



## Punctuated equilibrium theory, shifting balance theory, allopatric speciation theory and species selection theory for macroevolution valid or not

Md. Abdul Ahad

Department of Entomology, Faculty of Agriculture, Hajee Mohammad Danesh Science & Technology University, Dinajpur, Bangladesh

### Abstract

Genetic drift represents the punctuated equilibrium theory, the shifting balance theory, the allopatric speciation theory, the species selection theory and work in small isolated populations. Those theories advocated that all plants and animals man arose through macroevolution. However, genetic drift and small isolated populations are the key factors of those theories. But genetic drift loses/changes the gene frequency randomly, which are very harmful to any organism and thus could not produce any new species. Again, drift unfits to create any variation (raw material of evolution). Again, small isolated populations and produce homozygous organisms. Those organisms have low fecundity, suffer from various disease, least fitted to survive and may extinct suddenly, e.g. American heath hen. Thus, any kind of evolution is quite impossible through those theories. Therefore, biologists rejected the genetic drift, shifting balance theory (a condition to declare invalid of those theories) and also the punctuated equilibrium theory as the theory of evolution. Again, the fossil is the only evidence of those theories but fossil opposes macroevolution (another condition to declare invalid of those theories) but support the gradual evolution. Moreover, evolution is reasonably absurd by the extinction of living organism. Consequently, those theories are invalid and no one plant and animal including human arose through those theories. Hence, Darwinists, Neo-Darwinists and Sociobiology's oppose those theories.

**Keywords:** macroevolution, large change, speciation, wright's rule, evolutionary genetics

### 1. Introduction

In 1931, Sewall Wright (an American geneticist and professor of Chicago University) invented genetic drift (Wright, 1931) [67]. In 1932, Wright formulated the shifting balance theory and provided its diagram as an "Adaptive landscape model" (Wright, 1932) [66]. In 1982, Wright again published an article entitled "Shifting balance theory and macroevolution" and declared that "From time to time, however, a species is represented with vacant niches. This precipitates the evolutionary change of at different order of magnitude, those that constitute macroevolution (i.e. rise of new species, genera, families and order)". Again, he declared that "Because of persistent misunderstandings, the shifting balance theory (genetic drift), which was proposed half a century ago (in 1931), primarily in connection with microevolution, is reviewed here at some length before discussing its relation to macroevolution (Wright, 1982, p.13 and p. 15). Thus, Wright himself created a controversy of his theory by declaring a theory of microevolution as a theory of macroevolution. Furthermore, there are numerous criticisms against his theory but a few are documented here: despite of accumulating evidences for selection within the natural systems, the importance of random the genetic drift opposing Wright's views of evolution is continued to be a subject of controversy (Chouteau and Angers, 2012) [14]. Today, the shifting balance theory is the most controversial theory among the evolutionary geneticists (Johnson, 2008) [35].

In 1972 and 1977, two American paleontologists, Stephen J. Gould (Professors, Harvard University) and Niles Eldredge (Professor, American Museum of Natural History) developed the punctuated equilibrium theory (Eldredge and

Gould, 1972; and Gould Eldredge, 1977) [23, 29]. They claimed that their theory is a general theory of macroevolution and is valid throughout the biological science (Gould and Eldredge, 1977) [29]. So, Gould and Eldredge claimed that all plants and animals including man arose through their theory. However, this theory has also numerous criticisms and a few are documented here: i. Gould's use of analogy and metaphor constitutes a non-scientific discourse attempting to validate a scientific theory (Scott, 2007) [49]. ii. The punctuational nature of punctuated equilibrium has engendered, perhaps the most confusion over Eldredge and Gould's theory (Hanegraaff, 1998) [31]. iii. In reality, Gould has offered no truly original and genuinely significant contributions to the evolutionary theory (Carroll, 2004) [21]. iv) Based only on the paleontological evidence, a theory cannot serve as the theory of evolutionary biology (Lichtenstein, 1995) [37].

However, Gould and Eldredge frequently exploited the genetic drift/Wright rule (known as shifting balance theory), the allopatric speciation (theory of Mayer), species selection (theory of Stanley) and small and isolated populations for macroevolution through the punctuated equilibrium theory (Eldredge and Gould, 1977; Gould and Eldredge, 1977; Gould, 1980; Ahad, 2017) [29, 3] and formulated their punctuated equilibrium theory. Therefore, it is proved that the genetic drift represents the shifting balance theory (Wright rule), the punctuated equilibrium theory, the allopatric speciation theory, the species selection theory (i.e. there is no difference among those theories and genetics drift) and vice-versa (Ahad, 2017, p.9) [3] for macroevolution. Furthermore, Ahad provides two conditions to declare invalid of those theories: one is, if anyone proves

that the genetic drift is unable to produce a new species or reject the shifting balance theory (Ahad, 2017, p.1 and p.7)<sup>[3]</sup> and another is, if fossils do not support macroevolution but support the gradual evolution, then those theories would be invalid automatically (Ahad, 2017, p.10)<sup>[3]</sup>. So, there is a great chance to work on the objective/title whether “Punctuated equilibrium theory, shifting balance theory (Wright’s rule), allopatric speciation theory and species selection theory are valid or not” for macroevolution. In addition, literature indicated that there are many works against many theories of evolutionary biology such as: In addition, literatures indicated that there are many articles, those declared invalid of many theories of evolution such as: Biogenetic law (Recapitulation theory) and Haeckel’s evolutionary tree valid or not (Ahad,2018), invalid chromosomal speciation theory (Ahad and Ferdous, 2015), invalid Oparin-Haldane’s theory (the soup theory) and other theories about the origin of life (Ahad and Ferdous, 2016). But reviews and literatures reveal that there is no such type of work. Hence, there is no alternate way but to work on the objective/title: “Punctuated equilibrium theory, shifting balance theory (Wright’s rule), allopatric speciation theory and species selection theory are valid or not” for macroevolution. Science searches which is the truth. So, to work on this objective is very necessary for the benefit of modern biological science.

