International Journal of Entomology Research
www.entomologyjournals.com
ISSN: 2455-4758
Received: 27-11-2022, Accepted: 13-12-2022, Published: 29-12-2022
Volume 7, Issue 12, 2022, Page No. 161-173

Evolution without Wilson's Sociobiology: Is Sociobiology a special branch of Entomology that deals with social insect?

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Abstract
Edward O. Wilson (Professor at Harvard University) studied the behaviour of ants and assumed that the behavior of ants were linked to gene/genetics (biological determinism/genetics determinism) and thus it was adaptive. This idea he applied to other animals including humans (i.e. the behaviour of other animals including humans are linked to gene/genetics) and formulated his Sociobiology theory of evolution of behavior. Thus, the basic idea of Sociobiology is that social behaviour is inherited through a gene and transmitted from parents to their offspring. But an ant is a social insect and the behaviour of an ant and other social insects is very peculiar and interesting that could never be comparable to other animals and humans. The behavior of a social insect is learned and experienced. The behavior of humans and other animals (birds, primates, horses, etc.) is also learned and experienced. Social behavior is not related to genetics, not transferable from parents to their offspring, and not adaptive (behaviour does not come through an evolutionary process). However, to compare the behaviors of humans and animals are not acceptable, as the cerebral cortex is entirely absent in most animals. Again. Sociobiology supports the undesirable patterns of racism and sexism and it approves of the status quo, which is resistant to social progress. Sociobiology has no academic exercise, as it opposes education through school, college, university etc. Sociobiology is a dangerous politics and is related to the Marxist idea. Moreover, Sociologists, anthropologists, anthropological theory, the tabula rasa theory of psychology, 35 scientists of the "American Institute of Biological Sciences" totally rejected the Sociobiology. Sociobiology is firmly based on both Darwin's theory and Neo-Darwinism, which indicates that Sociobiology has no base. However, literatures indicate that those theories are also opposite to evolution. Sociobiology unwisely popularize by being designated as 10 unrelated subjects, making it very complex to understand its view. Furthermore, Sociobiology is mainly based on social insects but fossils of social insects are identical to the existing one. Thus, Sociobiology (both the bahavioural ecology and pop Sociobiology) is opposite to evolution. However, literature claims that Sociobiology is a special branch of Entomology that deals with social insects.

Keywords: Anthropology, Darwin's theory, Neo-Darwinism, politics, social insect, social behavior, Sociobiology

1. Introduction

Edward O. Wilson, a professor at Harvard University published a book entitled "Sociobiology: The New Synthesis" and developed the Sociobiology theory of the evolution of behaviour. In this book, he popularized the idea that the social behaviour has been evolved over time, similar to the way that physical traits are thought to have evolved (Wilson, 1975) [1]. Additionally, sociobiology is the study of the biological basis of social behavior among animals and humans (Machalek and Martin, 2015) [2]. However, the zoological chapters of Wilson's book, dealing with the social insects, fish schools, birds, elephants, and carnivores, are well received (Bethell, 2001) [3]. Again, in dealing with the animal world, Wilson's book is both of thoughtful and exciting (Holtzman, 1977) [4]. But there are numerous criticisms against Sociobiology. For example, i) Sociobiology is a house, which is built on sand (Saunders, 1988) [5]. So, the base of Sociobiology is very weak. ii) Sociobiology is simply Psychology (Nickerson, 2022) [6]. iii) Sociobiology supports of Marxism. So, it could not be a theory of evolution (Menke, 2018) [7]. iv) Wilson's sociobiology transformed the field of biology and reignited the nature vs. nurture debate among scientists (NBC News, 2021) [8]. v) There is a fallacy of biological determinism in Wilson's Sociobiology (Lewontin, 1976) [9]. vi) Sociobiology is the art of storytelling but has no relation to evolution of behaviour (Gould, 1978) [10]. vii) The more general term behavioral ecology is commonly substituted by the term Sociobiology to avoid public controversy (Buss, 2005) [11]. Hence, Sociobiology has created great controversy. Those criticisms claim that there is a great doubt whether the evolution of behaviour occurs by Sociobiology. So, there is no alternate way but to remove the doubt with an article for the benefit of modern biological science.

Furthermore, literature indicated that there are many works against many theories of evolutionary biology such as: the invalid chromosomal speciation theory of macroevolution (Ahad and Ferdous, 2015) [12]; Haeckel's evolutionary tree is not valid (Ahad, 2018) [13]. Consequently, those literatures claimed that there is no scientific problem to work against Sociobiology and also advises to work against Sociobiology theory. As the reviews of works of literature reveal that there is very limited work against Sociobiology. So, the objective of this article is to prove: "Wilson's Sociobiology is opposite to evolution or not: Sociobiology is a branch of entomology that deals with social insect or not? As "Science searches, which is the truth (Ahad, 2018, Ahad, 2019, Ahad, 2020, Ahad, 2022) [13.14.15 &16]. So, to work on the objectives is very necessary for the benefit of modern biological science. This article would provide an overview, and perspective of Wilson's

Sociobiology. So, this article would be helpful to those dealing with evolution.

2. Wilson compared and applied the behaviour of ants to other organisms including humans and formulated sociobiology that opposes Sociobiology itself

Numerous works of literature claimed that E.O. Wilson applied his study of behaviour of ants to other organisms, including peoples, and developed Sociobiology. For example, i) Wilson used his research of ants on other organisms, including peoples, to develop a science known as sociobiology (Nicholas, 2008, Neuman, 2021) [17, 18]. ii) Study of the "Academic tree of E.O. Wilson" indicated that he has 59 articles on the ants. Hence, Wilson was recognized as the world's leading authority on "Ants" and his nickname was the "Ant-man" (Sullivan, 2021) [19], and iii) In his book "Sociobiology: The New Synthesis," Wilson exploits "ants" 360 times to support his idea of sociobiology.

So, it is clear that Wilson applies his study on ants to other organisms, including peoples, to develop Sociobiology which is quite absurd and it opposes Sociobiology itself.

