across angiosperm plants and also the insect species and bird species with which they co-evolve. (This is because angiosperms have a faster rate of evolution than ancestral species and non-flowering plants; angiosperms have evolved more species than non-flowering plants and ancestral species of plants; the number of insect species, bee species, and bird species that have co-evolved with angiosperm plants as distinct species has been increasing over generational time compared to non-flowering plants or ancestral species of plants that may engage in different or limited forms of interaction and mutualism with other organisms).

Moreover, it is also possible to conjecture that assortative mating plays a role in reducing the number of genes and genetic material required for generating larger branching patterns of characteristics across individual organisms in the human species and angiosperm species: the genes and genetic material required for generating branching patterns of characteristics across organisms in the human species compared to primate species are relatively small; that is, the branching patterns of characteristics across organisms in the human species are much larger than the branching patterns of characteristics across organisms in chimpanzee species or primate species, though they do not require a number of new genes commensurate with the complexity of the branching patterns of characteristics across organisms of the human species compared to primate species. Estimates by most scientists of the number of genes in the human genome were originally 60,000-100,000 or more; by 2001 the number of genes in the human genome was revised to 30,000, and this was met with scientists in the US and Europe proclaiming what a shocking finding it was that there were only 30,000 genes or only a third greater than the approximately 20,000 of nematode worms [22]; estimates of the human genome have since been revised to 20,000 or less.

Moreover, the genes and genetic material required for generating branching patterns of characteristics across angiosperm species compared to ancestral species and non-flowering plants are also relatively small; that is, the branching patterns of characteristics across organisms in angiosperm species are much larger than the branching patterns of characteristics across ancestral species of plants and non-flowering plants, though they do not require a number of new genes commensurate with the complexity of the branching patterns of characteristics across angiosperm species compared to ancestral species of plants or non-flowering plants (in most cases, non-flowering plants and ancestral species of plants have more genes and genetic material than angiosperm species, even though the angiosperm species have larger and more complex branching patterns of characteristics than non-flowering plants or ancestral species of plants).

I thus also conjecture that assortative mating, including interspecific assortative mating, may increase the alteration of functions of genes in species, thus reducing the number of genes and genetic material required for the growth and emergence of complex branching patterns of characteristics in angiosperm plants compared to ancestral species of plants, and in the human species compared to proto-human species in the Genus *Homo* and primate species.

Thus, as suggested, assortative mating may generate larger branching patterns of characteristics in the evolution of angiosperm species (interspecific assortative mating in the co-evolution of bee species, insect species, and bird species) than natural selection on its own, and assortative mating may generate larger branching patterns of characteristics in the evolution of the human species (intraspecific assortative mating in the co-evolution of human biology and cultural patterns) than natural selection on its own.

VII. On the Organization and Shape of Branching Patterns

More generally, it is possible to ask: what shapes and organizes biological variation in the evolution of species? What shapes and organizes branching patterns of characteristics across individual organisms within species, and branching patterns of characteristics and adaptive structures across species?

Branching patterns are fundamental to science, and their simulations in computer science, or their modeling and abstraction in mathematics: different kinds of phenomena are considered or classified as branching patterns, including crystals, electric discharges, the tree of life, cellular differentiation of plants, animals, and other organic branches of life, branching patterns of characteristics across individual organisms in species, branching patterns of characteristics and adaptive structures across species, languages and linguistic groups, religions and religious sects, and also families, organizations, and human societies.

Natural selection is constantly shaping and organizing branching patterns of characteristics across individual organisms in species across generational time; however, *assortative mating may generate larger branching patterns or branching geometries of characteristics across individual organisms in species*

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than natural selection on its own: Angiosperm plants that participate in interspecific assortative mating with bee species, insect species, and bird species have greater branching geometries of characteristics than ancestral species of plants that do not participate in interspecific assortative mating with insect species, bee species, and bird species; Species in the genus *Homo* that participate in intraspecific assortative mating, including the human species, have faster rates of evolution than primates (analogous to angiosperms compared to ancestral species of plants), have greater differentiation of characteristics and faster rates of differentiation of characteristics across organisms than primate species (analogous to angiosperm species compared to ancestral species of plants), and have greater branching geometries of characteristics, including behavioral characteristics and the expression of intelligences and personality characteristics, than primate species. (Intraspecific assortative mating is less in primate species since assortative mating within a shared language is absent in primates, and assortative mating across cultural characteristics is absent or far less than in humans or even primordial species in the genus *Homo*).

VIII. Ranking Forces of Nature by their Capacity to Generate Branching Patterns

Physicists, computer scientists, and Noam Chomsky, have sometimes expressed concern that biologists in the theoretical tradition of Darwinism emphasize or overemphasize Darwinism or natural selection to the exclusion of other forces that may explain or shape variation across biological species and biological systems.

Identifying assortative mating as a force in evolution raises a new set of questions in the biological sciences: How to rank the forces of nature in the biological sciences by their capacity to generate branching patterns?

In contrast with genetic mutation, gene duplication, recombination, and sexual reproduction (natural forces that increase the number and differentiation of characteristics across individuals in species), natural selection, in any generation, tends to decrease the number and differentiation of characteristics across individuals in species. Darwin and Wallace established the theory of evolution by natural selection, i.e., that given constant slight variations in the characteristics of individual organisms within species, less favorable variations for survival and reproduction will be eliminated, and more favorable variations will be selected and retained. As Darwin recognized natural selection is a conservative force that explains the gradual nature of evolution ("Natura non facit saltum"), and explains the conservation or retention of adaptive structures; thus, genetic mutation, gene duplication, sexual reproduction, and recombination are forces that tend to increase the number and differentiation of characteristics across individual organisms in any given generation in contrast with natural selection, and they tend to increase the rate of evolution in contrast with natural selection per se. However, natural selection may "increase" the rate of evolution over generations by conserving or retaining adaptive structures or adaptive properties that facilitate an increase in the rate of evolution and species diversification, like the differentiation of forelimbs from hindlimbs, the retention of vertebrata, the retention of bilateral symmetry, the retention of sexual reproduction, the retention of pollinating flowers, the retention of warm blood, the retention of mammary glands, or the retention of organisms with larger and more complex brains.

Given genetic variability and inheritance, natural selection shapes and organizes branching patterns of characteristics across individual organisms in species in generational time; however; assortative mating may generate larger branching patterns or branching geometries of characteristics than natural selection on its own. It also may be possible to assimilate the influential work of Susumu Ohno to this approach: Susumu Ohno suggests that gene duplication is more important for the emergence of new gene functions than point mutations and mutations at the level of genes and alleles. [23-25] Gene duplication is analogous to cloning, and it is possible to re-state Ohno's conjecture in a new way. Ohno's view is in effect that the differentiation of gene functions by gene duplication and genome duplication is greater than by genetic mutation per se (i.e., point mutations or mutations affecting the expression the individual genes and alleles).

From this standpoint, gene duplication produces branching patterns in the evolution of species, i.e., the differentiation of gene functions by gene duplication and genome duplication generates branching patterns of (new) adaptive structures in the evolution of species (in conjunction with natural selection, or in conjunction with natural selection and assortative mating, as discussed). Gene duplication and whole genome duplication events are viewed as being responsible for the emergence of various adaptive structures in the evolution of species, including vertebrata in the evolution of vertebrates, the eye, and the emergence of structures available for pollination in angiosperm plants. Ohno's work may be re-formulated: the differentiation of gene functions by gene duplication and genome duplication is greater than by genetic mutation on its own, and *the emergence of branching patterns of adaptive structures in the evolution of species are greater by gene duplication and genome duplication than by genetic mutation on its own*. Thus, to incorporate Susumu Ohno's work to this perspective, gene duplication and whole genome duplication events have

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a greater capacity to generate branching patterns than genetic mutation on its own (which also may be restated: gene duplication and whole genome duplications events have a greater capacity to generate branching patterns of characteristics in the evolution of species than genetic mutation and natural selection on their own). Similarly, *sexual reproduction and recombination have a greater capacity to generate branching patterns of characteristics across individual organisms in species, and in the evolution of species, than asexual reproduction of organisms*.

Cloning? It is an interesting question of how to assess the capacity of cloning to produce branching patterns. Sexual reproduction and recombination have a greater capacity to produce branching patterns of characteristics across individual organisms in species in generational time than the asexual reproduction of organisms, and sexual reproduction and the alternation of generations have a greater capacity to generate branching patterns of characteristics across individual organisms in species, and in the evolution of species, than asexual reproduction. However, cloning produces branching patterns when there are multiple lines of clones that may be differentiated across functions, as in multiple cell lines that differentiate into the different cell types, tissues, organs, and adaptive structures of complex organisms; more limited cases compared to cellular differentiation of complex organisms are the multiple kinds of cloned individuals and castes of some eusocial insects that fulfill different functions across the eusocial organism. (Major transitions of evolution have included new cell lines and new cell types that have emerged as new adaptive structures in the evolution of species, and also clonal castes of individual members in the emergence of eusocial species).