## **2. Genetic drift unfit to create any variation; it loses/changes the gene frequency randomly, which are very harmful to any organism and thus unable to produce a new species**

Macroevolution is progressed rapidly through the punctuated equilibrium theory, the shifting balance theory (Wright’s rule), the allopatric speciation theory and the species selection theory by the effect of the genetic drift (Ahad, 2017)<sup>[3]</sup>. Thus, the genetic drift is the key factor of those theories. But the genetic drift is unable to produce any variation (the raw material of evolution) i.e. any new species and the documents in this regard are placed in (a) and (b): But the genetic drift is unable to produce any variation and have no evolutionary benefit. The documents in this regard are placed in a. and b.:

### **2.1 Genetic drift unfit to create any variation**

Mutations refill the variations, which are lost by the genetic drift, leading to the state of mutation-genetic drift balance (Gardner *et al.*, 1991, p.582; Snustad and Simmons, 2000, p.792)<sup>[22, 50]</sup>. Thus, drift creates zero variation (Smith, 1990, p.321)<sup>[54]</sup>. Even, this issue is established mathematically (Gardner *et al.*, 1991, p.582 and Snustad and Simmons, 2000, p.792)<sup>[22, 50]</sup>. So, these statements indicated that the genetic drift creates no variation.

So, genetic drift is unable to produce any variation. But variation is the raw material of any kind of evolution. Thus, it has no evolutionary benefit. As the “Genetic drift is the key factor and represents the punctuated equilibrium theory, shifting balance theory, allopatric speciation theory and species selection theory for macroevolution<sup>[12]</sup>.” Consequently, those theories are invalid.

### **2.2 Genetic drift loses/changes the gene frequency randomly, which are very harmful to any organism and thus could not produce any new species**

Genetic drift changes the allele frequencies randomly (Starr

and Taggart, 1989, p.543)<sup>[57]</sup>. Hence, the alternate term of the genetic drift is the random genetic drift (Brewer and Sing, 1983 and Snustad Simmons, 2000, p361)<sup>[11, 50]</sup>. Thus, the drift changes in the allele/gene frequency randomly. But the random change in the allele/gene frequency is very harmful to any living organism and unable to produce a new species. The allele frequency must be changed in a well-planned way to produce a new species. But it is quite impossible by the effects of the genetic drift; there is countless literature about it but a few are specified here shortly in i. ii. iii. iv. and v.:

i. It is a question that if changes occur randomly in a gene of an organism, how can a complex and highly coordinated structure could develop, since its production requires innumerable variations of just at the right degrees, in the right place and at the right time (Sinnott and Wilson, 1963, p.312)<sup>[52]</sup>? ii. Any random change in a gene is likely to harm on otherwise a smoothly operating system at all in an efficient organism (Stanely and Androkovitch, 1984, p.)<sup>[56]</sup>. iii. The changes at random in the base sequence are highly harmful to any organism. This effect could be compared with an accidental interchange of ‘Letters’ in a judicious text. The misprint, contrary to the author’s intention, may alter the sense of the clause in the most unexpected way (Maciejowski and Zieba, 1982)<sup>[38]</sup>. iv. The random changes in the DNA would interfere with the performance of a living being or at best would have no effect (Wolfe, 1983)<sup>[65]</sup>. v. It is pointed out that a random change just is like a random change of a pocket-watch, which would not improve the watch; rather it brings destruction to it (Ranganathan, 1988)<sup>[45]</sup>. The above statements confirm that due to randomness of the genetic drift, it is unfit not only for the macroevolution but also for the molecular evolution. So, it is noted that the problem of the shifting balance theory is that it places a great emphasis on the random changes (Gardner *et al.*, 1991, p.584)<sup>[22]</sup>.

Thus, it is confirm that due to randomness of the genetic drift, it is unfit not only for the macroevolution but also for the molecular evolution. So, it is noted that “the problem of the shifting balance theory is that it places a great emphasis on the random changes (Gardner *et al.*, 1991)<sup>[22]</sup>.”

### **3. Small and isolated populations unfit any variation and produce homozygous organisms**

Due extinction by the earth quake, volcano, great flood, migration of animal to Island etc produce small and isolated populations. However, “Both the punctuated equilibrium and the shifting balance theory advocated that macroevolution progresses rapidly in a small and isolated population by the effects of the genetic drift (Ahad, 2017, p.8)<sup>[3]</sup>.” Thus, the small and isolated population is the key factor of those theories.

Oppositely, small and isolate populations have to mate with their very close relatives (i.e. inbreeding) resulting an increase in homozygosity and also decrease in heterozygosity, at last the homozygous organisms are produced and it is mathematically true. Homozygous organisms are least fitted to survive, diseases susceptible and may extinct suddenly. A few such documents are placed shortly in various subheadings such as in 3.1, 3.2, 3.3 and 3.4:

#### **3.1 Documents about small population produce homozygous organisms**

The effects of the random genetic drift of a small or

subpopulation produce a homozygous organism (i.e. genetic drift produces zero variation) and it is mathematically confirmed by the fixation index equation (Smith, 1990; pp.321, 312) <sup>[54]</sup>.