3. Ant is a social insect and the behaviour of ant and other social insects is very peculiar and interesting that could never be comparable to other animals and humans

Ant is a social insects and the behaviour of ants and other social insects is very peculiar and interesting that could never be comparable to other animals and humans. For example, the peculiar and interesting behavour of ants is placed here in a very concise form:

i). Ants have super strength and can lift 10-100 times of their own body weight (Fig. 1). ii) Each ant has a specific job in a colony and operates like a business organization**.** Ant societies are divided into workers, kings, and queens in each colony. The queen has only one job-to lay eggs. Queen is a machine of egg laying and lays numerous eggs (Fig. 2). All other female individuals are workers; they feed the larvae, take out the colony's trash, forage for food and supplies, or defend the nest. The male or king's only job is to mate with the queen. iii). Ants have proven to be amazing "Super minds," they work according to the needs of the colony for the young not for the benefit of individuals. iii). Ants reared other organisms like a farmer such as, aphids, scale bugs, and mealy bugs. Ants protect them from predators and shelter them in their nests from heavy rain showers, in exchange ants get for a constant supply of honeydew**.** iv). Ants use pheromones in a number of different ways, such as releasing 'danger' pheromones upon death to alert nearby ants, or to create chemical trails from their nest to promising food sources. Other ants in the colony can use their antennas to detect these pheromones and respond accordingly. v) Ants have two stomachs; one stomachs is for holding food for their own consumption, and the second one is to hold food to be shared with other ants. v) Ants have the ability to survive in water using their own version of the doggy paddle 'Lifeboat' (Fig. 3), and can also float for long time to survive in floods. Even once underwater, they can still survive as they are water-proof. viii). An ant colony nest contains thousands to 300 million individuals.

Fig 1: Ant can lift up to10-100 times

Fig 2: Queen lays numerous eggs

Fig 3: Doggy paddle 'lifeboat of ant

viii). Ants were found on every continent on the earth except Antarctica. The vast distribution of ants was rivaled only by that of humans (https://www.westernexterminator.com › ... › > Ants).

Hence, it is proved that the behaviour of ants is very peculiar and interesting that could never be comparable to other animal and human but Wilson did do it, which oppose the idea of Sociobiology.

4. The behaviour of other social insects is similar to ants, also peculiar and interesting that could never be comparable to other animals and humans

In his book "Sociobiology: The New Synthesis," Wilson exploits "ants" 360 times to support his idea of Sociobiology. Moreover, he used honey bees 185 times, wasps 135 times, termites 95 times, and insect societies (found only in social insects) 17 times to formulate his theory of sociobiology. However, those insects are known as "Social insects. So, broadly, Wilson's Sociobiology is based on social insects. As ant is a social insect. So, the previous behaviuors of ants is also found in other social insects (honey bee, wasp, and termite) except for the ability to survive in water and have superhuman strength (can lift 10-100 times). For example, all social insects mate in the sky (Figs.4, 5, 6, 7, and 8).

Fig 4: Mating of ant on the sky

Fig 5: Mating of honey bee on the sky

Fig 6: Mating of wasps on the sky

Fig 7: Mating of termite on the sky

5. The behaviors of a social insect is learned and experienced, which opposes sociobiology

Sociobiology is based on the study of behaviour of social insects. But literature claims that the behaviour of social insect are learned and experienced, but not genetically controlled. For example, the behaviour of ants and honey bees are learned and experienced but not genetically controlled.

5. 1. The behaviour of ants is learned and experienced but not genetically controlled

i) Learning of ants is a widespread phenomenon that allows behavioural flexibility when individuals face new situations. It is investigated from an associative appetitive learning in an ant species *Formica fusca* that is widely distributed in the Northern Hemisphere. Moreover, individual ant workers of *F. fusca* show remarkable learning and memory performances (Piqueret *et al.*, 2019) [20]. ii) The foraging behaviour of workerss of the desert ant *Cataglyphis fortis* has been shown to associate with the directional information with landmarks (Behmer, 2008) [21]. iii) The homing of ants commonly involves following the odor trails but the direction of the sun also serves as the orientation. Again, the foraging behaviour, the nest building behaviour, and parental care of social insects, such as, ants are also leaned but not genetically (Borror *et al.*, 1982[22]. Hence, it is proved that the behaviour of ants is learned and experienced but not genetically controlled.

5. 2. The behaviour of honey bees is learned and experienced but not genetically controlled

i) The foraging behaviour, the nest building behaviour and parental care of social insects, such as, bees are also leaned but not genetically occurs (Borror *et al.*, 1982) [22]. ii) The learning of insects are found in facts that the habituated response can be developed. The well-known bee- line of a homing of honey bee is learned after preliminary flights and appears to be based on the recognition of various land-marks and direction of the sun. So, a worker bee must be able to learn the position of its hive and of flower that are good for foraging (WBE 1989) [23]. iii) Learning inflicts upon virtually every aspect of the natural history of an insect life; where it has been investigated in insects, it has typically been found. Thus, most of what is known about learning in insects come from studies on the social Hymenoptera and found that the behaviour of the social

Hymenoptera is learned and experienced but not inherited. For example, the honeybee *Apis mellifera* has been shown to learn to use of both flower colors and shapes as a way to increase their foraging efficiency for nectar and pollen collection (Behmer, 2008) [21]. Hence, it is verified that the behaviour of ants and bees is learned and experienced but not genetically controlled.

Hence, it is proved that the behaviour of ants and bees are learned and experienced but not genetically controlled, which oppose Sociobiology.

6. No behaviour of social insects is related to genetics but nutrition

No behaviour of social insects is related to the genetics; for example, sex determination of a termite and a honey bee is related to genetics and its documents are placed here:

6. 1. Sex determination of honey bee is not related to the genetics but fully on their nutrition

Female larvae (from fertilized eggs) all have the potentials to develop into either workers or queens, depending on the period of time those are fed on royal jelly. If larvae are fed the royal jelly for only two or three days, those develop into drone (from unfertilized eggs) and worker (sterile females) respectively, but if those are fed on royal jelly throughout the larval stadia, those develop into queens (fertile females). So, sex determination of honey bee is not related to genetics but nutrition (Comostock, 1984; Romoser and Stoffolan 1994) [24&25]. In addition, there is no special gene that controls whether a bee grows-up to be a queen or worker. So, their jobs in the hive are not determined by genetic makeup. For example, queen bee result from larvae that are fed large amounts the royal jelly resulting in a queen. Furthermore, there are no specific genes predisposing the workers to do the different tasks those do [https://wisconsinpollinators.com › Bees.].