IX. In a Population of Pure Clones, the Darwin-wallace Pattern of Constant or Perpetuating Slight Variations Across Organisms in Species is Absent or Disappears, and this Suggests a Rule in the Biological Sciences

In a population of pure clones, opportunities for natural selection are absent since the Darwin-Wallace pattern of constant or perpetuating variations across individual organisms disappears or is absent in a population of pure clones. This also suggests a rule in biological systems: In biological systems clones reduce or eliminate opportunities for natural selection in the line of clones or generations of clones; however, the presence of clones, as in cell types and cell lines in multicellular organisms or castes of individuals in eusocial insects, thereby moves the unit of natural selection to a higher level of organization. This may be the individual organism in a species of individual organisms with variations across its members, the eukaryotic cell that incorporates symbionts as organelles to be cloned in reproduction (as in mitochondria or chloroplasts), or some eusocial colonies or eusocial species that have clonal castes instead of sexually reproducing castes. The strategy in this section also suggests that in biologically inspired computing in which artificial populations are constructed to simulate the Darwin-Wallace pattern, or cases of Darwin-Wallace patterns across different species, selecting units at random from artificial populations simulating Darwin-Wallace patterns, and cloning them to produce a population of clones or populations of clones, collapses the Darwin-Wallace pattern in any artificial population simulating a Darwin-Wallace pattern; that is, an artificial population of clones derived from an artificial population simulating a Darwin-Wallace pattern collapses the Darwin-Wallace pattern of the artificial population, and opportunities for natural selection or opportunities for simulated natural selection are absent in the artificial population of clones. [cf. 26-27]

X. Predicting the Collapse of Branching Patterns and the Generation of Branching Patterns in Natural Populations and Artificial Populations

The techniques of predictive science that I have introduced may be useful beyond the biological sciences. That is, since it is possible to predict that, selecting an individual organism from any species, and cloning them to produce a population two or more (or a 1,000 or a 1,000,000 or more), will collapse or reduce the distribution of characteristics of the natural population of any species from which the population of clones are taken, derived, or modeled, it is also possible to use this strategy for other phenomena besides biological species and biological phenomena.

A simple example would be cloning a population of cruise ships: It is possible to establish standards for ships or boats that are identifiable as cruise ships, thereby establishing a natural population of civilian cruise ships (that would not include military vessels such as aircraft carriers or destroyers, or smaller boats and vessels that did not meet the standards of being a cruise ship). Given a natural population of cruise ships, in which cruise ships would differ in their characteristics in various ways, such as by size, weight, engine horsepower and torque, engine efficiency and ability to reduce pollutants or emissions, and functional and aesthetic design features, it is in principle possible to select an individual cruise ship at random, and then clone the cruise ship by constructing a population of identical cruise ships. In that case, the population of cloned cruise ships would reduce or collapse the

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distribution of characteristics of the natural population of cruise ships.

The limited branching pattern of characteristics across cruise ships would be reduced or collapsed in the population of clones; given different samples from the natural population of cruise ships, in principle, different samples from the natural population of cruise ships may be used to establish different design traditions, trajectories, different patterns in the design of cruise ships over the generations of the construction of cruise ships. (Examples such as these may be multiplied across other designed constructions, whether houses, churches, temples, civilian or military buildings, cars, trucks, planes, trains, civilian vehicles or military vehicles, or space shuttles).

Thus, identifying and establishing a natural population of individual units (or a set of individual units in mathematics, or a set or artificial population of individual units computer science), and then selecting an individual unit from the natural population (or artificial population in mathematics or computer science) and cloning them to produce a population of clones or two or more (such as a 1,000 or 1,000,000 or more) collapses or reduces the distribution of characteristics of any natural population from which the clones are taken or derived (which is usually a branching pattern of characteristics, but may be some other fundamental shape or pattern that is reduced or collapsed in the population of clones). An exception would be if the natural population from which the population of clones is derived (or the artificial population from which the clones are modeled or derived), is itself a population of clones.

In that case or set of cases, the distribution of characteristics of the natural population would not reduce or collapse in the population of clones since the natural population was itself a population of clones (in principle, in the case of an artificial population that is constructed or simulated as a set of clones, then selecting an individual unit from the artificial population of clones would not collapse or reduce the distribution of characteristics of the artificial population since the artificial population was itself a population of clones).

Moreover, since computer science and different branches of science and engineering have been doing simulations of branching patterns since earlier in the 20th century, it may be highly useful to different branches of science, engineering, and computer science to use the techniques for predictive science introduced in my work to reduce or collapse branching patterns in natural populations (or artificial populations), and more easily visualize and identify branching patterns and their properties; moreover, it is also possible to consider how the properties of the individual organisms (or units of some other natural population or artificial population) taken or selected at random from some natural population of organisms or units (or artificial population), may differ in some respects from the branching pattern of characteristics of the larger natural population (or artificial population) from which they are taken or selected, and thereby be used to set the conditions for the emergence of new branching patterns compared to the natural population or artificial population from which they were derived, taken, or modeled.

In this work, I have introduced techniques from physics and computer science to generate new predictions of phenomena in the biological sciences: for example, in the case of an individual organism taken or selected at random from any species and cloned to produce a population of clones (such as 1,000 or 1,000,000 or more), it is possible to predict that the distribution of characteristics of the natural population (which is a branching pattern of characteristics across individual organisms in any species) will collapse or reduce in the population of clones or genetic identicals. Similar claims may be developed for *artificial populations*: that is, given the establishment of any artificial population of units (that may be simulated or constructed in computer programs, such as man-made technologies like cell phones, cruise ships, or ICBMs, physical properties like crystal lattices, or biological systems such as individual organisms from different species or different cell lines, tissues, and organs in the cellular differentiation of organisms), it is possible to predict that selecting an individual unit at random from any artificial population, and cloning them to produce a population of clones or identicals, will collapse or reduce the distribution of characteristics (that may be a branching pattern or other fundamental shape or pattern) of the artificial population from which the clones or identicals are taken or produced. Thus, this strategy may be useful for multiple purposes, including contributing to identifying patterns in natural populations and potentially different patterns in artificial populations by contrasting them with cloned populations based on or derived from random samples of natural populations and artificial populations.

It has not escaped my notice that, the strategy introduced in my work, of identifying different forces of nature and ranking forces of nature by their capacity to generate branching patterns or other fundamental patterns or shapes, is different than the strategy or attempt to unify all of the forces of nature in a single grand field theory or "theory of everything." (by physicists such as Michio Kaku, Edward Witten, Gabriele Veneziano, Ram Brustein, or others, [28-31])

That is, the strategy introduced in my work involves identifying forces of nature from each other, separating or identifying them and their effects in relation to each other instead of unifying them all, and involves ranking the forces of nature by their capacities to generate branching patterns or other fundamental patterns or shapes in nature. "Theories of everything,"

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have been criticized in various ways, including for not being empirically testable. [esp. 31] Moreover, it is questionable whether inventors or engineers have ever attempted or succeeded in designing different technologies, such as military or civilian vehicles, military weapons systems, satellites, space shuttles, cell phones, or other devices, with the mathematical physics of string theory that attempts to unify all of the forces of physics, electromagnetism, gravity, and the strong and weak forces, with a single theory. However, this work introduces a new way of evaluating and criticizing attempts to unify the forces of physics in a single theory; that is, instead of attempting to unify all of the forces of physics in a single theory, it may be more useful for science, technology, engineering, and computer science, to rank the forces of nature, in the physical sciences or the biological sciences, by their capacity to generate branching patterns or other fundamental forces of nature (such as wavelengths).

Earlier in the 20th century, Einstein famously attempted to unify all of the forces of physics in a single theory, and following generations of physicists have similarly attempted to unify the fundamental forces of physics, electromagnetism, gravity, the strong force, and the weak force, in a single unified theory or "theory of everything." Possibly the most famous and influential protagonist of contemporary "theories of everything" is the physicist Edward Witten. Witten states that "string theory has, even among theoretical physicists, the reputation of being mathematically intimidating." Witten claims that "string theory force(s) us to unify general relativity with the other forces of nature." [30] There are critics of string theory, however, such as physicist Peter Woit, that claim that string theory is not empirically testable, and does not succeed in unifying all of the forces of nature in a single theory. [31]

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Christopher Portosa Stevens is author of *The Branching Patterns of Human Evolution and the Acceleration of Human Evolution.*