### 3.2 Small and isolated homozygous human populations suffer from numerous diseases

Small and isolated human populations have to inbreed and produce homozygous offspring. So, those human populations are least fitted to survive, suffer from numerous diseases and their evidences are placed here:

It is always known that blood relatives are apt to have defective children. For example, if two cousins are married, they have got an idiot child. In the state of nature, the idiot child would die in competition with the normal one before it reaches the reproductive age (Altenberg, 1970) <sup>[5]</sup>. Additionally, the diseases observed in the offspring of consanguineous marriages include sickle cell anemia, S-B thalassemia, B. thalassemia, albinism etc. and multifactorial disorders such as neural tube defects, cleft, lip and palate, club foot, congenital heart diseases, diabetes, hypertension, coronary heart disease and so on (Reddi, 1992) <sup>[47]</sup>. Moreover, red-green colour blindness, hemophilia, tach-sachs disease, cystic fibrosis disease are the results due to marriages with the close relatives (Ayla and Kigger, 1980, p.740) <sup>[8]</sup>.

Hence, it is proved that small and isolated human populations suffer from numerous diseases and thus those are least fitted to survive. So, once they may extinct.

### 3.3 Small and isolated animal populations have less viability and least fitted to survive

Small and isolated animal populations have to inbreed and produced homozygous. So, those animal populations are suffering from numerous diseases, least fitted to survive, even once may extinct and such evidences are placed here:

Degu, elephant shrew, pygmy hippopotamus, cheetah, dorcas gazelle, Japanese serow, greater galago and golden lion tamarin show increase juvenile mortality, when those inbreed (Weaver and Hedrick, 1997, p.568, table) <sup>[62]</sup>. In all domestic bird species, inbreeding has been shown to cause a decline in traits affecting reproduction and viability (Woodward *et al.*, 1983; Crawford, 1990) <sup>[18]</sup>. Additionally, many researches are carried out in recent years. But those experiments have revealed that being in a restricted population is a disadvantage for evolution (Soulé and Mills, 1998) <sup>[55]</sup>.

Hence, it is proved that small and isolated animal populations have less viability and least fitted to survive and once they may extinct.

### 3.4 Small and isolated populations may extinct suddenly

Small and isolated populations may extinct suddenly. There are many references but a few such references are set here- Small population becomes genetically uniform (becomes homozygous i.e. no genetic variations remains). So, the Alaskan northern elephant seal (*Callorhinus ursinus*) and African cheetah (*Acinonyx jubatus*) show no genetic variations. Without variations the whole population, no matter how large, is extremely susceptible to diseases and environmental changes. These species could suddenly extinct (Starr and Taggart, 1989, p.544) <sup>[57]</sup>; its best example is the extinction of American heath hen in 1930 (Wallace, 1990, p.220) <sup>[61]</sup>.

Therefore, it is evident that small and isolated populations may extinct suddenly.

The genetic drift, punctuated equilibrium theory, shifting balance theory, allopatric speciation theory and species selection theory work only in small and isolated population. But it documented (in i. ii. iii. and iv) that any small and isolated population must produce homozygous organism (i.e. creates no variation, which is the raw materials of any kind of evolution). Those organisms have low fecundity, suffer from various disease and are least fitted to survive. Therefore, those populations may extinct rapidly. Thus, no evolution occurs through those theories.

## 4. Biologists rejected the genetic drift and the shifting balance theory

Biologists rejected the genetic drift and the shifting balance theory and a few documents are placed here very briefly in a. and b.:

a) Due to the genetic drift, any population shows higher degree of homozygosity, which is poorly adapted and becomes evolutionary blind alleys (Dodson, 1960, p.260) <sup>[19]</sup>. ii) Biologists denied the genetic drift has any evolutionary function (Hickman, 1970, p.796) <sup>[32]</sup>. iii) Most of Wright's contemporaries (such as Huxley, 1942 and Fisher and Ford, 1947) noted that any drift act as a nondirective and non-additive force of evolution (Wolfe, 1983; Sing and Uyenoyama, 2009) <sup>[65, 51]</sup>. Again, recent field experiments of ecological genetics by Cook and Jones (1996) <sup>[15]</sup>, Goulson and Owen (1997) <sup>[30]</sup>, Jones (2000) <sup>[36]</sup>, Skipper (2002) <sup>[53]</sup> and Mallet (2005) <sup>[39]</sup> confirmed that the genetic drift had no value for evolution in small and isolated populations but natural selection has.

As genetic drift represents the punctuated equilibrium theory, shifting balance theory, allopatric speciation theory and species selection theory; consequently, no evolution occur by those theories. Thus, those theories are invalid for any kind of evolution.

b) Modern researchers rejected the shifting balance theory and there are many references but a few are set here-

i. Experimental confirmation of Wright's shifting balance theory of evolution has been little direct empirical evidence to support it. Some of its underlying assumptions are viewed as contradictory, and the existence and efficacy of the theory's fundamental adaptive process, interdemic selection, is the focus of controversy. Hence, this theory is a controversy in the field of evolutionary biology and is lasting still (Wade and Goodnight, 1991).

ii. Coyne *et al.* (1997) <sup>[17]</sup> evaluated Wright's theory of macroevolution. They examined both the theoretical issues and the relevant data from the nature and from the laboratory. They concluded that the genetic drift is often unnecessary for movement between the peaks of "Adaptive landscape model". Again, in 2000, they published another article on the perspective that questioned the validity and importance of Wright's shifting balance theory. Their reviews of both the theory and data led them to reject the idea of Wright's shifting balance theory. However, instead of shifting balance theory, they supported the view of Darwin (as quantified by Fisher) (Coyne *et al.*, 2000) <sup>[16]</sup>.

Therefore, it is certificated (in a. and b.) that modern researchers rejected the genetic drift and the shifting balance theory as the theory of evolution.

As it is announced that “If anyone reject the genetic drift or the shifting balance theory; then the punctuated equilibrium theory, even the allopatric speciation theory and the species selection theory would be invalid automatically (Ahad, 2017) [3]. Consequently, invalid the punctuated equilibrium theory, the allopatric speciation theory and the species selection theory.