Hence, sex determination of honey bee is not related to the genetics but fully on their nutrition.

6. 2. Sex determination of a termite is not related to the genetics but to an exocrine hormone

The newly hatched termites are not differentiated into castes/male and female; rather this differentiation takes place later as the result of the extrinsic factors, such as, food, the presence or absence of parasitic protozoa in the alimentary tract, and the care received from the older workers as well (Comostock, 1984) [24] . The physiology in many termite species that supplementary reproductive caste does not appear as long as the original king and queen are present. The king and/or queen produce a substance that circulated throughout the colony and inhibits the formation of supplementary reproductive individual. Death of the royal pair would then results in the loss of this inhibitory substance, and hence, the supplementary reproductive stage would appear, assuring the continued survival of the colony. Soldiers may also produce a substance that passes from individual to individual throughout the colony and inhibits development of more soldiers. The endocrine system (especially juvenile hormone and ecdysone) is brought to be involved in the expression of polymorphism (king, queen. worker and solider) of termite pheromone/ hormone (Romoser and Stoffolan 1994) [25] · So, the sex determination process of termites is not related to genetics but on the exocrine hormone only.

7. The behavior of other animals is learned and experienced but not inherited from their parents to offspring, which opposes sociobiology

Since, a newborn individual has no prior experience each individual starts life with a "Clean slate"; it acquires new skills and knowledge through trial and error, observation of other individuals, or memory of past events. Hence, animals have to learn and experienced. So, the behavior of birds, primates, horses, elephants, prairie dogs, tigers, lions, dolphins, whales and fishes is learned and experienced but not inherited from their parents. There are numerous evidence about it but a few are mentioned here under various subheadings:

7. 1. Behaviour of a primate is learned and experienced

According to Wilson, the social behaviors of other animals are also genetically controlled (Wilson, 1975, Levallois, 2018) [1, 26]. But the behaviour in mammals are learned. For example, a chimpanzee is to cope with a very complicated physical and social environment. So, a chimpanzee has developed a high level of intelligence and a system of extended parental care that gives the young chimpanzee time to gain experience under the watchful eye of its mother, as it learns about its complex world (Wallace, 1990) [27]. Many animals acquire information from their social environment, for example pertaining to foraging, mate choice, and predator avoidance, and such social learning often underlies behavioral traditions of chimpanzees in a diverse array of taxa (Kendal *et al.*, 2010) [28]. Furthermore, six of twelve controlled chimpanzees (tested alone, hence reliant on a social learning) interacted with the task, with three first pushing the door to the right and three to the left. Across all individuals, 50% of manipulations were to the right, indicating no inherent directional bias. Equally, in experimental groups (where social learning was possible), there was strong evidence of a group-level bias in the option used (i.e. the direction chimpanzees pushed the door to gain a food reward). This bias exceeded that expected by a social learning alone. Chimpanzees copy dominant and knowledgeable individuals: implications for cultural diversity alone (Kendal *et al.*, 2015) [28]. Hence, the behaviour of chimpanzee are not hereditary at all.

7.2. The behaviour of a bird is learned and experienced

Numerous literature claimed that the behaviour in birds is learned and thus it opposes Sociobiology. However, a few literature mentioned here:

i) Often, all kinds of learning of birds have been argued to be environmentally determined, as if it depends solely on experience, not genetically. The ability to learn of birds be intrinsic within their nervous system. Moreover, apparently song behavior of birds is learned but the song that learned requires species-specific writing in the bird brain (Starr and Taggart, 1989) [29]. ii) The ability to sing has a strong component of learning in most birds. Although a bird raised in isolation will attempt to sing, its song will be a poor performance of the song that its father sang to attract its mother. Furthermore, a parrot can be taught to say "Polly, want a cracker" and any number of other phrases even they learn to recite the holy Quran. Birds learn to solve complex problems more readily than many mammals in laboratory experiments. Moreover, crows learn quickly to go around the side nearest the food and. learn to solve the problem (Wilson, 2014) [30]. iii) Learned behavior comes from the

watching of other animals and from the life experiences. For example, by watching their mother, baby ducks learn how to avoid danger and to know what is good to eat. A familiar sight is ducklings walking or swimming after their mothers (Daniel, 1999) [31].

7. 3. The behaviour of a horse is learned and experienced but not inherited

Horses demonstrate learned behaviors are taught, either intentionally or through horses' own life experiences. For example, young horses do not automatically know to walk to the gate at feeding time. Horses begin learning the day they are born. Young foals will observe how their mothers react to humans and quickly adapt.

If young horses who misbehave and upset older horses will quickly be corrected in the form of either bites or kicks. The resulting pain teaches young horses lessons they are not likely to forget [https://animals.mom.com › learned-behaviors-horses-4599; Learned Behaviors of Horses: Last visited 01/11/22].

7. 4. The behaviour of an elephant is learned and experienced but not inherited

Elephants rely on their social companions to learn appropriate behavioral responses to others. They gradually acquire foraging knowledge by sampling what the adults around them are eating, and they practice their mothering skills by associating with and following the behavior of mothers of newborn calves. Young elephants learn normal behavior in a social context, and learning from others, or social learning, plays a crucial role in their development. Calves follow their mothers' responses to learn who are their relatives and friends, and who represent potential threats. Furthermore, a young elephant learn to use and make tools, how and what to eat, mothering skills, reproductive skills and they learn from older males too (https://www.elephantvoices.org › elephants-learn-from-0. Last visited 01/11/22).