References Références Referencias

1. Stevens, C.P., *The Acceleration of Human Evolution*. (Createspace.com, 2013).
2. Szathmary, E. and J.M. Smith, Major Evolutionary Transitions. *Nature* (1995) 374: 227.
3. Smith, J.M. and E. Szathmary. *The Major Transitions of Evolution*. (Oxford: Oxford University Press, 1997).
4. Lane, N. Energetics and genetics across the eukaryote-prokaryote divide. *Biology Direct* (2011). 6:35.
5. Szathmary, E. Cultural Processes: The latest major transition in evolution. *Encyclopedia of Cognitive Science*. (2006), https://onlinelibrary.wiley.com/doi/abs/10.1002/0470018860.s00716
6. Engels, F. *The Dialectics of Nature*. (2015). Createspace.com
7. Lewontin, R. C. and Levins, R. *The Dialectical Biologist.* (Cambridge. Harvard University Press, 1985).
8. Proctor, M., P. Yeo, and A. Lack. *The Natural History of Pollination*. (Portland, OR: Timber Press, 1996).
9. Chomsky, N. *Knowledge of Language: Its nature, origin, and use.* (Westport, CN: Praeger, 1986).
10. Smith, N. Chomsky's Revolution. *Nature* (1994) 367: 521.
11. Chomsky, N., Hauser, M. and W. Fitch. The Faculty of Language: What is it, Who has it, and How did it Evolve? *Science* 298 (2002): 1569.
12. Kroeber, A.L. *Configurations of Cultural Growth*. (Berkeley: University of California Press, 1944).
13. Geertz, C. *The Interpretation of Cultures*. (New York: Basic Books, 1973). Note that I recognize that Chomsky, Geertz, or others ask more than types of functionalist questions regarding what language does, or what culture does.
14. Dick, S.J. and M. Lupisella. *Cosmos & Culture: Cultural Evolution in a Cosmic Context*. (Washington, D.C.: NASA, 2009).
15. McLuhan, M. and B. Powers. *The Global Village: Transformations in World, Life & Media in the 21st Century*. (New York: Oxford University Press, 1989).
16. Gardner, H. The Socialization of Human Intelligences Through Symbols, in *Frames of Mind: The Theory of Multiple Intelligences*. (New York: Basic Books, 1983).
17. Cavalli-Sforza, L.L. 1974. Role of Plasticity in Biological and Cultural Evolution. *Ann. of the NY Acad. of Sci.: Mathematical Analysis of Fundamental Biological Phenomena* 231 (1974): 43-58.
18. Kaku, M. *Physics of the Future*. (New York: Doubleday, 2006).
19. Wilson, E.O. *Sociobiology: The New Synthesis*. (Cambridge: Harvard University Press, 1975).
20. Shultz, S., E. Nelson, and R.I.M. Dunbar. Hominin cognitive evolution: identifying patterns and processes in the fossil and archaeological record. *Phil. Trans. Roy. Soc. B*. 367 (2012): 2130-2140.
21. Stringer, C.. Origins and Evolution of *Homo Sapiens*. *Phil. Trans. Roy. Soc. B* 371 (2016): 20150237.
22. Claverie, J.M. What if There Are Only 30,000 Human Genes? *Science* 291 (2001): 1255.
23. Ohno, S. *Evolution by Gene Duplication*. (New York: Springer, 1970). Ohno's strong claim is that 'gene

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duplication is the only means by which a new gene can arise.'
24. Cui, L., et al. Widespread Genome Duplications Throughout the History of Flowering Plants. *Genome Research* 16 (2006): 738.
25. Magadum, S., U. Banerjee, P. Murugan, D. Gangapur, and R. Ravikesavan. Gene Duplication as a Major Force in Evolution. *Journal of Genetics* 92 (2013): 155-161.
26. Forbes, N. Biologically inspired computing. *Comput. Sci. Eng.* 2 (2000): 83-87.
27. Bongard, J. Biologically inspired computing. *IEEE Comp. Soc.* 42 (2009): 95-98.
28. Witten, E. What every physicist should know about string theory. *Physics Today* 68 (2015): 11.
29. Kaku, M. *Introduction to Superstrings*. (Berlin: Springer, 1988).
30. Gasperini, M. 2008. *String Theory and Fundamental Interactions: Gabriele Veneziano and Theoretical Perspectives: Historical and Contemporary Perspectives*. (Berlin: Springer, 2008).
31. Woit, P. *Not Even Wrong: The Failure of String Theory and the Search for Unity in Physical Law*. (New York: Basic Books, 2006).

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Availability of Fresh Water Fishes at Contai Municipality in Purba Medinipur District of West Bengal, India

By Dr. Kallol Kumar Hazra & Abhishek Giri

Abstract- Water is the home of fishes which may be fresh, brackish and marine. The present study is entirely based on freshwater fishes. PurbaMedinipur district has the potentiality for large fresh water resources. In this district, Contai is an important vital area because it is also a coastal based zone. Therefore the present study is very significant. Total of 46 native fish species were identified in this Municipality from the period of July 2021 to June 2022. Here total 46 freshwater fish species were observed under the 07 orders and 20 families.

Keywords: contai municipality, freshwater fish, availability, status, threat.

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Availability of Fresh Water Fishes at Contai Municipality in Purba Medinipur District of West Bengal, India

Dr. Kallol Kumar Hazra [α] & Abhishek Giri [σ]

Abstract- **Water is the home of fishes which may be fresh, brackish and marine. The present study is entirely based on freshwater fishes. PurbaMedinipur district has the potentiality for large fresh water resources. In this district, Contai is an important vital area because it is also a coastal based zone. Therefore the present study is very significant. Total of 46 native fish species were identified in this Municipality from the period of July 2021 to June 2022. Here total 46 freshwater fish species were observed under the 07 orders and 20 families.**

Keywords: *contai municipality, freshwater fish, availability, status, threat.*

I. Introduction

Freshwater is a good resource for fish and other freshwater aquatic faunas. West Bengal, as well as Purba Medinipur district, has the potential for sizeable freshwater resources. The diversity of fish species is influenced by the human, in both positive and negative ways. A total of 46 species belonging to 07orders and 20 families were recorded in this fish market in different seasons. The present study is an essential for the identification, occurrence, and status of freshwater fishes in this Municipality as well as how much essential to local people. The population in this Municipality is about sixty thousand. In this area various kinds of fishes are observed in different seasons. But this study also indicates that availability of freshwater fishes are not so much in respect of population. The people of Purba Medinipur District catches different kinds of freshwater fishes from different sources and finally reach in Fish Market at Contai Municipality. Due to the human interference, the freshwater ecosystem is continuously degraded. Therefore the availability of different kinds of fishes in the fish market gradually declined. So the present study is an attempt to survey and identify the locally available Freshwater fish species in Contai Municipality, PurbaMedinipur.

II. Methodology

The Main Fish market at Contai surveys were carried out every day in the early morning from 6 am - 9 am and late afternoon from 05:00 - 06:00 pm in Summer and rainy seasons and in winter and other seasons it was done during 7 am -9 am every day due to good availability of fish. Fish data were collected every day on the basis of fisherman and also from local people. Average market data were used for this study. Maximum fishes were came from surrounding areas such as Sabajput, Soula, Mukundapur, Aladarput and different ponds from local people, and also from Moyna. They were Surveying the local market as well as discussing with local fishermen to ensure the listing of low abundance or declining in productivity of those species.

a) Study Area

The study area is Contai Supermarket, located in Contai, Purba Medinipur District, WB (Lat. 21.7745^0 N, Long. 87.7477^0 E), where freshwater finfish information were collected from the fish seller and fishermen. Data was collected from April 2021 to May 2022. Thus conducting two samplings per day for the last year, total 46 fish samples were collected during this study period.

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b) Identification of Fish Samples

Fish samples are collected from the Contai Supermarket from the fish sellers. Generally the fishermen sort non-target fishes after catching in ponds or rivers. Generally the fishermen used bag net, gill net, cast net for fishing operation. The catches were collected by frozen ice box from the fish market for laboratory study. In the laboratory the fish samples were identified through different methods by Talwar and Jhingran 1991, Datta Munshi and Srivastava 1988.

III. Result and Discussion

During the study period, different fin fishes were observed in the contai Supermarket area of the Purba Medinipur district. The result showed that the fish market is rich in fin fish diversity. The fin fish belong to 7 orders and 20 families were recorded. In the present study, 46 fin fishes from different genera and 19 families were recorded.

The member of the order Anguilliformes and Cyprinodontiformes are dominated by single species, but the order Synbranchiformes, Cypriniformes, Perciformes, Siliuriformes and Osteoglossiformes represents 3,16,13,10, and 2 species respectively.

Among all these, order Cypriniformes was the most dominant constituting 35%, followed by the order Siliuriformes which includes 22%, order Perciformes, Synbranchiformes, Osteoglossiformes, Anguilliformes and Cyrinodontiformes comprised 28%, 7%, 4%, 2% and 2% respectively.