### 5. Biologists rejected the punctuated equilibrium theory

Many biologists rejected the punctuated equilibrium theory and a few evidences are place here in i. ii. iii. iv and v:

i. The punctuated equilibrium consists of two basic claims: that most or all evolutionary changes occur during speciation events, and that most species usually enter a phase of total stasis after the end of the speciation process. The two claims are to some extent two separate theories. The controversies that follow the proposal of this theory revealed that there are considerable conceptual and evidential difficulties in either to validate or disproved this theory (Mayr, 1992). ii. At one level, the punctuated equilibrium is only a description of the fossil record (assuming geologic time). At another level, it is a process of evolution, which Gould and Eldredge claimed could account for the pattern in the fossil record. They claimed that these changes happened rather quickly (geologically speaking). This was the supposed “Mechanism” which accounted for the stasis and “Gappiness” of the fossil records. So, how could one believe in evolution, or evolutionary change, when the fossils testify to stasis, or lack of change (Batten, 1994)? iii. Stasis in the fossil sequence is a danger to paleontology and evolutionary biology as it denies any kind of evolution (Futuyma, 1998) [21]. iv. “Stasis or no change of most fossil species during their lengthy geological life spans was tacitly acknowledged by Gould and Eldredge. But it was almost never studied explicitly because, prevailing theory treated stasis as uninteresting no-evidence for no-evolution. The overwhelming prevalence of stasis became an embarrassing feature of the fossil records, best left ignored as a manifestation of no evolution. Thus, it is proved that Gould as a non-evolutionist (ReMine, 1993) [48]. v. Gingerich requested to readers of punctuated equilibrium is to start with the figures: “a) what do that they show? b) How are they scaled? c) Are they scaled appropriately for what they claim to show? d) How do you recognize “Punctuation”? e) How does recognize stasis? f) Can these be quantified in terms of rate for comparison to change on the generation-to-generation scale of the evolutionary process? g) Has this been done? h) If not, why not” (Gingerich, 2007) [27]? Thus, Gingerich cleverly requested to readers to find out the answers of his eight (8) questions in the punctuated equilibrium theory; as he confirmed that the readers are unable find its answer in this theory. Consequently they declare that this theory is invalid. vi. Gould has come to be seen by non-biologists as the preeminent evolutionary theorist but he is giving non-biologists, a largely false picture of the state of evolutionary theory (Maynard-Smith, 1995, p.46) [40].

Thus, it is documented that biologists rejected the punctuated equilibrium theory.

Thus, it is documented (in i. ii. iii. iv and v) that biologists

rejected the punctuated equilibrium theory as the theory of evolution.

### 6. The fossil is the excellent and only evidence of both punctuated equilibrium theory and the shifting balance theory but fossil does not support the macroevolution but support the gradual evolution

It is declared that the fossil is the excellent and only evidence of both shifting balance theory and the punctuated equilibrium theory; especially the fossil of *Hyopsodus*, *Haplomylus*, *Pelycodus* and horse (Gould and Eldredge, 1977) [29]. It is declared that the fossil is the excellent and only evidence of both shifting balance theory and the punctuated equilibrium theory; especially the fossil of *Hyopsodus*, *Haplomylus*, *Pelycodus* and horse (Ahad, 2017) [3].

Oppositely, fossils do not support macroevolution but support the gradual evolution. There are numerous documents but a few are placed here in various subheadings such in a). b). c). d). and e).

#### a) Fossil of *Hyopsodus* mammals do not support the macroevolution but support the gradual evolution

The fossil of *Hyopsodus*, mammal does not support the macroevolution and its confirmations are given below:

i. Gingerich acknowledged that *Hyopsodus* fossils in the Eocene strata (in Wyoming spanning) record a period of 5 million years, a branching phylogeny, which exhibits the gradual phyletic evolution, the overall increase in size with iterative evolution of small species and character divergence was following the origin of each new (Gingerich, 1974,p.1) [28].

ii. When all the samples of *Hyopsodus* can be placed in the stratigraphic position, those are so ordered that the pattern of change in tooth size indicates its emergence is one of the continuous gradual change within lineages, with gradual divergence following the separation of new sister lineages (Gingerich, 1977, p.491) [26]. The more complete picture of *Hyopsodus* gradual evolution is based on the additional collection (Gingerich, 1976) [24]. About similar opinion also was provided by Young: he noted that the commonest early Eocene mammal *Hyopsodus* became differentiated into several distinct species by the gradual changes in size of the tooth (by fossil collection) and the most probably of the whole animal (Young, 1981,p.11) [70].

So, the fossils of *Hyopsodus* do not support macroevolution but support the gradual evolution.

#### b) Fossils of *Haplomylus* and *Pelycodus* do not support the macroevolution but support the gradual evolution

The fossils of *Haplomylus* and *Pelycodus* do not support the macroevolution and the documents are place here:

i) Stippling in illustrates the hypothesis of gradual change that most closely fits the observed stratigraphic of *Haplomylus*. The study of evolutionary rates in the *Haplomylusspeirianus*—to *H. scottianus* lineage shows that this lineage has a temporal scaling slope of rates significantly lower than  $-0.5$ . This means that the tooth size (and, by inference, the overall body size) increased non-randomly and directionally through time in the lineage. There is a random component of change in all of these examples. But superimposed on this, *Haplomylus* shows a significantly nonrandom component of directional