7. 5. The behaviour of a carnivore animals are learned and experienced but not inherited

i) In a research a zoo. it was observed that the behaviour of carnivore animal are learned and experienced but not inherited. For example, the young prairie dogs provided an example of learned behaviors. By observing adult prairie dogs, young prairie dogs quickly learn to be always watchful for predators. They learn to recognize the warning call of adult prairie dogs and to dive into the safety of their burrow when danger is near (Daniel, 1999) [31]. ii) Dogs quickly learn to go around the side nearest the food and. learn to solve the problem (Wilson, 2014) [30]. iii) Young coyotes provide another example of learned behaviors. Young coyotes learn the skills of a predator by hunting with adult coyotes. They also learn how to behave as a member of a pack (Daniel, 1999) [31]. iii) Learned behavior is also found in lion. Some learned behaviors of the lion include mating with other lions, protecting their territory and the pride's cubs. Another very important learned behavior is hunting. At 3 months, they go along, hunts with their mothers and watch them from a short distance. Lion's hunting and catching prey is an example of learned behavior. But when lion cubs are born, they do not know how to hunt. Cubs have to learn how to hunt by watching their parents. They may even "Hunt" each other as a practice when they are cubs [https://prezi.com › lion-behavior: Last visited 21.09.21].

Tigers have learned many behavior over the years, like responding when they are called and allowing us to close gates, so we can clean inside or outside without them present. The tigers participate in their own health care by allowing us to weigh them on a scale or give them their annual vaccines by hand injection [https://senecaparkzoo.org › tiger-winter-behavior: Last visited 21.09.21]

7.6. The behaviour of a dolphin is learned and experienced but not inherited

The behaviour of dolphin is learned but not inherited as new research shows that dolphins can learn foraging behavior from other dolphins and learn special foraging techniques from their mothers, and it is now clear that they can learn from their buddies as well take the clever trick that some dolphins use to catch fish by trapping them in sea shells **[**https://www.npr.org › 2020/06/25 › dolphins-learn-foragi...**].**

7.7. The behaviour of a whale is learned and experienced but not inherited

A behavior called "Lobtail feeding" provided the strongest evidence to date of social learning among whales. This hunting behavior, whereby humpback whales slap the water with their tails and blow bubbles around the prey to confuse it, was first seen in the Gulf of Maine in the 1980s (Lee, 2013) [32]. Whales behave in ways that suggest intelligence and a sophisticated mind. Not only do they learn as individuals, but can pass knowledge into others too (Kuczaj *et al.,* 2009) [33].

7. 8. The behaviour of a fish is learned and experienced but not inherited

Through learning, fish can adapt to environmental change. For instance, the homing behaviour of fish may be partly the result of the development of specific parts of the brain and partly because of changes in behaviour with experience. Similarly, one can assume that the feeding mode of fish involving snap-responses is innate, but learning enables fish to modify their foraging behaviour in response to a fluctuating environment. Learning plays a large role in the behaviour of fishes, the learning capacity of fishes may also be useful to fisheries research and hatchery operations (Kieffer and Colgan, 1992) [34].

Lastly, it is examined that the behavior of birds, primates, horses, elephants, dolphins, whales, fishes and carnivores (prairie dogs, tiger and lion) are learned and experienced but not inherited,

In supporting, animals are able to learn ways of coping with the environment but not are inherited. Thus, they modify their behavior to deal with the problem that they have encountered before. Even they have ability to learn and remember it to certain extent depending upon the life it leads (WBE 1989) [23]. Many groups of wild animals can transmit learned behaviors and develop their own distinct cultures (Kuczaj *et al.,* 2009) [33].

8. The behaviour of humans is learned and experienced but not inherited from their parents to their offspring

Many writers claim that the behaviour of humans is learned and experienced but not inherited. The documents are placed here:

i) It is clear that the patterns our social behaviour are molded by culture and learning, and that we can change any undesirable trait through education, inceptive and social programs too (Wallace, 19901[27].. Consequently, different NGOs as well as governments of all countries try to remove the unwanted habits of peoples in different ways. ii) Learning has a great impact on human behaviour. It is perfectly clear that most of the manners are transformed by experience. So, human culture and behavior are changed very rapidly (Johnson, 2003) [35]. iii) Sociobiology ignores the contributions of the mind and culture (Stanford encyclopedia of philosophy, 2018) [36]. iv) Segerstrale has interviewed all the major participants, including such eminent scientists as Stephen Jay Gould, Richard C. Lewontin, Richard Dawkins, John Maynard Smith, Nobel Laureates Peter Medawar, and Salvador Luria, and of course Edward Wilson; but they oppose biological determination (behaviour transmit parent to offspring) of sociobiology (Segerstrale, 2000) [37].

Thus, the behaviour of humans is learned and experienced but not inherited from their parents to their offspring.

9. Social behavior is not related to genetics and not transferable from parents to offspring, which opposes sociobiology

Social behavior is not related to genetics and not transferable from parents to offspring, which opposes sociobiology and its documents are placed here with:

It is previously proved that the behaviour of social insects is not relented to genetics. In addition: i) Sociobiology claims that social behavior is related to genetics and is transferable from parents to offspring. Unluckily, behavior is not related to genetics and is not transferable from parent to offspring. Even, E. O. Wilson feels that only about 10% of human's social behaviors can be explained through genetics, the other 90% of social behaviors cannot be explained through inheritance or genetics basis (Cider *et al.*, 1983) [38]. ii) There is no hard evidence that specific genes exist for altruism or social behavior in humans and in other animals that could transfer from their parents to off springs. As a result, biologists accuse Sociobiology is misleading (Washburn, 1978) [39]. iii) Human culture/behavious is not inherited through genes; it is acquired by learning from other human beings. In a sense, human genes have surrendered their primacy in human evolution to an entirely new non-biological or super organic agent, culture (Allen *et al.*, 1975) [40].

iv) Human individuals behaviour and human cultures exhibit such a confusing variety of behaviors which indicates that it is not governed by their DNA (Robertson, 1987) [41].

v) As an associated of the objection that Sociobiology was dedicated to genetic determinism by ignoring the learning and culture of humans (Stanford encyclopedia of philosophy, 2018)[36]. vi) Human's social behavior is not biologically determined and not transmitted to offspring and thus, human behaviour is learned and experienced (Rosenthal, 1977) [42]. vii) It could be distributed with the direct evidence for a genetic basis of behvriours of human social forms in a single word, "None." Since, sociobiologists can offer no facts to support the genetic basis for human social behavior. So, there is no evidence for genetic determinism (Sociobiology Study Group of Science, 1976) [43].

Lastly, it is documented that social behavior is not related to genetics and not transferable from parents to offspring, which opposes sociobiology.