Order	Family	Local name	Scientific Name	Characteristic features	IUCN Status
1. Anguilliformes	01.Anguillidae	Bamas	*1. Anguilla bengalensis*	1. Body elongate, snake-like. 2. Light brownish dorsally, bellow and sides are yellowish. 3. Head conical. 4. Dark spots on upper surface of body.	NT
2. Synbranchiformes	02. Synbranchidae	Kuche	*2. Monopterus cuchia*	1. Body long, head slightly compressed. 2. Lower jaw longer. 3. Body colour silvery. A silvery lateral band running from head to tail.	LC
	03. Mastacembelidae	Pankal	3. *Macrognathus pancalus*	1. Mouth small, snout pointed. 2. Greenish olive along back, beneath yellowish.	LC
		Baan	4. *Mastacembelus armatus*	1. Mouth small, snout pointed. 2. Dorsal spines commence over middle of pectoral fin. 3. Dark brown on back and flanks, yellowish beneath.	LC

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3.Cypriniformes	04. Cyprinidae	Mola	*5. Amblypharyngodon mola*	1. Elongated silvery color body with compressed head. 2. Presence of silvery lateral band running from head to tail. 3. Caudal fin deeply forked, caudal lobe pointed.	NT
		Chela	*6. Salmostoma phulo*	1. Silvery color Body elongate mouth slightly upward. 2. Dorsal fin inserted just opposite to origin of anal fin	LC
		Kalbaush	7. *Labeo calbasu* (Hamilton, 1822)	1. Body colour blackish-green, lighter below. 2. Presence of Two pairs of minutes barbells. 3. Dorsal profile more convex than that of abdomen	EN

Order	Family	Local name	Scientific Name	Characteristic features	IUCN Status
3.Cypriniformes	04. Cyprinidae	Rui	8. *Labeo rohita* (Hamilton, 1822)	1. Body moderately elongated body with brownish color on back, whitish-silvery below . 2. Scales with blackish margins and reddish center.	NT
		Bata	9. *Labeo bata* (Hamilton, 1822)	1. Body colour darkish or bluish above and silvery below. 2. Fins colour orange.	EN
		Katal	10. *Catla catla catla* (Hamilton, 1822)	1. Colour dark grey on back, silvery on abdomen. 2. Head enormously large, mouth wide and upturned. 3. 3. Fins blackish	NT
		Silver Cap	11. *Hypophthalmicthys molitrix* (Valenciennes, 1844)	1. Dorsal fin short. 2. 2.Body colour silvery white. 3. Fins are dark coloured	NT
		Brigade	12. *Hypophthalmichthys nobilis* (Richardson, 1845)	1. Body colour greyish above, silvery below. 2. Fins brownish. 3. Lower jaw slightly protruding.	DD
3.Cypriniformes	04. Cyprinidae	Tita punti	13. *Puntius ticto*	1. Two black spots on lateral line. 2. Silver body color with complete lateral line	VU
		Gheso Rui	14. *Ctenopharyngodon idella* (Valenciennes, 1844)	1. Body colour Dark grey color body above, silvery on flanks and belly. 2. Head broad with a short rounded snout.	NE
			15. *Carassius auratus* (Linnaeus, 1758)	1. Body colour orange on back, whitish orange below. 2. Broad body with large scales .	LC
			16. *Cyprinus carpio* (Linnaeus, 1758)	1. Broad body with large scales and swollen abdomen. 2. Generally orange body color.	NL
		Mirgyala	17. *Cirrhinus mrigala*	1. Grayish along the back silvery on	LC

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			(Hamilton, 1822)	the sides and below. 2. Colour of pectoral, pelvic and anal fins are orange.	
		Daria	18. *Rasbora daniconius*	1. Elongated compressed body with wide band at middle. 2. Abdominal portion more covex than dorsal.	LC
		Jat Punti	19. *Puntius sophore(Hamilton-Buchanan,1822)*	1. Presence of red lateral streak primed during breeding season in male. 2. Body fairly deep and compressed.	LC
		Bata	20.*Cirrhinus reba* (Hamilton, 1822)	1. Body is silvery in color; scales are darkest at their edges 2. Body is slender; the dorsal profile is slightly more convex than the ventral profile	LC
4.Perciformes	05. Cobitidae	Ruti	21. *Lepidocephalus guntea*	1. Back dark brown, belly yellowish. 2. Caudal fin cut square with round corner 3. Body elongate, dorsal and central surface nearly parallel	EN
	06. Gobidae	Bele	*22. Glossogobius giuris*	1. Body with two rows of 4-6 dark blotches. 2. Head pointed, lower jaw slightly longer. 3. Two dorsal fins situated closer. Caudal fin rounded	EN
	07.Nandidae	Bheda	23. *Nandus nandus*	1. Body color greenish brown. 2. Three vertical stripes on flanks. 3. Rectangular Body slightly, compressed and deep	VU
	08.Pristolepidae	Kala koi	24. *Badis badis*	1.	EN
	09. Channidae	Shoal	25. *Channa striatus*	1. Body elongate,fairly rounded in cross-section. 2. Scales on head larger. 3. Body colour grey-green on black-green on back in adult, several white or yellowish white vertical stripes on belly.	NT
4.Perciformes		Lata	26. *Channa punctatus*	1. Body elongate, fairly rounded in cross-section. 2. Scales on head irregular. 3. Body colour varies with water they reside. 4. Usually grey on dorsal side,lighter beneath.	NT
		Cheng	27. *Channa orientalis*	1. Body elongate,fairly rounded in cross-section. 2. Mouth large,teeth villiform on jaws. 3. Dorsal side and flanks green,ventral side faint bluish or reddish.	VU

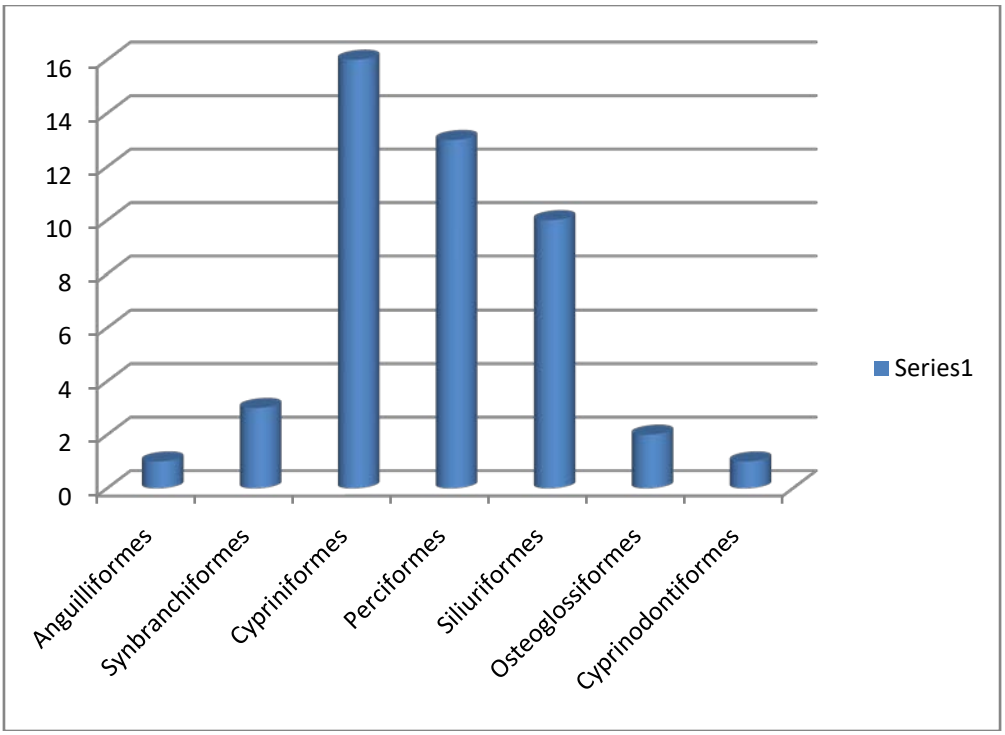
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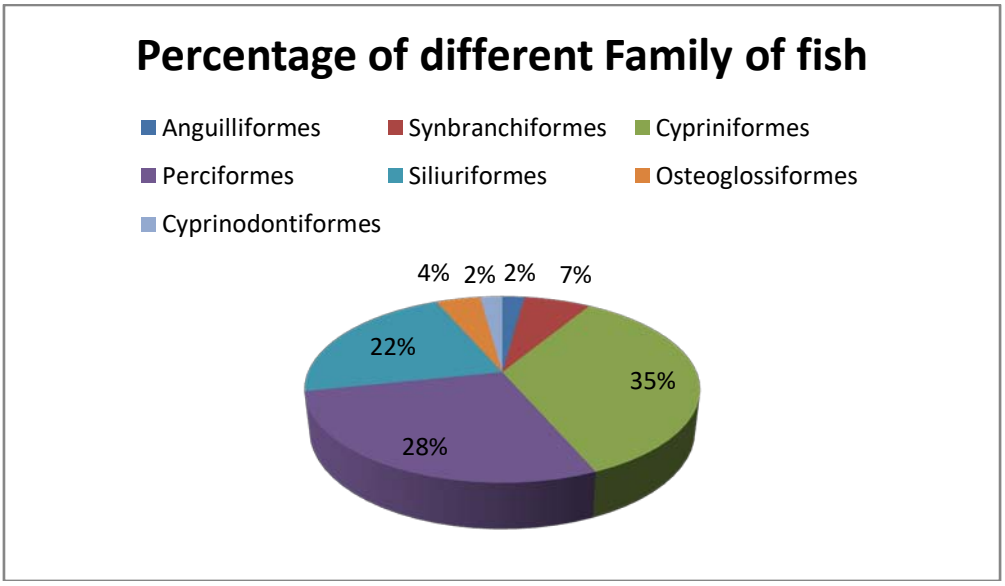
4. Perciformes	10. Osphronemidae	Khalisha	28. *Trichogaster fasciata*	1. Greenish color with oblique orange or bluish stripes descending downwards and backwards from the back to the anal fin. 2. Vertical fins with alternating dark and pale spots. 3. The anal fin often with a red margin.	LC
	11. Anabantidae	koi	29. *Anabas testudineus*	1. Lower jaw slightly longer. 2. Scales ctenoid. 3. Back greenish brown, yellowish beneath.	NT
	12. Cichlidae	Telapia	30. *Oreochromis mossambicus*	3.	VU
		Nilotica	31. *Oreochromis niloticus*	4.	LC
	13. Ambassidae	Chanda	32. *Chanda mama*	5.	LC
		Gol Chanda	33. *Parambassis ranga*	6.	LC
5. Siluriformes	14. Clariidae	Magur	34. *Clarias batrachus*	1. Body colour brown to blackish. 2. Pectoral spine strong,finely serrated on both edges.	LC
		Thai mangur	35. *Clarias gariepinus*	1. Body colour brown to blackish. 2. Anterior portion of Head is blunt. 3. Barbells are long.	LC
5. Siluriformes	15. Heteropneustidae	Shingi	36. *Heteropneustes fossilis*	1. Body elongate, compressed behind, head depressed. 2. Dorsal fin small, pectoral fin with a strong spine seratted internally. 3. Caudal fin rounded, separated by a distinct notch from caudal fin.	LC
	16. Pangasiidae	Pungas	37. *Pangasius pangasius*	7.	LC