(Gingerich, 1994 p.133) <sup>[23]</sup>. ii) The fossils of the genera *Hyopsodus*, *Haplomylus*, *Pelycodus*, and *Plesiadapis* are placed in the stratigraphic context. The resulting patterns of evolution at the species level illustrate the importance of gradual phyletic evolution in the origin of new species and the consistent presence of gradual morphological divergence following the geographic speciation (geographic speciation seems best characterized as parapatric rather than allopatric in these examples (Gingerich, 1976a, p.1) <sup>[26]</sup>. iii) From the studied of cranial anatomy of the fossil records of Plesiadapidae (mammalia, primate), the evolution of these Species (*Hyopsodus*, *Haplomylus* and *Pediculus*, *Plesiadapis*) was both gradual and continuous, supporting Darwinian model of gradual phyletic evolution. No evidence was found to suggest a "Punctuated equilibrium" pattern of phylogeny (Gingerich, 1976b,p.100) <sup>[26]</sup>. iv) Stratigraphic records of early Eocene *Pelycodus* in the northwestern Wyoming shows that the continuous and gradual connection between successive species and the reversed trend toward the smaller tooth size in *Pelycodus frugiuorus* with the appearance of *P. jarrouii*. Other characters are available for the study in this sequence, such as mesostyle development, that shows the same pattern of gradual evolutionary change. But the mesostyle development continues progressively through the whole sequence and does not show the character divergence observed in the tooth size (Gingerich, 1977) <sup>[26]</sup>.

Therefore, fossils of *Haplomylus* and *Pelycodus* do not support the macroevolution but support the gradual evolution.

However, it is observed that Gingerich research findings (1974, 1976 and 1977) <sup>[26]</sup> indicated that evolution of *Hyopsodus* is gradual; whereas, Gould and Eldredge used it to indicate macroevolution of *Hyopsodus*. So, there is a contradiction between Gingerich's findings and claim of Gould and Eldredge. It is confirmed that this contradictions occurred due to: when Gould and Eldredge exploited the Gingerich's findings of 1974, 1976 and 1977, those were in press. Gould and Eldredge (1977) <sup>[29]</sup> also acknowledged it at pages 121, 129 and 150 (anybody could examine it). Therefore, the reviewers and also the editors had no way to verify it. Thus, the contradiction between the evolution and the macroevolution is found is found. Therefore, Gould and Eldredge misused the Gingerich's literature.

### c. Fossils of horse does not support the macroevolution but support the gradual evolution

The fossils of horse do not support the macroevolution and the authentications and the evidences are place here:

i. The fossils of horse indicate gradual evolution (Parker and Haswell, 1990, p.826). ii. The evolution of horse is shown as gradual because, evolution of horse from *Hyracotherium* required 60 million years with body steadily increasing in size and the number of toes reduced from three to only one (Arms and Camp, 1988,p.285) <sup>[7]</sup>. iii. The careful consideration of the fossil of horse-material suggests that the evolution of the horse could have proceeded by the gradual changes (Young, 1981, p.543) <sup>[70]</sup>. iv. The fossil record indicates that the evolution of horses occurred in a regular progressive manner (Weisz and Kegogh, 1962 and Rastogi, 1994). v. The evolution of the horse occurs through the successive changes (Noland and Beavers, 1979, p.50) <sup>[42]</sup>. vi. The series of fossil tracing out the development of the horses from the Eocene to the recent times provide the

clear evidence of evolution is gradually of the body size (Wilson *et al.*,1977,p.418).

In addition, natural selection was the force behind the evolution from the small *Eocene* horse to the modern *Equus* horse (Tamarin, 2002, p.591).

Thus, the fossils of horses do not support the macroevolution. Though "The evolution of horse has been the excellent example of mammalian evolution in the fossil record (Gingerich, 1977) <sup>[26]</sup>"; yet the fossils of horses do not support the macroevolution but support the gradual evolution.

### d. Effects of the genetic drifts are difficult to watch in fossils and Its existence is denied by the paleontologists

The punctuated equilibrium theory and other related theories suggested that the macroevolution occurs in small and isolated populations by the effect of genetic drift (Ahad, 2017) <sup>[3]</sup>. But the effects of genetic drifts are difficult to see in fossils, and so its existence is frequently denied by the paleontologists (Birdsell, 1975, p.100). As macroevolution occurred by the effects of the genetic drift, therefore, according to the paleontologists, no fossils support macroevolution.

### e. Fossils of the other mammals do not support the macroevolution but support the gradual evolution

The reading from the fossils archives suggests that the macroevolution is a very gradual process (Wilson *et al.*, 1977, p.389). Moreover, it is announced that more importantly, paleontologists argued, events that appear instantaneous in geological time, may from a biological perspective, involves very gradual morphological change (Lichtenstein, 1995) <sup>[37]</sup>. Prothero acknowledged that in the past few decades, many new discoveries have provided the numerous transitional fossils (i.e. those fossils do not indicated the macroevolution) that show the evolution of hoofed mammals (cattle, goat, deer, sheep, antelope, camel, llama, pig, hippopotamus, horse, giraffe, rhinoceros, Javan rhinoceros, Sumatran rhinoceros, African wild ass, Malayan tapir, Grevy zebra, Onager and kiang) from their primitive ancestors. It can now be documented as the origins of the odd-toed perissodactyls, their early evolution when horses, brontotheres, rhinoceroses, and tapirs can barely be distinguished, and the subsequent evolution and radiation (adaptive change/ gradual evolution) of these groups into distinctive lineages with many different species and interesting evolutionary transformations through time. Similarly, it is documented that the gradual evolution of the even-toed artiodactyls occurred from their earliest roots and their great radiation into pigs, peccaries, hippos, camels, and ruminants (Prothero, 2009). The statements of Wilson *et al.*, Lichtenstein and Prothero again confirmed that evolutions of all mammals including the evolutions of *Hyopsodus*, *Haplomylus*, *Pelycodus* and horses are very gradual.