10. Social behaviour is not adaptive and thus it is strongly opposes Sociobiology

Sociobiologists claim that social behaviour/ learning is adaptive. But it is not true. There are many kinds of literature but a few are mentioned here:

i) Social behaviour is not adaptive (i.e. behaviour comes through an evolutionary process) (Lumsden and Hopcroft, 2017) [44]. ii) Sociobiologists claim that social behaviour/ learning is adaptive. But ironically, social learning has basically not been adaptive (Laland, 2004) [45].

Hence, social behaviour is not adaptive and thus it is strongly opposes Sociobiology.

11. Sociologists oppose the Sociobiology

Sociology studies the human society. So, Sociobiology is considered as a branch of sociology. Sociobiology claims that behaviour of human is control by a gene, which indicates cultural universal. But this idea of Sociobiology is not obeyed by sociologists:

i) Sociologists disagree with the sociobiological explanation of evolution of behaviour and strongly attacked the biological determinism (the main principles of Sociobiology). Consequently, sociologists have powerfully criticized the main principles of Sociobiology (Schaefer and Lamm, 2004) [46]. ii) Until recently, however, sociologists largely rejected Sociobiology. There is now more acceptance of sociobiology within sociology (Lumsden and Hopcroft, 2017) [44]. iii) As a result, many workers, both in the natural and in the social sciences feel disturb about use of Sociobiology in evolution (Saunders, 1988) [5]. iv) Wade (1976) [47] reported that the ideology of sociobiology has been so controversial that E. O. Wilson has been protested and even water had been thrown in his face at the meeting of 'American Association for the Advance of Science' in 1976.

Thus, Sociologists oppose the Sociobiology.

12. The Stanford Encyclopedia of Philosophy totally opposes the Sociobiology

The Stanford Encyclopedia of Philosophy totally opposes Sociobiology:

Sociobiology is genetic determinism and it is probably unfair, there was a related objection that could be raised to both the Pop sociobiology and to the later forms of human and non-human behavioral ecology, i.e. that any trait's being an adaptation required that that trait be heritable, and most human behaviors were not heritable. To say a trait was heritable in the simplest sense was just to say that if the parent had that trait, then the trait tends also to appear in the offspring (i.e. to say the trait was heritable simply means that the trait was inherited reliably) was genuine falls (Stanford Encyclopedia of Philosophy, 2018) [36].

13. Anthropologists opposes the Sociobiology

Sociobiology is studied in the field of Anthropology (Tamarin, 1986) [48]. Hence, Sociobiology has a strong relationship with Anthropology. Nevertheless, anthropologists and even cultural ecologists oppose the basic principle of Sociobiology (i.e. social behavior is inherited). i) It is pointed out that anthropologists are

unfavorable about the idea of a sociobiological explanation of evolution of human behaviour. Because, the common behavior (for example, all human societies have a marriage system, and a division of role between males and females), have no genetic basis in human species. Again, cultural patterns are learned, and sometimes it may be universal; since, it has been educated universally.

Moreover, Sociobiology had aroused a lot of controversy in cultural anthropology. For instance, most cultural anthropologists would said that human culture could not had evolved in the absence of some genetically determined characteristics (such as a large brain or the mouth and throat anatomy required for spoken language), the varieties of culture observed in the human species were mainly learned but not genetically or inherited (Ember and Ember,1993) [49].

ii) The main argument sociobiology that all social behavior had a linked to a gene that can evolve or transfer to their children (biological basis/genetic basis) would be questioned, as it challenged anthropological theory (Stewart, 1975) [50].

Hence, anthropologists and theory of anthropology opposed the sociobiology.

14. Sociobiology supports the undesirable and unsocial pattern of racism and sexism and thus Sociobiology is unacceptable

Science is fighting against undesirable patterns of racism and sexism (Calaza, 2021) [51]. Yet, Sociobiology supports the undesirable and unsocial patterns of racism and sexism (Wallace, 1990.571) [27]. So, Wilson in particular has been accused of morally objectionable behaviours, such as, sexism and racism; thereby justifying them as natural or inevitable (Gaur *et al.*, 2021) [52].

Furthermore, Wilson's Sociobiology was respondent to racism, misogyny, and sympathy for eugenics (Douglas, 2001) [53]. Thus, Sociobiology supports the undesirable and unsocial patterns of racism and sexism. Thus, Sociobiology is unacceptable.

15. Sociobiology approves the status quo, which resistant to the social progress and thus Sociobiology is quite unacceptable

The acceptance of Sociobiology means to approve the status quo (a preference to not undertake any action to change this current or previous state) (Wallace, 1990.571) [27].The biological determinism of Sociobiology provides a direct justification for the status quo (Sociobiology Study group, 1976) [43]. Again, Wilson supports a biological explanation of human culture and behavior provides a close explanation for the status quo (Cramer, 1976) [54]. Sociobiology trusts on biological determinism, which implies to support the status quo and that it fails to take into account the complexity of human behavior and the impact of the environment on human development as well (Stanford encyclopedia of philosophy, 2018) [36].

Whereas, Marxists convicted Sociobiology as upholding the status quo (Menke, 2018) [7], which is dangerous for modern human society.

Hence, Sociobiology approves the status of quo, which is resistant to social progress. Thus, Sociobiology is quite unacceptable.

16. Tabula rasa theory of psychology rejects Sociobiology

Sociobiology theory tries to establish a scientific argument for rejecting the most common philosophical theory of tabula rasa of the psychology of John Locke, which created a great controversy between psychology and sociobiology (Restak, 1983) [55]. So, many psychologists strongly oppose the principles of Sociobiology.

17. Sociobiology is a dangerous politics and related to the Marxist idea, which faithfully reduce its scientific value

Sociobiology is a dangerous politics and related to the Marxist idea, which faithfully reduce its scientific value. There are many literatures but a few are mentioned here:

i) The basic principle of Sociobiology is not true and Sociobiology is politically dangerous (Stanford encyclopedia of philosophy, 2018) [36]. ii) Bateson pointed out that like social Darwinism, Sociobiology had considerable sociopolitical implications (Bateson, 1985) 56[]. iii) Sociology was predominantly structural-functionalist with a smattering of Marxists and feminists (Boeree, 2014) [57]. iv) The development of Sociobiology theory of evolution of social behaviour were politics only (Tiger, 1980) [58]. v) Sociobiology was politically dangerous and scientifically unsound too (Nickerson, 2022) [6]. Sociobiology is known to support Marxist (Menke, 2018) [7]. vi) The application of sociobiological approaches to human societies inevitably was heavily colored by the author's own political and social biasness (Holtzman, 1977) [4]. vii) The sociobiological argument was to try to show that the hypothetical, genetically programmed behavior organs (everything of human behavior was adaptive/ all human behavior was adaptive) was or had been adaptive. It was an extremely traditional politics (Sociobiology Study Group of Science, 1976) [43].

