Bulletin of Pure and Applied Sciences
Vol.39A (Zoology), No.1,
January-June 2020: P.230-241
Review Article

Print version ISSN 0970 0765
Online version ISSN 2320 3188
DOI 10.5958/2320-3188.2020.00026.1
Available online at www.bpasjournals.com

Examining the Ethics of Research in Animal Experimentation

[1]Christopher O. Akpan
[2]Joseph N. Ogar
[3]Samuel A. Bassey*

Author's Affiliation:
[1]Department of Philosophy, University of Calabar, Calabar, Cross River, 540242, Nigeria
[2]Department of Philosophy, University of Calabar, Calabar, Cross River, 540242, Nigeria
[3]Department of Philosophy, University of Calabar, Calabar, Cross River, 540242, Nigeria

***Corresponding author:**

Samuel A. Bassey
Department of Philosophy, Department of Philosophy, University of Calabar, Cross River State, Nigeria

E-mail:
Samuelbassey15@yahoo.com

Received on 18.03.2020
Accepted on 30.05.2020

Abstract:
Experimentation in animals is a scientific activity that is essential to basic biological and medical researchers. Yet this tends to create a classic dilemma pertaining to acquisition of knowledge for the good of mankind and the inducement of burden and pains on animals. This has made discussions on animal experimentation controversial and often emotional. The burden placed on animals, the results and potential benefits therefore make studies and discussions in Animal Ethics interesting but intriguing. Animal Ethics raises several philosophical questions about how we should understand morality with regard to animals. This research is a contribution to the discussion in the field of animal ethics and experimentation. The work sets out to question the morality of using animals in experimental research and thereby provides some kind of leaning toward animal rights. This work employs the philosophical method of critical analysis to arrive at its conclusion.

Keywords: Animal rights, Animal experiment, Medical research, Animal ethics.

INTRODUCTION

The rampant use of the environment as natural resources, including non-human animals, to meet up our needs, has given rise to environmental challenges, like global warming, ozone-layer depletion, air and water pollution, species extinction, etc (Bassey & Pimaro, 2019). We are now rather "compelled" to realize that we are not the masters of the planet, but members among other species on it. All parts of nature are important for planetary existence and are inter-connected for the ecological balance (Bassey, 2019). With this realization, some contemporary moral thinkers have come to criticize this anthropocentric moral outlook on nature, and contend that moral consideration should be extended to the non-human nature, including animals.

The moral problem regarding the use of animals as our resources and thus subjecting them to unbearable suffering lies with the fact that animals, especially higher animals, are capable of feeling pleasure and pain like us. Moral philosophers, the 20th century applied ethicists in particular, argue that when we take these sentient animals as human resources and inflict pain on them, we are doing, wrong to them (Ojong 2019). With such admission, the moral consideration for non-human animals had begun, and as a result a new field namely, Animal Ethics had evolved. This studies man's relation to animals from some moral perspectives. Animal ethics can be defined as a branch of applied ethics for liberating animals from unjust, unnecessary and inhuman torture (Osuala & Nyok 2018). The first step to reach at the goal is to understand the moral issues involved in human-animal relations through knowledge and reasoning. There has been an aspect of activism too, in addition to such academic, theoretical pursuit. The principal issues here in animal ethics are experimentation on

animals, rearing and killing animals for food and for recreation pet-keeping, hunting and the like. On the theoretical plain, these issues take some such forms, like the limitation of traditional anthropocentric speciesist morality, the moral status of non-human animals, the questions of equality, rights and justice for animals.

It is believed that the debate about research involving animals ranges broadly over two distinct questions. The first one asks whether animal research yields useful knowledge that could not be gained from other sources and the second one concerns whether it is morally acceptable for humans to use animals in ways that can cause animals harm. These two questions are in fact related: if it were the case that we learn nothing useful and distinctive from research that may harm animals, it would be difficult to see how, on any reasonable view, it could be morally justified. The question of scientific justification is therefore fundamental to the question of moral justification. However, a positive answer to the scientific question does not settle the moral question, for it may be the case that an experiment that yields useful and relevant information is not ethically acceptable.