Hence, though the fossils (the fossils of *Hyopsodus*, *Haplomylus*, *Pelycodus* and horses) are the excellent and the only evidence of both the punctuated equilibrium theory and the shifting balance theory; yet those fossils do not support the macroevolution. Again, the fossils of the other mammals do not support the macroevolution. Even, the effects of the genetic drift (which represent punctuated equilibrium theory and other related theories) are difficult to observe in fossils, and so their existences have frequently been denied by paleontologists.

Thus, the shifting balance theory, the punctuated equilibrium theory and the allopatric speciation theory and the species selection theory are invalid automatically. As, “It is proved that Gould and Eldredge basically have not formulated any new theory but provided strong support in favour of the shifting balance theory (genetic drift/Wright’s rule) by showing the fossils evidences and if anyone proves that fossils do not support macroevolution but support the gradual evolution; then the shifting balance theory, the punctuated equilibrium theory and, even the allopatric speciation theory and the species selection theory would be invalid automatically (Ahad, 2017,p.10) <sup>[3]</sup>.

### **7. Any kind of evolution is reasonably absurd by the extinction of living organism.**

Originator of both the shifting balance theory and the punctuated equilibrium theory advocated that the extinction of a species succeeded by any other unrelated taxa (i.e. rise of new species, genera, families and order)). The documents are placed with the Words of Wright, Gould and Eldredge, respectively:

i. Another way in which a species may be presented with vacant niches by surviving a catastrophe that has destroyed forms in niches related to its own. The world underwent extinction of many forms, including the dinosaurs at the end of the Mesozoic period, which opened the way for the enormous expansion of the mammals during the Paleocene and later (Wright, 1982,p.13). ii. Extinction, it is said, inevitably overtakes overspecialized taxa (Gould and Eldredge, 1977, p.140) <sup>[29]</sup>. iii. Extinction or emigration of a parental species and the immigration of a successful descendant rapidly evolved elsewhere in a small and peripherally isolated population (Gould and Eldredge, 1977, p.177) <sup>[29]</sup>. iv. A higher form of selection acts directly upon species through differential rates of extinction (Gould, 1980, p.126).

Thus, originator of both the shifting balance theory and the punctuated equilibrium theory advocated that extinction of a species succeeded by other unrelated new species rapidly and thus the macroevolution progresses.

Oppositely, extinction of a species never succeeded unrelated new species/taxa. Because, the recently fifteen extinct animals are: Passenger pigeon, cormorant, Carolina parakeet, great auk, dodo, canary islands, Caspian tiger, Tasmanian wolf, quagga, bubal hartebeest, pyrenean ibex, golden toad, tecopa pupfish, sea cow and baiji dolphin (Anonymous, 2017a).

But there is no record that those animals produce any new species, even a new breed/variety/race during or thereafter extinction. Therefore, the ‘Bio-diversity conservation law’ is developed to protect the extinction of the wild and domestic species. This law is practiced worldwide, which clearly indicates that no new species evolves through extinction of living organisms i.e. due to extinction, not only macroevolution but also any kind of evolution is quite absurd during or thereafter extinction.

### **8. Macroevolution remains unproved and no one has observed it**

The punctuated equilibrium theory and other three related theories suggest for the macroevolution. But macroevolution remains unproved; because no one has observed it. In fact, it is a principle only, but unobservable; so it must be unscientific (Vuletic, 1999; Ahad and Ferdous, 2015)”. It

has never been observed (Isaak, 2006; Ahad and Ferdous, 2015). Thus, it is proved that there is not a single record of suddenly evolution of a new species either artificially or naturally (Ahad and Ferdous, 2015).

### **9. Conclusion**

It is mention in the introduction that “Genetic drift represents the punctuated equilibrium theory, the shifting balance theory, the allopatric speciation theory, the species selection theory and advocate that all plants and animals man arose through macroevolution.” Again, there are two conditions to declare invalid of those theories: one is, if anyone proves that the genetic drift is unable to produce a new species or reject the shifting balance theory (Ahad, 2017, p.1 and p.7) <sup>[3]</sup> and another is, if fossils do not support macroevolution but support the gradual evolution, then those theories would be invalid automatically (Ahad, 2017, p.10) <sup>[3]</sup>. Moreover, genetic drift and small isolated populations are the key factors of those theories.

But it proved that genetic drift unfits to create any variation (raw material of evolution) and thus could not produce any new species Again, small isolated populations may extinct suddenly, e.g. American heath hen. Thus, any kind of evolution is quite impossible through those theories. Therefore, biologists rejected the genetic drift, shifting balance theory and also rejected the punctuated equilibrium theory as the theory of evolution. Again, the fossil is the only evidence of those theories but fossil opposes macroevolution but support the gradual evolution. As a result, it could be concluded that “Punctuated equilibrium theory, shifting balance theory (Wright’s rule), allopatric speciation theory and species selection theory are invalid automatically.” Darwinists, Neo-Darwinists and Sociobiology’s oppose those theories (Ahad, 2017) <sup>[3]</sup>, which similar to present the conclusion. Starr and Taggart (1989, p.22) <sup>[57]</sup>; Castro and Hubner (1997, p.16) and Weisz and Keogh (1982,p.15) confirmed that any theory might be overturned at any time by new evidences. Consequently, the above conclusion is genuine and no one plant and animal including human arose through those theories.

### **10. Acknowledgements**

The author is very thankful to Prof. Dr. Md. Abdullah Baqui (Dept. of Zoology, Jahangir Nagar University, Dhaka) and Prof. TMT Iqbal (Dept. of horticulture, Hajee Mohammad Danesh Science & Technology University, Bangladesh) for their suggestion for preparing the manuscript and English correction. The author is sincerely appreciative for the great help of the Google and “ResearchGate(R<sup>G</sup>)”, “Academia.edu” and “Scribd” for the data used in this paper. The author is also grateful to the writers, and the publishers which are mentioned in the reference section for using their information in this article.