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	17. Bagridae	Tengra	38. *Mystus tengara*	1. Dorsal spine long upto head keep out the head. 2. 4-5 longitudinal bands along sides 3. Body color yellow or brown with a dark spot on shoulder.	LC
		Arr tengra	39. *Hemibagrus menoda*	1. Head dorso-ventrally flattened with terminal mouth. 2. Adipose fin well developed and caudal fin forked. 3. Body color grayish brown on back and yellowish or dull white beneath.	LC
5. Siluriformes		Rani Tengra	40. *Mystus vittatus*	1. pairs of barbels, maxillary barbels extending beyond the pelvic fins. 2. A narrow dusky spot often present on the shoulder.	LC
	18. Siluridae	Boal	41. *Wallago attu*	1. Caudal fin is deeply forked. 2. Body colour greyish or yellowish grey in above and whitish in below but the fins grey. 3. Eyes are small. Mouth wide	VL
		Pabda	42. *Ompok bimaculatus* (Bloch, 1794)	1. Two pairs of barbels; maxillary barbels reaching pelvic fins or anal fins; mandibulary barbels minute. 2. Brown, usually marmorated body with conspicuous round black blotch above pectoral base.	NT
			43. *Ompok pabda* (Hamilton, 1822)	8.	NT
6. Osteoglossiformes	19. Notopteridae	Chital	44. *Notopterus chitala* (Day, 1878)	1. Body is very strongly compressed with a short pre-caudal region. 2. Dorsal fin is short and ventral fin very much reduced or absent.	NT
		Folui	45. *Notopterus notopterus* (Pallas, 1769)	1. Colour is silvery dark. 2. Very much elongated anal fin confluent with reduced caudal fin.	LC
7. Cyprinidontiformes	20. Belonidae	Gangtara	46. *Xenentodon cancila* (Hamilton-Buchanan,1822)	1. Elongated body with greatly elongated both jaws and studded with sharp teeth. 2. Body greenish above, white ventrally and laterally silver in color.	LC

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a) *Availability of freshwater families*

Families	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Anguillidae	+	+	+	+	-	-	-	-	-	+	+	-
Synbranchidae	-	-	-	-	-	-	-	-	+	+	-	-
Cyprinidae	++ +	++	++	+++	++	+	++	+++	++ +	+++	++ +	++ +
Cobitidae	-	-	-	-	-	-	+	+	+	-	-	-
Gobidae	+	+	+	-	++	++	+	+	++	-	-	+
Nandidae	-	-	-	+	+	-	-	-	-	+	+	-
Pristolepidae	-	-	-	+	+	-	-	-	-	-	-	+
Channidae	++ +	++	++	++	++	+	+	+	++	++	++	++
Osphronemidae	+	+	+	+	-	-	-	++	++	+	+	++
Anabantidae	++	+++	+++	++	++	++	+	+	+	++	++	++

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	+											
Cichlidae	++	++	++	+++	++	+	++	+++	++	+++	++ +	++
Mastacembelidae	+	+	-	+	+	+	-	+	+	+	+	+
Ambassidae	-	-	-	-	+	+	+	+	++	+	+	-
Clariidae	++	++	++	++	++	+	+	+	++	++	++	++
Heteropneustidae	++	++	++	++	++	+	+	+	++	++	++	++
Pangasiidae	+	+	+	+	-	-	-	++	++	+	+	+
Bagridae	++	++	++	++	++	-	-	++	+	+	++	++
Siluridae	++	++	++	-	-	-	+	+	+	-	++	++
Notoptertidae	+	+	+	+	+	+	-	-	+	+	+	+

+ = Rarely observed , ++ = moderately observed, +++ =Highly observed, - =Not found

b) Photograph

Some photography of fishes and ponds are listed bellow with common name-



Study site at morning



Folui Goal Chanda Lamba Chanda Bata



Nilontica Bele Pabda Rui



Fish Market

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Tangra Telapia Chela Mourola



Jat punti katla



Koi Soal Pungas Tangra Pankal



Mrigala Magur Singhi



Lata

IV. Conclusion

The final result confirmed that the appropriate conservation strategy and proper planning must be needed to protect those local fish species. The market-based survey of those species showed a considerable drop in productivity in the last few years for several reasons. Overfishing, unregulated uses of pesticides in agricultural field, uses of antibiotics, natural calamity, irrational fish harvesting along with different anthropogenic activities, environmental pollution as well as manmade pollution are the central cause for aquatic diversity loss which also affect on the fish faunal population. Proper supervision along with sustainable developmental thoughts like harvesting fish population size restriction, and breeding technique development may protect those fish species from the door of extinction.

References Références Referencias

1. Jayaram K.C. (1981) Fresh water fishes of India handbook. Zoological Survey of India, Calcutta, India.
2. Jhingran. V.G., (1982). Fish and fisheries of India. Hindustan Publishing Corporation (India), Delhi, pp.3-666.
3. Jhingran A.G. (1989) Role of exotic fishes in capture fishery waters of India. In: Conservation and

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management of inland capture fisheries resources of India (Jhingran AG, Sugunan VV ed.), Inland Fisheries Society of India, CIFRI, Barrackpore, India, pp.275.

4. Barman RP. A review of the freshwater fish fauna of West Bengal, India with suggestions for conservation of the threatened and endemic species. Rec. Zool. Surv. India 2007; 263:1-48.
5. Bhakta J. N. and Bandyopadhyay P. K. (2008), Fish Diversity in Freshwater Perennial Water Bodies in East Midnapore District of West Bengal, India, Int. J. Environ. Res., 2(3), pp. 255-260.
6. Jayaram, K. C. (2010). The Freshwater Fishes of the Indian Region (Revised second edition). Narendra publishing house, New Delhi, India.
7. Basu A, Dutta D, Banerjee S. Indigenous ornamental fishes of West Bengal, Aquaculture Research Unit, Department of Zoology, University of Calcutta, West Bengal, India. Recent Res. Sc. Techno 2012;4(11):122.
8. Mandal, M. and Chanda, A. (2017), A Study on Small Indigenous Freshwater Fish Availability in Two Daily Markets of Midnapur Town, West Bengal, India. World Wide Journal of Multidisciplinary Research and Development, 3 (9), pp. 179 – 183.
9. IUCN. International Union for Conservation of Nature and Natural Resources 2018. http://www.iucnredlist.org.

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Spark of First Life and Consciousness

By Chandra Prakash Trivedi

Abstract- The electrostatic force is the force that governs the motion of the elementary particles, which caused them to aggregate or collide in various ways with oxidation and reduction with the transfer of electrons in the primordial soup. The vibratory movement of the charged ions with equal and opposite wavelength developed a dynamo with streaming in extreme anaerobic condition.

It has been observed in the ultra-resolution image that one purine and one pyrimidine base differing only in Nitrogen are complimentary to each other shed with cosmology. The elementary particles adhered to space, the sound of vibration touched, press the mark, and rebound. The colliding protons, decaying into hadron jets, the electrons converted them into electric vibrations to join the purine and pyrimidine base in series with mass.

The electrostatic interaction between the charged ions of the water with dehydration separated the hydrogen bond. It has formed a covalent Hydrogen bond between the purine and pyrimidine complementary base. The complementary wavelength of hydrogen bond activated the nucleotide pair with transfer of electron.

Keywords: *spark of life, phonon, slime soup.*

GJSFR-C Classification: *DDC Code: 843.914*



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Spark of First Life and Consciousness

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Abstract- The electrostatic force is the force that governs the motion of the elementary particles, which caused them to aggregate or collide in various ways with oxidation and reduction with the transfer of electrons in the primordial soup. The vibratory movement of the charged ions with equal and opposite wavelength developed a dynamo with streaming in extreme anaerobic condition.

It has been observed in the ultra-resolution image that one purine and one pyrimidine base differing only in Nitrogen are complimentary to each other shed with cosmology. The elementary particles adhered to space, the sound of vibration touched, press the mark, and rebound. The colliding protons, decaying into hadron jets, the electrons converted them into electric vibrations to join the purine and pyrimidine base in series with mass.