In this research work, we discuss the debate about animal research. When our human population shows explosive growth, it is other animals that suffer because the demand for animal products, medical needs, and food requirements are rising rapidly. This is why Okeke and Akpan (2012) argue that it is the urge to save life of some human beings through organ transplantation (arguably to safeguard the human populace), even where organ donors are in short supply that has warranted genetic scientists and other relevant scientists to engage in research on xeno-transplantation; even though such researches are at the detriment of the animals. In modern times, we can see that every scientist agrees with the view that animals have contributed to the development of life sciences and medicines over the past few years. In fact, scientists think that studies on animals provide a better idea of what benefits and complications are likely to see in human beings. The basic assumption of using animals in laboratories experiment is to stop some diseases in humans. A question may be raised that as a rational human being is it morally justified or permissible to use animals as tools for any type of painful research? Our concern here is significant as we are made to understand that approximately forty million animals are killed per year to produce fat products (FAO, 2016).

ORIGIN AND DEVELOPMENT OF ANIMAL ETHICS

Traditional moral philosophers have tried to set some universal valid norms to apply to every case. They seem to limit themselves to the study of the nature of morality and in finding normative theories accordingly. But the problem is, these normative theories though appear to be pure and noble, do not work properly in real-life situations. For instance, we may refer to the case of kidney transplantation. With advanced medical knowledge and technology, the success rate of kidney transplantation is now remarkable. But traditional ethical norms, for example, Immanuel Kant's Categorical Imperative regarding ends and means, do not allow kidney transplantation for a dying patient, since Kant does not permit us to use a rational person's body as a means (Baumeister 2019). Many such social and moral issues in our day-to-day life demand proper direction and guidance from a moral perspective. As a result, a new field of ethics - Applied Ethics / Practical Ethics had emerged during the second half of the twentieth century. Although applied ethics sets no new independent theory, it tries to solve various moral problems of our concrete life with the help of some moral norms. The discipline is defined as the general field of study that includes all systematic efforts to understand and resolve moral problems that arise in some domains of practical life. It is the study and analysis of specific, controversial moral issues, like abortion, animal rights, terrorism, euthanasia, affluence and poverty, injustice in natural resource distribution, etc.

Animal ethics, which is our concern here, emerges *ab initio* within the scope of environmental ethics, a well-developed branch of applied ethics, at the beginning of the 1970s, though it has later tended to dissociate itself from its mother-field. Anyhow, it studies the crux of human — non-human relations from the moral perspective (Franklin 2016). The burning issues of contemporary animal ethics are experimentations on animals, animal farming, use of animals for food and recreation, cloning, etc. On the theoretical plain, these issues take some such forms, like deficiency of our speciesist morality, the

moral status of non-human animals, the question of equality, rights and justice for animals. The debate of animal ethics today is specifically concerned about the institutional exploitation of animals as sources of our food, scientific experiments, clothes, or entertainment. But environmental ethics is a systematic account of the moral relations between human beings and their natural environment. So the fundamental difference between animal ethics and environmental ethics is: whereas animal ethics emphasizes on individual animal welfare and their rights, environmental ethics is concerned with the environment as a whole, with a holistic approach. The later involved mainly with the eco-system preservation, saving endangered species, loss of wilderness, pollution, depletion of natural resources, etc. So, the relation between these two is a debatable issue. Some contemporary moral philosophers contend that these two domains are distinct and different in ideology. Some others argue that, although there are differences in their outlooks and deliberations, both are non-anthropocentric in view-point. Anyhow, we do not want to enter this debate, rather we here consider it better to take animal ethics as a separate discipline.

In the history of human civilization, in its primitive stage, which is known as the hunter-gatherer stage, animals were treated with respect, as at that time animals were seen to be sentient, rational with non-corporeal spirits in them (Peterle 1977). The root of this respect may be inherited from the pre-historic stone-age when several carnivores were large enough to prey human-beings. This attitude towards non-human animals lasted, even when there developed agriculture, along with animal husbandry. People assumed at that time animals as godly spirits, and cruelty to animals was thought to be wrong. But this relationship between humans and non-human animals did not last long. With the increasing association with gods, with the agriculture cycle, the practice of animal sacrifices increased remarkably to please the gods. Not only that, since then the notion of a hierarchical-belief system of beings gradually entered into religious beliefs. That means, it gradually came to be believed that animals are inferior to humans and can be used for human purposes. Yet it had also been found that vegetarianism was practiced in the very earlier periods. Richard Ryder (2005) informed that by the time of the Middle Kingdom in Egypt the priests were mainly vegetarians.