### **11. References**

1. Ahad MA, Ferdous ASMA. Impossible of macroevolution of new species via changing of chromosome number mutation and structural mutation (Invalid chromosomal speciation Theory. *Martinia*. 2015; 6 (2):68-74.
2. Ahad MA, Ferdous ASMA. Invalid Oparin-Haldane’s theory (soup theory) of ‘origin of life’ and useless of Miller experiments, it may be a theory of prebiotic chemistry. *Martinia*, 2016; 7 (1):1-19.

3. Ahad MA. Punctuated equilibrium theory represents shifting balance theory (of macro and quantum evolution) and invalid Darwin's theory. *J. Ent. Zool. Stud.* 2017; 5 (3):06-12.
4. Ahad MA. Embryological evidences are opposite to Darwin's theory: Biogenetic law (Recapitulation theory) and Haeckel's evolutionary tree is valid or not. *J. Entom. and Zool. Studies.* 2018; 6(5):2492-2499.
5. Altenburg E. *Genetics*, rev. edn. Oxford and IBH Publishing Co., New Delhi, 1970.
6. Anonymous. Recently extinct animals, 2019; [Listverse listverse.com/2009/07/25/10-recently-extinct-animals]. Last visited 28.01.19.
7. Arms K, Camp PS. *Biology: A journey into life*. W. B. Saunders Company, New York, 1980.
8. Ayala FJ, Kiger JA. *Modern Genetics*. The Benjamin Cummings Publishing Co., Inc., California, 1980.
9. Batten DD. Punctuated equilibrium: come of age? *J. Creat.* 1994; 8(2):131-137.
10. Birdsall JB. *Human Evolution: An Introduction to the New Physical Anthropology*, 2<sup>nd</sup>edn. Rand Mc. Naly College Publishing Co., Chicago, 1975.
11. Brewer GJ, Sing CF. *Genetics*. Addison-Wesley Publishing Co., London, 1983.
12. Carroll J. *Literary Darwinism: Evolution, human nature, and literature*. Taylor & Francis, Milton Park New York, 2004.
13. Castro P, Hubner ME. *Marine Biology*, 2<sup>nd</sup>edn. McGraw-Hill, New York, 1997.
14. Chouteau M, Angers B. Wright's Shifting Balance Theory and the Diversification of Aposematic Signals. *PLoS ONE.* 2012; 7(3):e34028.
15. Cook LM, Jones D. The *Medionigra* Gene in the Moth *Panaxia dominula*: The Case for Selection. *Biol. Sci.* 1996; 351 (1347):1623-1634.
16. Coyne JA, Barton NH, Turelli M. Is Wright's shifting balance process important in evolution? *Evolution.* 2000; 54(1):306-317.
17. Coyne JA, Nicholas BH, Turelli M. Perspective: A Critique of Sewall Wright's Shifting Balance Theory of Evolution. *Evolution.* 1997; 51:643-671.
18. Crawford WC. Breeding and selection by poultry fanciers. In: Crawford, R.D. (Ed.), *Poultry Genetics*. Elsevier, Amsterdam, 1990.
19. Dodson EO. *Evolution: Process and Product*. Affiliated East West Press Pvt. Ltd., New Delhi, 1960.
20. Eldredge N, Gould SJ. Punctuated equilibria: an alternative to phyletic gradualism. In Schopf TJM. (ed.), *Models in Paleobiology*. Freeman Cooper, San Francisco, 1972, 82-115.
21. Futuyma DJ. *Evolutionary Biology*, Sinauer Associates, Massachusetts, 1998.
22. Gardner EJ, Simmons MJ, Snustad DP. *Principles of Genetics*, 8<sup>th</sup>edn. John & Wiley and Sons, Inc., New York, 1991.
23. Gingerich D. New species of *Apheliscus*, *Haplomylus*, and *Hyopsodus* (Mammalia, Condylarthra). *Paleontology.* 1994; 29(6):119-134.
24. Gingerich PD. Cranial anatomy and evolution of early tertiary Plesiadapidae (mammalia, primate). *Univ. Mich. Pap. Paleontol.* 1976b; 15:1-140.
25. Gingerich PD. Paleontology and phylogeny: Patterns of evolution at the species level in early Tertiary mammals. *American J Sci.* 1976a; 276:1-28.
26. Gingerich PD. Patterns of evolution in the mammalian fossil record. In: Hallam, A. (ed.). *Patterns of Evolution*. Elsevier; Amsterdam, 1977.
27. Gingerich PD. Reviewed by Gingerich, P. D of Stephen Jay Gould: *Punctuated equilibrium*. Harvard University Press, 2007.
28. Gingerich PD. Stratigraphic record of early Eocene *Hyopsodus* and the geometry of mammalian phylogeny. *Nature*, 1974; 248:107-109.
29. Gould SJ, Eldredge N. *Punctuated Equilibria: The Tempo and Mode of Evolution Reconsidered*. *Paleobiology.* 1977; 3(2):115-15.
30. Goulson D, Owen D. Long-Term studies of the *Medionigra* polymorphism in the moth *Panaxia dominula*: A Critique. *Oikos.* 1997; 80:613-617.
31. Hanegraaff H. *The Face That Demonstrates the Farce of Evolution*. Nashville, TN: Word Publishing, 1998, 40-45.
32. Hickman CP. *Integrated Principles of Zoology*, 4<sup>th</sup>edn. The C.V. Mosby Co., Saint Lois, 1970.
33. Ho, Mae-Wane, Fox SW. On not holding nature still: Evolution by process, not by consequence. In: Mae-Wane, Ho and S.W. Fox. (eds.). *Evolution process and Metaphores*. John Wiley and Sons, New York, 1988, 117-144.
34. Isaak M. Five major misconceptions about evolution [www.talkorigin.org/faq-misconception]. Last visited, 2003.
35. Johnson GB. *The Living World*, 3<sup>rd</sup>edn. McGraw Hill Co., New York, 2008.
36. Jones D. Temperatures in the cothill habitat of *Panaxia (Callimorpha) dominula* L. (the scarlet tiger moth). *Heredity.* 2000; 84:578-586.
37. Lichtenstein BM. Evolution or transformation: A critique and alternative to punctuated equilibrium. *Academy of Management Annual Meeting Proceedings.* 1995; (1):291-295.
38. Maciejouski J, Zieba J. *Genetics and Improvement, Part B. Stock Improvement Methods*. Elsevier Scientific Publishing Co., Oxford, New York, 1982.
39. Mallet J. Speciation in the 21st century Speciation by J.A. Coyne and H. Allen. Orr. Sinauer Associates Inc., Massachusetts, USA. Reviewed of book by J. Mallet. *Heredity.* 2005; 95:105-109.
40. Maynard Smith J. Genes, mens, and minds. *The New York Review of book.* 1995; 42:46-48.
41. Mayr E. Speciation Evolution or punctuated equilibria. In *The Dynamics of Evolution* (eds. Somit, A. and Peterson, S.), Cornell Univ. Press, 1992, 21-48.
42. Noland GB, Beaver WC. *General Biology*, 9<sup>th</sup> edn. The C.V. Mosby Co., Saint Louis, 1979.
43. Parker TJ, Haswell WA. *A Text Book of Zoology Vol. II.*, 7<sup>th</sup>edn. Low Price Publications, New Delhi, 1990.
44. Prothero DR. Evolutionary transitions in the fossil record of terrestrial hoofed mammals. *Evo Edu Outreach.* 2009; 2:289-302.
45. Ranganathan BG. *Origins? The banner of truth trust*. Carlisle, USA, 1988.
46. Rastogi VB. *Organic Evolution*. Keder Nath Ram Nath, Meerut, New Delhi, 1994.
47. Reddi OS. *Understanding Genetics*. Allied Publishers Limited, New Delhi, 1992.
48. ReMine WJ. *The Biotic Message: Evolution versus Message*. St. Paul, Minnesota, 1993.