So, sociobiology is a dangerous politics and related to Marxist idea, which is faithfully reduced its scientific value.

18. Sociobiology has no academic exercise, as it opposes any kind of learning, education and training of peoples

The idea of Sociobiology is that the evolution of behaviour occurs through a gene. So, when humans reproduce, offspring inherit the gene of their parents and thus offspring get their parents behaviour automatically. So, according to Sociobiology, a son of doctor, would be a doctor automatically. Thus, no need of learning, education etc. education by establishing schools, colleges and universities by the governments, NGOs, social workers etc.. So, Sociobiology has no academic exercise. As a result, Sociobiology Study Group of Science (1976) [43] claimed that sociobiology had academic practice. So, Sociobiology is so-called, because, it has no academic audience (Stanford encyclopedia of philosophy, 2018) [36].

Hence, Sociobiology has no academic exercises, as it opposes any learning, education, etc. training of peoples.

19. Sociobiology is very controversial

Sociobiology is very controversial in various aspects, such as:

i) Cultural universals, the ideology of Sociobiology is very controversial in sociology. As it serves to unite rather than divide humanity by declaring that all cultures of humans share the same evolutionary histories, though Sociobiology

has no scientific evidence in favor of its claims (Macionis, 1991) [59]. ii) The more general term, behavioral ecology is commonly replaced and accepted by the term, sociobiology in order to avoid public controversy (Buss, 2005) [11]. iii) Sociobiology is more controversial, when it attempts to explain various human social behaviours in terms of their adaptive value for reproduction. In addition, Sociobiological research was at the time particularly controversial with regard to its application to humans (Rensberger, 1975) [60]. iv) Sociobiology created a firestorm of criticism, mostly focused on the Wilson's book on the final chapter, in which he applied lessons learned from animal behavior to human society (Segerstrale, 2000) [37]. v) Sociobiology is very controversial (Holtzman, 1977) [4]. vi) Wilson, in particular, has been accused of attributing adaptive value to various behaviours (Gaur *et al.*, 2021) [52].

20. To compare the behaviors of humans and other animals are not acceptable, as the cerebral cortex is entirely absent in most animals

To comparison between the behaviour of human and the behaviors of other animals are not acceptable, as the cerebral cortex is present in human but entirely absent in most animals. There are numerous things and kinds of literature about it but an example is placed here:

The analogies between the human and other the animal behaviors are basically defective (Sociobiology Study group, 1976) [43]; because one can no more explain human behaviors in terms of the genetic principles that govern the behavior of a sheep. Human beings differ from other animals in their capacity for cultural-learning. Humans have huge cerebral cortex, the part of the brain that is responsible for the higher mental functions, such as, theoretical thought. Comparative photographs of human brain's, other primates and animal species show that the cerebral cortex is entirely absent in most animals. Even in the species that have a cerebral cortex, such as the other primates; it is relatively undeveloped (Robertson, 1987) [41]. So, to compare between the behaviour of human and the behaviors of other animals are not acceptable (Sociobiology Study Group of Science, 1976; Stanford encyclopedia of philosophy, 2018) [36 &43]. Hence, to comparison between the behaviour of human and the behaviors of other animal are not correct, as the cerebral cortex is entirely absent in most animal**s,** which opposes Sociobiology.

21. Sociobiology is unwisely popularized by being designated as 10 unrelated subjects, which makes it very complex to understand

It is examined that sociobiology is not valid for evolution, yet sociobiology is unwisely popularized by designated as various10 subjects and those are given below: i) Evolutionary psychology, ii) Evolutionary social sciences, iii) Pop Sociobiology, iv) Evolutionary anthropology, v) Darwinian ecological anthropology, vi) Narrow sociobiology and neuroscience, viii) Behavioral ecology, ix) Cultural ecology, and x) Dual inheritance theory. Thus, it is recognized that Sociobiology is unwisely popularized as 10 unrelated subjects, which make it very complex to understand (Ahad, 2014) [61].

22. Sociobiology is mainly based on social insects but fossils of social insects are identical to the existing one, which opposes Sociobiology

All obtained fossils of social insects (that found in Baltic amber) are identical to the present-day or existing social insects:

i) The present-day queen ant (Fig.8) is identical to the fossil of a queen ant (Fig.9).

Fig 8: Existing queen of ant

Fig 9: Fossil of Ant

Fig 10: Existing Wasp

Fig 11: Fossil of wasp

ii) The present day wasp (Fig.10) is identical to the fossil of wasp (Fig.11).

iii) The present day honey bee (Fig.12) is identical to the fossil of honey bee (Fig.13).

Fig 11: Existing honey bee

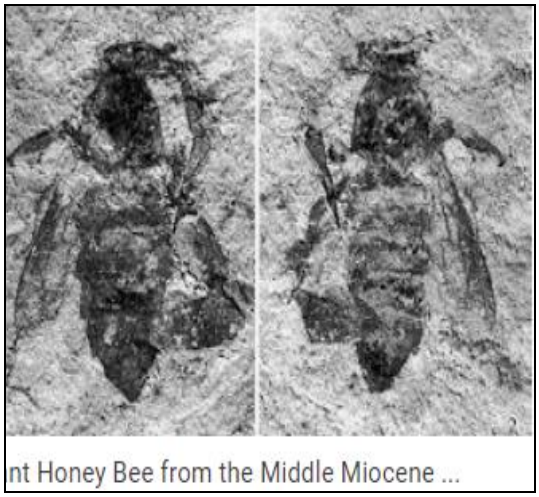

Fig 12: Fossil of honey bee

Fig 13: Existing termite

Fig 14: Fossil of termite

iv) The present-day termite (Fig.13) is identical to the fossil of termite (Fig.14).