Compassion toward animals is also observed even in the pre-Socratic period (Thompson 2017). The great philosopher and mathematician Pythagoras (570-500 BC) was a vegetarian and advised his followers to treat animals with respect. Pythagoras believed that both humans and animals have the same kind of soul, which is indestructible and could be migrated from humans to animals and vice versa. The notion, as we know today, is known as the transmigration of the soul. As such, according to Pythagoras, we have no right to cause unnecessary suffering to animals, and those who kill animals should be treated as murderers (Thompson 2017). Empedocles (495-444 BC), influenced by Pythagoras, supports the doctrine of the reincarnation and believed that killing animals is the greatest disgrace for humans (Thompson 2017). While Socrates (470- 399 BC) was indifferent with his food, Plato (428-347 BC) believed that an ideal society should be vegetarian (Thompson 2017). He thought that taking meat is a luxury, and it may encourage people to engage in war. It is, however, not clear what his diet exactly consisted of.

But the position of Aristotle (384-322 BC) is totally different. He is probably the most prominent early philosopher to argue that animals are lower on a natural hierarchy as they lack reason (Cochrane et al, 2018). He contended that since animals have no reason, they bear no moral value at all, and thus they may be used as we like and for any purposes. Not only that, but Aristotle also took his idea a step further to declare that the barbarian tribes, which he considered as less rational than the Greeks, exist to serve the purposes of more rational Greeks! At the beginning of the first century, the Stoic philosophers revived Aristotle and denied the moral worth of animals on the same ground that they are irrational (Cochrane et al, 2018). We find that the Stoics took 'reason' as divine, as well as cosmic law, which is possessed by humans only. Furthermore, they believed that everything on this planet exists to serve some purposes, and that irrational animal is for rational human beings. Thus the mainstream Stoic philosophers held that there is nothing wrong to use animals for food or for some other purposes. In contrast to the Stoic philosophers, Plutarch (46-120) and Porphyry (234-305) took a different stand on the animal issue and opposed cruelty on them (Cochrane et al, 2018). Their view is still relevant, and, they are often quoted with respect by contemporary animal advocates. Probably,

Plutarch is the first thinker to advocate in favour of vegetarianism based on universal benevolence, rather than on the ground of transmigration of soul. Plutarch did not doubt that animals are sentient, so cruelty to them is wrong. Porphyry was greatly influenced by his teacher Plotinus (204-270), who believed in the transmigration of souls and criticized animal exploitation on this ground. But Porphyry went far beyond to recognize ethical vegetarianism. Daniel Dombroski pays tribute to him with this language: —The most comprehensive and subtly reasoned treatment of vegetarianism by an ancient philosopher" murderers (Gheaus 2012: 262).

At the beginning of the medieval period, we find ambivalence in understanding the relations between humans and animals. The saints of the early Middle Ages are seen to maintain a friendly relation with animals. The priests also were against animal cruelty and their use. St. Benedict (480-547) used to advise that religious persons should not eat meat. The early Christians believed that animals are significantly different from human beings, and they thought that any humanlike behavior from the part of animals is a miracle (Gheaus 2012). In the 12th century, St. Francis of Assisi (1181-1226) is seen to preach against animal cruelty. A story tells of him prevailing upon a wolf to stop eating country people (Gheaus 2012). Prophet Isaiah also condemned animal sacrifice. But the opposite way of thinking is not scarce in the then West. The negative but most influential view to use animals for human purposes is found in the Biblical story of creation, i.e., in the Genesis 1:27-8. It states:
God created man in his own image, in the image of God created he him, male and female created He them. And God blessed them, and God said unto them, be fruitful, and multiply, and replenish the earth and subdue it*: and have dominion over fish of the sea and over fowl of the air, and over every living thing that move upon the earth.* (Italic added)