The electrostatic interaction between the charged ions of the water with dehydration separated the hydrogen bond. It has formed a covalent Hydrogen bond between the purine and pyrimidine complementary base. The complementary wavelength of hydrogen bond activated the nucleotide pair with transfer of electron. The hydrogen triple bond converts into the double bond, and reunited on the opposite side with change in the electron with oxidation and reduction in chain with the first genetic code and amino acid in series. The synthesized chromosomes divided into four with the first prokaryotic cell. Life appears with the streaming of the protoplasm and disappears with aging of the cell. The complementary wavelength of hydrogen triple bond of the nucleotide pair led the development from generation to generation with new life.

Keywords: *spark of life, phonon, slime soup*.

I. Introduction

Origin of life consciousness is a great puzzle, life appears with the streaming of the protoplasm and disappears with aging of the cell body. I have traced the roots of life consciousness in pre-cosmic condition. The phonon wave appeared first and activated the dark matter with blast and light. The phonon and photon run parallel with equal and opposite wavelength. The purine and pyrimidine base differing only in Nitrogen shed like bullet with incandescent gaseous clouds with phonon photon interaction with the vibrations. The electrostatic force governs the motion of the elementary particles, which caused them to aggregate or collide in various ways with oxidation and reduction with the transfer of electrons in the primordial soup. It has activated the purine and the pyrimidine complementary base pair with resonance.

The electrostatic interaction between the charged ions of the water with dehydration separated the hydrogen bond. It has formed a covalent Hydrogen bond between the purine and pyrimidine complementary base. The complementary wavelength of hydrogen bond activated the nucleotide pair with transfer of electron. The hydrogen triple bond converts into the double bond, and reunited on the opposite side with change in the electron with oxidation and reduction in chain with the first genetic code and amino acid in series. The synthesized chromosomes divided into four with the first prokaryotic cell. Life appears with the streaming of the protoplasm and disappears with aging of the cell. The complementary wavelength of hydrogen triple bond of the nucleotide pair led the development from generation to generation with new life.

II. Early Work

The Russian Chemist A.I. Oparin 1922 and English Geneticist J.B.S. Haldane 1928 first conceived of the theory of the pre-biotic origin of life. DNA Watson and Crick 1953, Darwin Origin of Species 1859, Life evolved from the single DNA with Genetic recombination and cell division. How did the first Life begin? NASA researchers noticed polycyclic aromatic hydrocarbons (PAHs) in meteorites. Extra hydrogen or oxygen called Quinone has the potential for the origin of life.

Higgs field 1914, phonon scattered the photon in a crystal Lie et al 2014, Einstein 1923 there must be two equal and opposite forces. The photon is the smallest unit of light, and immortal phonon is smallest unit of the sound wave vibration are connected at the molecular level with equal and opposite wavelength.

The DNA with photon-phonon interaction is universally present. Hence its complimentary resonant wave blackouts radio communications on the earth and the protons damage human beings in space if not protected properly. Because the entry of radiation rays with protons checked by the magnetosphere and ozone layer and complimentary resonance finds its counterpart protons astronaut human in space.

a) Life on the Earth

The incandescent gaseous cloud cooled down with time and the movement of the molten mass generated the geomagnetic field and magnetosphere around the earth has given the place for the ionization of the solar flares trapped by the magnetosphere and interacts with the sun's magnetic field. The ions flow down and filled the earth with the water.

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b) Ozone Layer

Stratospheric ozone is formed naturally through the interaction of solar ultraviolet (UV) radiation with molecular oxygen (O2). Ozone absorbs the toxic UV rays with the entry of visible light, it has given the way for the origin of life on the earth.

III. Theory

I have traced its root in pre-cosmic cosmology and the sun.

The earth is a part of our solar system, which is one unit of the cosmos. The human body is a microcosm inside a macrocosm. All can be searched just like a drop of water in the sea can reveal the character of the ocean I have studied the sun with the naked eyes with my yogic practice otherwise it is impossible to face the sun even for a second with confirmation from Egypt Rosetta granite stone, pyramids of the Egypt, Gold plate Grand Canyon North. America, NASA pictures & Veda,

I have observed the nuclear reactions on the sun's surface with blast and light. The photon and phonon run in a straight way in concentric circles. It has been confirmed from the Sun disc gold plate Grand Canyon and Veda.

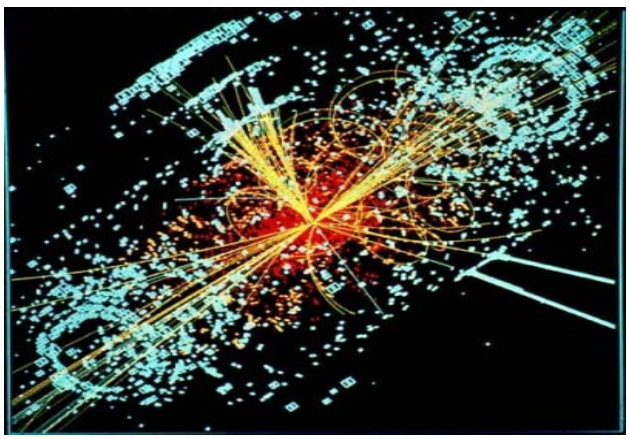
The digitally stacked sequence reveals that the photon and phonon running in concentric circles from the sun Grand Canyon Star Trails NASA - March 3, 2013. The Scientists are searching the Dark matter, is not a matter. The dark atmosphere is hidden in the interior of the sun, black caters and sunspots, which explode with blast and light.

The shock waves are antimagnetic, white, and travel with supersonic speed, and dark matter is an inactive condensed zone of magnetism without movement, just like a waste. The shock waves are 'anti-matter of dark matter, immortal with opposite character. It appears first in the pre-cosmic darkness like the shock waves appear before the earthquake, and activated the dark matter with resonance with blast and light. The photon and photon are complementary to each other.

The activation of dark matter is activation of inherent magnetism in cosmos, with formation of charged elementary particles. The electrostatic force is the force which governs the motion of the elementary particles, which caused them to aggregate or collide in various ways with oxidation and reduction with the transfer of electron.

The photon and phonon have broad complementary spectrum from gamma rays to radio waves with equal and opposite wavelength. The immortal phonon stimulate the event with electron configuration and half-spin change in the opposite wavelength and photon undergoes the synthesis and degradation with time Einstein's Equation$E=Mc^2$.

The flow of the photon and photon has been halted with the Higgs field underlying space imparted mass to the elementary particles.



Higgs Field and Mass to the Elementary Particles

All elementary particles are vibrating with the resonance of vibration and their respective charge. They are complementary to each other from gamma rays to radio waves. They find their resonant with resonance. The resonant vibrations of electromagnetic rays, touch, press-mark, and rebound. The colliding protons, decaying into hadron jets and electrons, converted them into electric vibrations to join them in series with phonic compression electromagnetic force. It has maintained its continuity in the molecules and the matter with Higgs field 2013 with asteroids and planets.

IV. Discussion

All elementary particles are vibrating with the resonance of vibration and their respective charge. They are complementary to each other from gamma rays to radio waves. They find their resonant with resonance. The phonon touch press mark and rebound with electron configuration and the half spin change in the opposite wavelength, and the photon undergoes the synthesis and degradation with time Einstein's

equation $E=Mc^2$

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The first life arose in the primordial soup with the streaming movement of the charged ions in the colloidal solution. The respective complementary wavelength of the charged ions caused them to vibrate with streaming

The vibratory movement of the ions with streaming developed a dynamo in the center with actions and interactions in series with electron transfer and photon undergoes synthesis and degradation with time.

The electron transfer is associated with the oxidation loss of an electron and reduction gain of electron in anaerobic condition. The electrostatic interaction between the charged ions developed dynamo in the center with the electromagnetic field. The vibration waves activated the equal and opposite wavelengths of purine and pyrimidine base differing only in Nitrogen The elementary particles adhered to space, the sound of vibration, touched, press the mark, and rebound. The colliding protons, decaying into hadron jets and electrons, converted them into electric vibrations to join them in series with electron configuration and half spin change in the opposite wavelength.

The electrostatic interaction between the charged ions of the water with dehydration separated the hydrogen bond. It has formed a covalent Hydrogen bond between the purine and the pyrimidine base.



Ultra resolution image of DNA with Electron transfer

The phonon wave strike and rebound with a press mark with the electron configuration in the opposite direction of hydrogen triple bond, it triggered off the chain of oxidation and reduction reaction, and the hydrogen triple bond converted into double bond and Nitrogen reunite it on the other side simultaneously.

The equal and opposite wavelength of hydrogen triple bond led the development with electron transfer. With the first genetic code and amino acid in series synthesized the chromosomes. The chromosomes divided into four with first prokaryotic cell. Life appears with the streaming of protoplasm with the food metabolism as source of life and disappears with aging and death of the cell body. The complementary wavelength of hydrogen triple bond of the nucleotide pair led the development from generation to generation with new life.