Hence, it is proved that all obtained fossils of social insects are identical to the existing social insects.

23. Sociobiology is firmly based on both Darwin's theory and Neo-Darwinism, which indicates that Sociobiology has no base

The literature claimed that Sociobiology is firmly based on both Darwin's theory and Neo-Darwinism (evolution related to genes), which are the major and prominent theories of evolution, which indicated that Sociobiology has no base at all. The documents are placed here with various sub-headings:

23.1. Sociobiology is strongly based on Darwin's theory of natural selection

Sociobiology is strongly based on natural selection (evolution through adaptation) and a few literatures are placed here:

Edward O. Wilson used "Natural selection" 76 times in his book "Sociobiology: The New Synthesis" to explain the effects of natural selection on the social behaviors (Wilson, 1975) [1]. Additionally, Sociobiology is the study of the effects of natural selection on the social behaviors (Saunders, 1988; Wallace 1990; Daly, 2015) [5, 27 &62]. Consequently, E.O. Wilson was a modern-day Darwin [https://www.vox.com › down-to-earth › 2021/12 › eo-...]. Therefore, it is documented that Sociobiology is strongly based on Darwin's theory of natural selection.

23.2. Sociobiology is based on neo-Darwinian principles

Sociobiology is also based on neo-Darwinian principles (evolution related to genes) and a few literatures are placed here:

Edward O. Wilson mentioned the term "Population genetics" 21 times in his book "Sociobiology: The New Synthesis" to explain how social behaviour evolves by action of Neo-Darwinism. However, Neo-Darwinism = Modern synthetic theory of evolution=Modern Synthesis = population genetics (Ahad, 2022) [16]. Again, he also exploits "Modern Synthesis" 3 times, Modern synthetic theory one time, and Neo-Darwinism one time. So, Wilson used Neo-Darwinism totally 25 times, which indicates that Sociobiology is based on Neo-Darwinism.

Moreover, the title of Wilson's book "Sociobiology: The New Synthesis" is indicateds that Sociobiology is based on Neo-Darwinism. In addition, the extension of neo-Darwinian principles to the social behavior gave birth to the discipline of Sociobiology (Ho, 1988) [63]. Hence, Sociobiology is based on Neo-Darwinism. Ahad (2014) [61] also proved the same thing.

Finally, it is documented that Sociobiology is strongly based on both Darwin's theory and Neo-Darwinism, those are the major and prominent theories of evolution, which indicated that Sociobiology has no base at all.

24. Both Darwin's theory and Neo-Darwinism are opposite to evolution, which opposes Sociobiology

Both Darwin's theory and Neo-Darwinism are opposite to evolution. The documents are placed here with various sub-headings:

24.1. Darwin's theory is opposite to evolution, which opposes Sociobiology

It is proved that Sociobiology is strongly based on the natural selection. But literatures claim that natural selection is opposite to evolution. There are many kinds of information but a few are mentioned here:

i) Darwin's theory is based on the belief and on the wrong theory of Lamarck's and thus, Darwin's theory is opposite to evolution (Ahad, 2011; Ahad, 2014) [64& 65]. ii) Darwin used the term "Climate" 100 times in the Origin of Species and 32 times in the "Decent of Man" and indicates that living organisms dispersed away from their places of origins and then became subsequently modified to match with the environment and thus new species evolve and their geographical distribution occurred. But living organisms have not evolved to match with the changing environment but geographical distribution (Biogeography) is not related to the changing environment (Ahad, 2019) [14]. iii) It is proved that the Origin of Species represents the Survival of the Fittest, natural selection, the Descent of man, the Darwin's theory and vice-versa. But the Survival of the Fittest is not valid (Ahad, 2020) [15]. iv) The symbol of natural selection was derived from the dominant socioeconomic ideology of the Victorian era, but now are rejected by nearly all humanity (Ho, 1988) [63]. v) World famous two evolutionists Gould and Eldredge declared that Darwin's theory is no valid for evolution (Gould and Eldredge, 1977; Ahad 2017) [66&67]. vi) At the Chicago meeting on "Wistar Destroys Evolution" (held in 1980), it is declared that Darwin's theory is a theory of adaptation and but not evolution. Thus, no evolution occurs by Darwin's theory.

Therefore, it is proved that Darwin's theory is opposite to evolution. As Sociobiology is based on Darwin's theory; hence, Sociobiology is opposite of evolution.

24.2. Neo-Darwinism is opposite to evolution, which opposes Sociobiology

Evolutionary biologist rejects Neo-Darwinism for any kind of evolution. There are numerous literatures but a few are mentioned here:

i) Neo-Darwinism is opposite to evolution (Ahad, 2011; Ahad, 2014; Ahad, 2022,) [16, 61&68]. ii) Neo-Darwinism depends on the theoretical separation between organisms and their environments and supposed randomness of variation on which natural selection acts. But both assumptions have been canceled in the light of contemporary information (Ho, 1988) [63]. iii) The fossil evidence, Hardy-Weinberg Law, and Mendel Law never support Neo-Darwinism (Ahad, 2022) [16].

Therefore, Neo-Darwinism is opposite to evolution. As Sociobiology is based on neo-Darwinian principles; hence, Sociobiology is the opposite to evolution.

25. All the evidences of Darwin's theory are opposite to Darwin's theory, which indirectly opposes Sociobiology

The evidences of Darwin's theory had convinced the biologists about the validity of Darwin's theory (Ritchie and Carola, 1983) [69]. But unfortunately, all the evidences of Darwin's theory are opposite to Darwin's theory and the documents are placed here:

i) The direct and clear-cut evidences (the fossil or paleontology) of evolution are opposite to Darwin's theory (Ahad, 2015) [70]. ii) Artificial selection (hybridization) is opposite to Darwin's theory (Ahad, 2015a) [71]. iii) Darwinian classification of plants and animals (taxonomical evidences) is opposite to Darwin's theory (Ahad, 2018a) [72]. iv) Embryological evidences are opposite to Darwin's theory (Ahad, 2018) [13]. v) The presence of vestigial organs (such as the appendix, tonsil, eyebrow, external ear, body hair, etc. in humans) are the evidences of a common ancestry but it is not valid (Ahad, 2020) [15]. vi) The geographical distribution (Biogeography) is opposite to Darwin's theory (Ahad, 2019) [14], and vii) The contemporary evidences are opposite to Darwin's theory (Ahad, 2014; Ahad, 2019; Ahad, 2022) [14, 16 & 61].