This creation myth encouraged a lot to the supporters and interpreters of Dominionism, a view that supports human supremacy over nature and allows us to subdue nature for any purpose (Ruetenik 2016). Such an interpretation of the Bible considers nature as a limitless store-house of resources, which we can use as we like. It is not surprising that such an outlook elicits no compassion for animals. Peter Singer recounts such Dominionist interpretation as God gave human beings dominion over the natural world, and God does not care how we treat it. Human beings are the only morally important members of this world (Clarkson 2020). Nature itself is no intrinsic value, and the destruction of plants and animals cannot be sinful unless by this destruction we harm human beings. Influenced by such a Dominionist interpretation, Thomas Aquinas (1225-1274) [the most prominent philosopher of the medieval period] encouraged us to use animals for as and when we like with his writings based on Christian theology (Scott & Coetser 2015). However, before Aquinas, Saint Augustine (354-430), another celebrated Christian theologian had interpreted the Christian view on animals, being greatly influenced by Aristotle. He stated that: When we hear it said 'Thou shalt not kill', we do not take it as referring to trees, for they have no sense, nor to irrational animals, because they have no fellowship with us (Gheaus 2012). Hence it follows that the 'Thou shalt not kill 'refers to the killing of a man. Aquinas took this view a step further. He argued that non-human animals are non-rational and —ordered to man's use. They are just like an instrument, as they cannot direct their actions. As instruments exist for the sake of others, animals also exist for the sake of human beings. He proclaimed that there is no sin in using a thing for the purpose for which it is. Now the order of things is such that the imperfect is for the perfect, even as in the process of generation nature proceeds from imperfection to perfection (Gheaus 2012). Hence it is just as in the "generation of a man there is first a living thing, then an animal, and lastly, a man, so too things, like the plants, which merely have life, are all alike for animals, and all animals are for man. Wherefore it is not unlawful if man uses plants for the good of animals, and animals for the good of man…" (Sampson 2018: 54).

From the beginning of the 17th century, many significant social changes witnessed in Europe due to scientific inventions, the emergence of capitalism and the religious reformation by the Protestant. Scientists, philosophers, as well as religious personalities, emphasize the importance of humanity and encouraged to protect human interests by any means. Animals were then thought to be mere resources for us. Rene Descartes (1596-1650), the so-called "father of modern philosophy", has spoken of the extreme duality of mind and matter which are opposite to each other (Frierson 2000). Descartes holds that the human mind is a separate substance, alienated from the physical world of bodies. And

our mind, he thinks, acts as a linkage between God and humans. He upholds as well that only humans have a mind, and for that, they can think, feel and express them with language. Animals, for Descartes, are nothing but complex automata, having no souls, minds or reason. Descartes thus denies our moral concern for animals. The influence of Cartesian doctrine has widely been noticed thereafter. "The most powerful argument for the Cartesian position was that it was the best possible rationalization for the way man actually treated animals" (Frierson 2000: 127).

Following Descartes, many philosophers came to uphold that only human beings deserve moral consideration just because they possess some unique characteristics, like rationality, self-awareness, the capacity of using language, understanding duties and responsibilities, and so on. At the same time, some important social changes took place which gives a platform to criticize our cruel treatment with animals. From that time, pet-keeping seemed to have established itself as a normal feature of society. Pets were given individual personal names and are allowed into the house as members of the family. The spread of pet-keeping has thus created a psychological foundation of moral consideration of some animals. Even though human-centric moral view has still been the prevailing outlook, some sensibilities towards non-humans have begun to grow. The anti-cruelty movement began to start slowly in England from that time, though not united or under any organizing umbrella. Some people targeted bear-batting and bull-baiting, and also campaign against the cruel treatment of horses and cattle. Ryder speculates: One reason for this moral awakening was the extreme cruelty which had been practiced in England for centuries. Such a campaign against cruel treatment to animals has given the basis of the moral consideration towards animals on the ground of their senses and feelings. Humphry Primatt (1735-1776), a British philosopher, is probably the first to argue in favor of the moral consideration of animals based on sentiency in his A Dissertation on the Duty of Mercy and Sin of Cruelty to Brute Animals published in 1776. He clearly stated: "A brute is an animal no less sensible of pain than a man" (Felipe 2014: 43).