T Nucleotides Divide in air Like Image in the Mirror with Electron Transfer

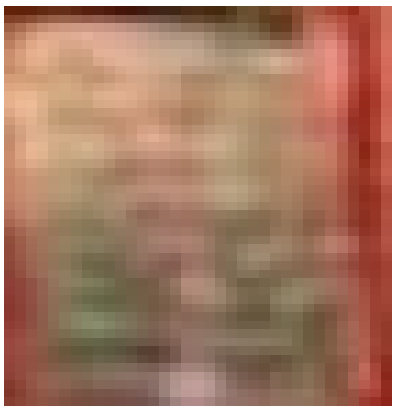
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The equal and the opposite wavelength of hydrogen triple bond led the development with electron transfer in series and the hydrogen triple converted into double bond and reunited in the opposite direction simultaneously with Nitrogen in series as identity of the individual cell with equal and opposite wavelength. Hence, even the time twins have different genetic identity and fate in life.

The prokaryotes evolved into the eukaryotic autotrophic cell with the entry of the red wavelength of light made apparent the three places of nucleotide pair with the photosynthesis and generation of immortal chemical energy. The immortal phonon wave follows the immortal DNA from generation to generation with new life and cell division.



At the Point of Two Different DNA the Complementary Phonon Wave Strike and Rebound with Generation of Triplet code in air with Electron Configuration and Half Spin Change in the Opposite Wavelength



The Complementary Wavelength Led the Development Vigorously



The Triplet Genetic Code of DNA Divides in Chain with Never Breaking Nitrogen

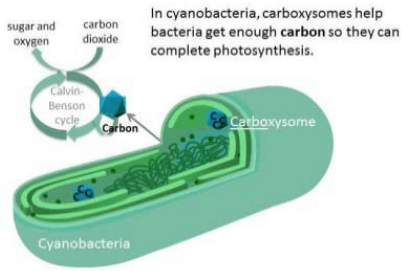
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The complementary phonon wavelength acts as antennae and speaker to execute the functions of life, It led the development with the synthesis of amino acids and proteins in chain to synthesize the chromosome pair with the first prokaryote.

The Hydrogen triple bond Nitrogen triple bond with oxidation and reduction separate and unite simultaneously on other side, with oxidation the hydrogen bond break and Nitrogen reunite it on other side, due to this the double helix chain never break.

V. Result and Conclusion

The entry of the Red wavelength of light through the plasma membrane activated the place of the chlorophyll pigment on the DNA.



The first prokaryotic cell with an incipient nucleus maintained its continuity with cell division, and immortal phonon follow it from generation to generation with new life.

The entry of the Red wavelength of light through the plasma membrane activated the place of the chlorophyll pigment on the DNA as source of life with food metabolism.

It has given double horsepower to the developing cells and the prokaryotic autotrophic cell evolved into the eukaryotic cell and moved on the path of evolution with genetic recombination and cell division with the hereditary characters and the complementary phonon wave follow it from the generation to generation with new life as hereditary life principle.

Life appears with the streaming of the protoplasmic vibrations with food metabolism and disappears with the aging of the cell body.

It is like this that all the rotating astronomical bodies rotate at their axis with the generation of the dynamo in the centre with the magnetic field and the magnetosphere around them. In the same fashion, the streaming of the protoplasm with the nucleus in the centre generates dynamo in the centre with a magnetic field and magnetosphere but is hard to detect, which disappears with death, aging of the cell body.

The purine and the pyrimidine base pair of DNA differing only in Nitrogen have shed from the Nebula with the cosmological event. It divides in the air just like the image in the mirror. The Purine and pyrimidine base pair of the DNA has an inbuilt mechanism for the transcription and translation with time, with three immortal and three stages of life. The three immortals are, 1- the Higgs field ensign of the existence, 2- the immortal chemical energy of photosynthesis, with food metabolism is the source of life. 3. The immortal DNA with resonant vibrations light of life for all.

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References Références Referencias

1. *Arunan, Elangannan; Desiraju, Gautam R.; Klein, Roger A.; Sadlej, Joanna; Scheiner, Steve; Alkorta, Ibon; Clary, David C.; Crabtree, Robert H.; Dannenberg, Joseph J. (2011-07-08). "Definition of the hydrogen bond (IUPAC Recommendations 2011)". Pure and Applied Chemistry. 83 (8): 1637–1641. doi:10.1351/PAC-REC-10-01-02. ISSN 1365-3075. S2CID 97688573.*
2. ^ Pimentel, G. *The Hydrogen Bond* Franklin Classics, 2018), ISBN 0343171600
3. ^ Jeffrey, G. A.; *An introduction to hydrogen bonding*; Oxford university press New York, 1997. ISBN 0195095499
4. ^ Jeffrey, G. A.; Saenger, W. *Hydrogen bonding in biological structures*; Springer: Berlin, 1994, 2012 Springer; ISBN 3540579036
5. *Carol Stoker:* Searching for Life Underground: Experiments with Drilling in Mars Analog Terrains
6. *David Summers:* Detection of Biosignatures with highly sensitive radio-labeling techniques. The Stable Isotope Fractionation of Abiotic Reactions: A Benchmark in the Detection of Life
7. Chandra P Trivedi. Vedic Genetics Cow Omni-form Decipherment of Indus Valley Seals. Volume I; Chaukhamba Sanskrit Pustakalaya Varanasi.
8. Chandra P Trivedi. Indus Vedic Biotechnology Indus Valley to Grand Canyon Decipherment of Indus Valley Seals.Volume II; Chaukhamba Sanskrit Pustakalaya Varanasi.
9. Chandra P Trivedi, S.P.S. Chauhan, AseemTrivedi. Advanced Biotechnology of Indus Valley. Lap Lambert Germany. 2013.
10. Laura Sánchez-García, Miguel A Fernández-Martínez, Mercedes Moreno-Paz, Daniel Carrizo, Miriam García-Villadangos, Juan M Manchado, et al. Simulating Mars Drilling Mission for Searching for Life: Ground-Truthing Lipids and Other Complex Microbial Biomarkers in the Iron-Sulfur Rich Río Tinto Analog. Astrobiology. 2020; 1029-1047. doi: 10.1089/ast.2019.2101
11. David Summers. Detection of Biosignatures with highly sensitive radiolabeling techniques. The Stable

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Isotope Fractionation of Abiotic Reactions: A Benchmark in the Detection of Life, Biomarkers.
12. Li E, Eggelton BJ, Fang K, Fan S. Photonic Aharonov–Bohm effect in photon–phonon interactions. Nature Communications.2014; 5:3225.doi: 10.1038/ncomms4225.
13. Steven W Hawking, George FR Ellis. The Cosmic Black-Body Radiation and the Existence of Singularities in our Universe.Astrophysical Journal.1968; 152: 25-36.
14. Steven W Hawking, Roger Penrose. The Singularities of Gravitational Collapse and Cosmology. Proceedings of the Royal Society of London, Series A. 1970; 314(1519): 529-548. doi:
15. 0.1098/rspa.1970.0021 9. Mark Eastman, Chuck Missler. The Creator: Beyond Time and Space. 1996; pp: 11.
16. W Wayt Gibbs, George FR Ellis. Scientific American. 1995, 273(4): 55.
17. Robert V Gentry. New Cosmic Center Universe Model Matches Eight of Big Bang's Major Predictions Without The F-L Paradigm. CERN Preprint.
18. Robert V Gentry. Discovery Of A Major Contradiction In Big Bang Cosmology Points To The New Cosmic Center Universe Model. CERN Preprint.
19. Robert V Gentry. A New Redshift Interpretation.Arxiv. 1998.
20. Robert V Gentry. The New Redshift Interpretation Affirmed. Arxiv. 1998.
21. JN Bahcall, T Piran, S Weinberg. Dark Matter in the Universe.Jerusalem Winter School for Theoretical Physics.1986-7.
22. J Audouze, J Tran Thanh Van. Dark Matter. Proceedings of the XXIIIrd Recontre de Moriond.
23. RD Heuer. The Large Hadron Collider: Shedding Light on the Early Universe. CERN, Chios, Greece. 2011.
24. Examples of Great Discoveries in the Fundamental Forces. Gravity probe B FAQ, Stanford University. 2012
25. A Brief Introduction to the Ancient Indus Civilization. Harappa.com. 20. JD Watson, FHC Crick. A Structure for De oxy ribose Nucleic Acid.Nature. 1953; 171 737-738.
26. Rosalind E Franklin, RG Gosling. Molecular Configuration in Sodium Thymonucleate.Nature. 1953; 171: 740-741.
27. MHF Wilkins, AR Stokes, HR Wilson. Molecular Structure of Nucleic Acids: Molecular Structure of Deoxypentose Nucleic Acids. Nature.1953; 171: 738-740.
28. Trivedi CP. Cracking the DNA code of Indus Valley Genetics and Cytology. Lap Lambert Academic Publishing, Germany. 2012.
29. Trivedi CP. Quest of Creation Higgs; God particle. Lap Lambert Academic Publishing, Germany.
30. Trivedi CP. Vedic Geeta the Secret of Eternal Life. Lap Lambert Academic Publishing, Germany.
31. Trivedi Chandra P. Lord of Creation Einstein's Grand Unified Force. Parimal Publications

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Acknowledgments

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- Microsoft Word Document Setting Instructions.
- Font type of all text should be Swis721 Lt BT.
- Page size: 8.27" x 11'", left margin: 0.65, right margin: 0.65, bottom margin: 0.75.
- Paper title should be in one column of font size 24.
- Author name in font size of 11 in one column.
- Abstract: font size 9 with the word "Abstract" in bold italics.
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- Two columns with equal column width of 3.38 and spacing of 0.2.
- First character must be three lines drop-capped.
- The paragraph before spacing of 1 pt and after of 0 pt.
- Line spacing of 1 pt.
- Large images must be in one column.
- The names of first main headings (Heading 1) must be in Roman font, capital letters, and font size of 10.
- The names of second main headings (Heading 2) must not include numbers and must be in italics with a font size of 10.