49. Scott H. Stephen Jay Gould and the Rhetoric of Evolutionary Theory. *Rhetoric Review*. 2007; 26(2):120-141.
50. Simmons MJ, Snustad DP. *Principles of Genetics*, 8<sup>th</sup>edn. John & Wiley and Sons, Inc., New York, 2000.
51. Singh RS, Uyenoyama MK. (ed.). *The Evolution of Population Biology*. Cambridge University Press, 2009.
52. Sinnott WE, Wilson KS. *Botany: Principle & Problems*, 6th edn. McGraw-Hill Book Co., New York, 1963.
53. Skipper RA, Jr. The Persistence of the R. A. Fisher–Sewall Wright Controversy. *Biol. and Phil.* 2002; 17:341-367.
54. Smith RL. *Ecology and Field Biology*, 4<sup>th</sup>edn. Harper Collins Publishers, New York, 1990.
55. Soulé ME, Mills LS. Enhanced: No need to isolate genetics. *Science*. 1998; 282:1658.
56. Stanley M, Andrykovitch G. *Living: An Introduction to Biology*. Addison-Wiley Publishing Co., California, 1984.
57. Starr C, Taggart R. *Biology: the Unity and Diversity of Life*, 4<sup>th</sup>edn. Wadsworth Publishing Inc. Belmont, California, 1989.
58. Tamarin R. *Principles of Genetics*, 7<sup>th</sup>edn. Wadsworth Publishing Co., Belmont, California, 2002.
59. Vuletic MI. Frequently encountered criticisms in evolution vs. creation. ([www.vuletic.com/hme/cefec/](http://www.vuletic.com/hme/cefec/)). Last visited, 1999.
60. Wade M, Goodnight CJ. Perspective: The Theories of Fisher and Wright in the Context of Metapopulations; When Nature Does Many Small Experiments. *Evolution*. 1998; 52(6):1537-1553.
61. Wallace RA. *Biology, the world of life*, 5<sup>th</sup>edn. Harper Collins Publishers Inc., New York, 1990.
62. Weaver RF, Hedrick PW. *Genetics*, 3<sup>rd</sup>edn. Wm. C. Brown Publishers, England, 1997.
63. Weisz PB, Keogh RM. *The Since of Biology*. 5<sup>th</sup> Edn. McGraw-Hill Book Company, New York, 1982.
64. Wilson EO, Eisner T, Briggs WR, Dickerson RE, Mitzenberg RL, O' Brien RD, Susman
65. Wolfe SL. *Biology, the Foundations*, 2<sup>nd</sup>edn. Wadsworth Publishing Co. Belmont, California, 1983.
66. Woodard AE, Abplanalp H, Pisenti JM and Snyder LR. Inbreeding effects on reproductive traits in the ring-necked pheasant. *Poultry Sci.*, 1983; 62:1725-1730.
67. Wright S. Evolution in Mendelian Populations. *Genetics*, 1931; 16: 97–159.
68. Wright S. The Roles of Mutation, Inbreeding, Crossbreeding, and Selection in Evolution. *Proceedings of the Sixth Annual Congress of Genetics*. 1932, 1:356-366.
69. Wright S. The shifting balance theory and macroevolution. *Ann. Rev. Genet.*, 1982; 16:1-20.
70. Young JZ. *The Life of Vertebrate*, 3<sup>rd</sup>edn. Oxford University Press, New Delhi, 198.