At the beginning of the 19th century, with the rise of various liberal democratic movements, the idea that all humans are equal and that the role of states is to protect the rights of its entire citizenry became the fad. But for animals, the idea of rights did not make sense to allow them in some such privileges. Animal movements at that time was concerned only with humane treatment of animals; and the aim was seemingly animal welfare, rather than to make room for animal rights. It is, however, noteworthy that from that time, organized movements for the welfare of animals began.

ANIMAL RESEARCH

When there is explosive growth in human population, it is usually other animals that suffer; the entire ecosystem, species, and individuals suffer too. Besides, there are so many people whose demands for animal products, medical needs, and food requirements are rising rapidly. The German Animal Welfare Act defines animal research as interventions and manipulations in animals if this is associated with suffering, pain and injury to the animals. This includes all procedures subjecting animals to stress "equivalent to, or higher than, that caused by the introduction of a needle in accordance with good veterinary practice" (Winders & Chilakamarri 2019: 54). This means that each procedure carried out on animals for scientific purposes must be recorded as an animal experiment and approved by an authority. Approval is required for all vertebrates, cephalopods (e.g. octopuses) and decapods (e.g. lobsters). The killing of animals for the sole purpose of organ extraction or the production of cells does not constitute animal experimentation (Winders & Chilakamarri 2019). The main focus of animal research is to improve the understanding of the process that determines cell differentiation during the early stages of embryonic development. Researchers used two different species to provide comparable information. Amphibian embryos were preferred to mammalian models such as the mouse because amphibians produce a large number of eggs that develop externally to the mother which are of a size that allows experimental reagents to be injected easily, and develop fairly and rapidly. This type of research was generally undertaken on embryos of the frogs, and the results gained from developmental studies on these frogs are considered to be readily transferable to mammals, including humans, as most of the basic developmental mechanisms have been highly conserved in evolution.

Humans are very much one of the animals and "they" are very much one of us. That is why researchers have compared proteins on the surface to human and chimpanzee's cells. In modern times, we can see that every scientist agrees with the view that animals have contributed to the development of life sciences and medicines over the past few centuries. It is quite natural that the health and welfare of human beings is the top priority of all governmental and health organizations around the world. Different types of pharmaceutical companies test their experimental medicines on animals before they are allowed to treat animals in humans and also the way of using animals to test the safety of consumer products is fearful. We can see in the contemporary period every medical breakthrough in human and animal health has been the direct result of research using animals. However, one may say that animals are used in experimental research mainly for the following three purposes:

A) To develop pharmaceutical and other medical products
B) To advance fundamental research in life sciences and
C) To test the safety of potentially toxic products.

Thus, it can be said that animals suffer many of the same health problems as humans. We believe that non-human species have a shorter life cycle than human beings and as a result, they can be studied through their whole life span.

Scientists think that studies on animals provide a better idea of what benefits and complications are likely to see in human beings (Petermann & Fiedler 1999). For example-the basic mechanism of heart disease has been studied on dogs, rats, rabbits, sheep and pigs and studies with dogs contributed to our most basic understandings of how to manage heart disease. The basic assumption of using animals in laboratories experiment is to stop some diseases in humans. Say for example-a rabbit's sensory system may be studied in basic research. The rabbit may be used as a model for eye and skin irritation tests for environmental toxicity testing. Although these advances may be achieved by other means, we don't know what how does our world will look like without animal research (Petermann & Fiedler 1999). Thus many studies on living animals, involving mainly mice and rats, have been conducted to examine the vertebrate immune system, and most current knowledge is based on this research. The immune systems of animals and humans protect them from infection. If the adaptive immune system is challenged by a particular infectious agent that it has previously overcome, it can do so on subsequent occasions much more quickly and effectively (Mahaliyanaarachchi 2018). Research on the adaptive immune system usually involves an initial immunisation of animals with foreign (from another animal) biological molecular or cells or microorganisms such as bacteria. Immune responses are characterised by the production of immune cells and antibodies, which specifically recognise and help eliminate the foreign molecules, cells or microorganisms (all referred to as antigens) (Morton 2020). Experiments of this kind provided the first evidence that the cells responsible for adaptive immune responses were a class of white blood cells called lymphocytes. In these experiments rats or mice were irradiated with X-RAYS to kill most of their white blood cells, including lymphocytes, rendering them unable to make adaptive immune responses (Morton 2020). When different cell types were transferred into these animals, only lymphocytes were found to reverse the deficiency.