Hence, all the evidences of Darwin's theory are opposite to evolution, which indirectly claims that Darwin's theory is opposite to evolution. Consequently, Sociobiology is opposite of evolution.

26. Thirty-five (35) scientists of the "American Institute of Biological Sciences" oppose sociobiology and it supports the result of the present study

In 1976, the American Institute of Biological Sciences developed a research team, named as "Sociobiology Study Group of Science for the People" for challenging the idea of Sociobiology. In this research team 35 scientists, such as, L. Allen, B. Beckwith, J. Beckwith, S. Chorover *et al.* are involved. Those researchers analyzed that Sociobiology is based on three basic principles: i) Sociobiology is genetic determinism (biological determinism), ii) Sociobiology is ignoring the learning and culture of humans, and iii) Sociobiology is strongly based on the natural selection. But those ideas of sociobiology are not accepted by the modern biological world in relation to the study of evolution of behaviour, especially the evolution of bahaviour of humans (Sociobiology Study Group of Science for the People, 1976) [43].

Hence, those 35 scientists of the "American Institute of Biological Sciences" oppose Sociobiology and it supports the result of the present study.

27. Both behavioral ecology and Pop Sociobiology are not valid

A survey focused that the study of non-human animal behaviour in relation to the evolution of behavoiur is termed as "behavioral ecology." But the study of behaviour of humans in relation to evolution is termed as "Pop Sociobiology" (Kitcher, 1985; Stanford encyclopedia of philosophy, 2018) [36&73]. But it is knowledgeable from the whole text of this article that both the behaviour of animals (the behavior of social insects birds, primates, horses, elephants, prairie dogs, tigers, lions, dolphins, whales, and fishes) and behaviour of humans are experienced, learned and non-additive and thus, Sociobiology is opposite to evolution. Hence, both behavioral ecology and pop sociobiology are Sociobiology is opposite to evolution.

28. No scientific problem to reject Wilson's Sociobiology

A theory/law can be invalidated by finding of new evidence (Starr and Taggart, 1989) [29]. But it is experienced from the whole text of this article that Wilson's Sociobiology is opposite to the evolution of behaviour. In this way, it is proved that seven non-Darwinian theories are opposite to evolution (Ahad, 2020a) [74], Origin of the first life is opposite to Oparin's theory (Ahad, 2011; Ahad 2016) [75&76].

29. Sociobiology is a special branch of Entomology that deals with social insects

The following published literatures claims that sociobiology is just a special branch of entomology that deals with social insects:

1. It is previously (in 4. heading) mentioned that E. O. Wilson in his book "Sociobiology: The New Synthesis," exploits ants 360 times, honey bee 185 times, wasps 135 times, termites 95 times, and insect society (found only in social insect) 17 times to support and formulated his theory of Sociobiology. However, those insects are known as "Social insects. So, Wilson's Sociobiology is based on social insects, which indicates that sociobiology is a special branch of entomology that deals with social insects.
2. Study from the "Academic tree of E. O. Wilson" from 1956 to 2019 indicated that Wilson has 59 research articles on ants (a social insect). Again, E.O. Wilson published a book (in 1971) on "Insect Society" but insect society is found in only social insects. Moreover, Wilson was a curator in entomology at "Harvard's Museum of Comparative Zoology" during 1973–97. So, E. O. Wilson was an expert on ant [*https://en.wikipedia.org* › wiki › E. O. Wilson]. Consequently, Wilson formulated his Sociobiology theory based on his entomological knowledge, especially based on his knowledge of social insects.
3. There is a Journal of Sociobiology. But the title of this journal, the aims and scopes, journal history and section editors prove that Sociobiology is a special branch of entomology, which deals with the social insects and the documents are placed here from the website of this journal [http://periodicos.uefs.br › index.php › about]:

a. Titled of Journal of Sociobiology: **"**Sociobiology: An international journal on social insect**"** that was founded in 1975. Sociobiology theory is also formulated in 1975, which clearly indicates that sociobiology journal carries the ideology and manifesto of Sociobiology.
b. Aims and scopes*:* Sociobiology publishes articles of high-quality that significantly contribute to the knowledge of entomology, with an emphasis on the social insects (ants, termites, bees, and wasps).
c. Journal history: The Journal of Sociobiology was founded in 1975 by Dr. David Kistner and published by California State University, Chicago. Over the years, the majority of the papers have dealt with, but are not limited to, the various aspects of the biology of social insects, such as, bees, wasps, termites, and ants,
d. Section editors: The journal has four section editors such as: section editors– ants, section editors– bees, section editors- wasps, and section editors– termites.
e. Study of the published research articles from 2014 to still now, the journal publishes the articles on only the social insect but those are not related to evolution. However, Ahad (2014) [61] mentioned that from 1975 to 2014 the journal publishes articles on only the social insect but those are not related to evolution.

So, the title of the journal, aims and scopes, journal history, and various editorial sections of this journal indicated that Sociobiology theory is based on the social insect only.

Finally, it could be concluded that Sociobiology is a special branch of entomology, which deals with social insects. The same opinion was also provided by Ahad (2014) [61].

30. Conclusions

The discussions of the article leads to draw the following conclusion:

i) Wilson applied his study on ants to other organisms, including people, and developed sociobiology. ii) Biological determinism = genetic determinism = behavioural ecology + pop Sociobiology = Sociobiology and vice-versa. iii) Sociobiology is strongly based on both Darwin's theory and Neo-Darwinism but those are opposite to evolution. iv) The behaviour of both animals and humans are not inherited rather learned and experienced. Thus, biological determinism / genetic determinism/ Sociobiology (behavioural ecology + pop Sociobiology) is not valid for evolution. v) Sociobiology is simply a special branch of Entomology that deals with social insects.

31. Acknowledge

The authour is very much obliged to the authors as well as to the publishers that mention in the reference section for using their information in this article. The authour is also thankful to the authority of Google to use a lot of images and kinds of literature from Google.

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