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The recommended size of an original research paper is under 15,000 words and review papers under 7,000 words. Research articles should be less than 10,000 words. Research papers are usually longer than review papers. Review papers are reports of significant research (typically less than 7,000 words, including tables, figures, and references)

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b) A summary, known as an abstract (less than 150 words), containing the major results and conclusions.
c) Up to 10 keywords that precisely identify the paper's subject, purpose, and focus.
d) An introduction, giving fundamental background objectives.
e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition, sources of information must be given, and numerical methods must be specified by reference.
f) Results which should be presented concisely by well-designed tables and figures.
g) Suitable statistical data should also be given.
h) All data must have been gathered with attention to numerical detail in the planning stage.

Design has been recognized to be essential to experiments for a considerable time, and the editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned unrefereed.

i) Discussion should cover implications and consequences and not just recapitulate the results; conclusions should also be summarized.
j) There should be brief acknowledgments.
k) There ought to be references in the conventional format. Global Journals recommends APA format.

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A major lynchpin of research work for the writing of research papers is the keyword search, which one will employ to find both library and internet resources. Up to eleven keywords or very brief phrases have to be given to help data retrieval, mining, and indexing.

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One should start brainstorming lists of potential keywords before even beginning searching. Think about the most important concepts related to research work. Ask, “What words would a source have to include to be truly valuable in a research paper?” Then consider synonyms for the important words.

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Authors are advised to submit any mathematical equation using either MathJax, KaTeX, or LaTeX, or in a very high-quality image.

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Although low-quality images are sufficient for review purposes, print publication requires high-quality images to prevent the final product being blurred or fuzzy. Submit (possibly by e-mail) EPS (line art) or TIFF (halftone/ photographs) files only. MS PowerPoint and Word Graphics are unsuitable for printed pictures. Avoid using pixel-oriented software. Scans (TIFF only) should have a resolution of at least 350 dpi (halftone) or 700 to 1100 dpi (line drawings). Please give the data for figures in black and white or submit a Color Work Agreement form. EPS files must be saved with fonts embedded (and with a TIFF preview, if possible).

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3. Ask your guides: If you are having any difficulty with your research, then do not hesitate to share your difficulty with your guide (if you have one). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work, then ask your supervisor to help you with an alternative. He or she might also provide you with a list of essential readings.

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14. Arrangement of information: Each section of the main body should start with an opening sentence, and there should be a changeover at the end of the section. Give only valid and powerful arguments for your topic. You may also maintain your arguments with records.

15. Never start at the last minute: Always allow enough time for research work. Leaving everything to the last minute will degrade your paper and spoil your work.

16. Multitasking in research is not good: Doing several things at the same time is a bad habit in the case of research activity. Research is an area where everything has a particular time slot. Divide your research work into parts, and do a particular part in a particular time slot.

17. Never copy others' work: Never copy others' work and give it your name because if the evaluator has seen it anywhere, you will be in trouble. Take proper rest and food: No matter how many hours you spend on your research activity, if you are not taking care of your health, then all your efforts will have been in vain. For quality research, take proper rest and food.

18. Go to seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources.

19. Refresh your mind after intervals: Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.

20. Think technically: Always think technically. If anything happens, search for its reasons, benefits, and demerits. Think and then print: When you go to print your paper, check that tables are not split, headings are not detached from their descriptions, and page sequence is maintained.

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Informal Guidelines of Research Paper Writing

Key points to remember:

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- Please note the criteria peer reviewers will use for grading the final paper.

Final points:

One purpose of organizing a research paper is to let people interpret your efforts selectively. The journal requires the following sections, submitted in the order listed, with each section starting on a new page:

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- Use present tense to report well-accepted matters.
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Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Use comprehensive sentences, and do not sacrifice readability for brevity; you can maintain it succinctly by phrasing sentences so that they provide more than a lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study with the subsequent elements in any summary. Try to limit the initial two items to no more than one line each.

Reason for writing the article—theory, overall issue, purpose.

- Fundamental goal.
- To-the-point depiction of the research.
- Consequences, including definite statistics—if the consequences are quantitative in nature, account for this; results of any numerical analysis should be reported. Significant conclusions or questions that emerge from the research.

Approach:

- Single section and succinct.
- An outline of the job done is always written in past tense.
- Concentrate on shortening results—limit background information to a verdict or two.
- Exact spelling, clarity of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else.

Introduction:

The introduction should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable of comprehending and calculating the purpose of your study without having to refer to other works. The basis for the study should be offered. Give the most important references, but avoid making a comprehensive appraisal of the topic. Describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will give no attention to your results. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here.

The following approach can create a valuable beginning:

- Explain the value (significance) of the study.
- Defend the model—why did you employ this particular system or method? What is its compensation? Remark upon its appropriateness from an abstract point of view as well as pointing out sensible reasons for using it.
- Present a justification. State your particular theory(-ies) or aim(s), and describe the logic that led you to choose them.
- Briefly explain the study's tentative purpose and how it meets the declared objectives.

Approach:

Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done. Sort out your thoughts; manufacture one key point for every section. If you make the four points listed above, you will need at least four paragraphs. Present surrounding information only when it is necessary to support a situation. The reviewer does not desire to read everything you know about a topic. Shape the theory specifically—do not take a broad view.

As always, give awareness to spelling, simplicity, and correctness of sentences and phrases.

Procedures (methods and materials):

This part is supposed to be the easiest to carve if you have good skills. A soundly written procedures segment allows a capable scientist to replicate your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order, but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt to give the least amount of information that would permit another capable scientist to replicate your outcome, but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section.

When a technique is used that has been well-described in another section, mention the specific item describing the way, but draw the basic principle while stating the situation. The purpose is to show all particular resources and broad procedures so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step-by-step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

Materials may be reported in part of a section or else they may be recognized along with your measures.

Methods:

- Report the method and not the particulars of each process that engaged the same methodology.
- Describe the method entirely.
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures.
- Simplify—detail how procedures were completed, not how they were performed on a particular day.
- If well-known procedures were used, account for the procedure by name, possibly with a reference, and that's all.

Approach:

It is embarrassing to use vigorous voice when documenting methods without using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result, when writing up the methods, most authors use third person passive voice.

Use standard style in this and every other part of the paper—avoid familiar lists, and use full sentences.

What to keep away from:

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings—save it for the argument.
- Leave out information that is immaterial to a third party.



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Results:

The principle of a results segment is to present and demonstrate your conclusion. Create this part as entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Use statistics and tables, if suitable, to present consequences most efficiently.

You must clearly differentiate material which would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matters should not be submitted at all except if requested by the instructor.

Content:

- Sum up your conclusions in text and demonstrate them, if suitable, with figures and tables.
- In the manuscript, explain each of your consequences, and point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation of an exacting study.
- Explain results of control experiments and give remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or manuscript.

What to stay away from:

- Do not discuss or infer your outcome, report surrounding information, or try to explain anything.
- Do not include raw data or intermediate calculations in a research manuscript.
- Do not present similar data more than once.
- A manuscript should complement any figures or tables, not duplicate information.
- Never confuse figures with tables—there is a difference.

Approach:

As always, use past tense when you submit your results, and put the whole thing in a reasonable order.

Put figures and tables, appropriately numbered, in order at the end of the report.

If you desire, you may place your figures and tables properly within the text of your results section.

Figures and tables:

If you put figures and tables at the end of some details, make certain that they are visibly distinguished from any attached appendix materials, such as raw facts. Whatever the position, each table must be titled, numbered one after the other, and include a heading. All figures and tables must be divided from the text.

Discussion:

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Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implications of the study. The purpose here is to offer an understanding of your results and support all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of results should be fully described.

Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact, you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved the prospect, and let it drop at that. Make a decision as to whether each premise is supported or discarded or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."

Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work.

- You may propose future guidelines, such as how an experiment might be personalized to accomplish a new idea.
- Give details of all of your remarks as much as possible, focusing on mechanisms.
- Make a decision as to whether the tentative design sufficiently addressed the theory and whether or not it was correctly restricted. Try to present substitute explanations if they are sensible alternatives.
- One piece of research will not counter an overall question, so maintain the large picture in mind. Where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

When you refer to information, differentiate data generated by your own studies from other available information. Present work done by specific persons (including you) in past tense.

Describe generally acknowledged facts and main beliefs in present tense.

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Introduction	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
Methods and Procedures	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
Result	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
Discussion	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

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