The welfare of the animals was usually affected because of increased susceptibility to infections, particularly in the gut, due to the destruction of the lining of mucosal cells caused by the irradiation. These infections were usually treated with antibiotics. In the first series of experiments of this kind, significant numbers of animals died, most likely due to diarrhea (Rowan 1997). In general, it can be assumed that the experiments entailed at least some malaise for the animals involved. Moreover, much of our knowledge about the functioning of the central nervous system has come from invasive animal experiments in which parts of the nervous system are electrically monitored, stimulated or destroyed. Many studies have been undertaken in primates, as the cerebral cortex, which is responsible for higher brain functions such as thought and speech, is very poorly developed in animals other than primates. Besides this, animals can also experience both physiological and psychological adverse states. These are intimately linked and dependent upon one another, as the physiological and behavioural response to stress affects several biological functions and systems. For example, animals housed at artificially low temperatures will be under physiological stress as they

expend energy to maintain their core body temperature by huddling together, shivering and reducing the blood supply to the skin (Rowan 1997). If such stress is extreme or prolonged, the substantial effort will be required to maintain a state of equilibrium. The animals may become aware of this effort and suffer as a result. Alternatively, a social animal housed individually in a barren cage at an appropriate temperature, relative humidity and light level may not be under any immediate physiological stress but will probably experience psychological stress due to boredom and anxiety. This can lead to physiological changes such as alternations in heart rate and body temperature and disturbed sleep patterns.

We can find that the behavioural science of psychology focuses on understanding behaviour and mind in both human and non-human animals through research. This is called cognitive-behavioural research. For, modern psychology "the study of behaviour is a cornerstone of experimental psychology, shedding light on complex human emotions" (Rollin 2012). Thus, in psychology animals are commonly used as models for the human mind and behaviour, particularly for human conditions involving logical diseases. Animals are subjected to experiments on vision, hearing, hunger, reproduction drugs and so on. It can be said that research on animal behaviour and mind requires animals to be conscious and aware, and it may be considered that sometimes animal experiments are conducted with a high degree of pain and suffering. Some animals in captivity exhibit "stereotypic behaviours". These are defined as repetitive, unvarying behaviours that appear to have no goal or function, such as recurring and excessive gnawing, pacing, circling or jumping. Animals tend to develop stereotypes as a result of an inadequate environment, stress, frustrations, or a reduction in social interactions. A question may be raised that as a rational human being is it morally justified or permissible to use animals as tools for any type of painful research? And also as a natural species is it morally justified hurting another natural species in many ways? If man is part of nature; a natural and biological being for that matter, why should he be bent on destroying the very structure of nature for his selfish interest without thinking of the moral repercussion? (Akpan 2017). Issues like these warranted many animal welfare institutions to bring to the fore the morality of using animals in scientific research, suggesting that we need to change our attitude towards non-human species. As we know that approximately forty million animals are killed per year to produce far products. We may claim that it is a barbaric way of research. In contemporary modern society, humans are engaged in a serious debate about the rights and wrongs of animal use. According to the utilitarian's, laboratory animal researchers require to replace existing live-animals experiment with alternatives and have to reduce the number of animals used, and also invented a new type of method that causes animals less sufferings. We may say that in an ethical debate over animal research the main conflict is usually between the pursuit of human benefits in the one hand and the animal's interest in avoiding suffering on the other. Thus there is an ongoing debate about the morality of animal experiment. We can only say that all these painful experiments are executed because the pain and joy of others cannot be directly experienced by us.

THE CRUELTY OF RESEARCH ON ANIMALS

According to some psychologists, whenever, we place a glass of milk on the breakfast table, we are actually "drinking pain" (Attal & Bouhassira 2019). Female dairy cows are forced to have a calf every year and are milked during seven of their nine months of pregnancy. This is extremely demanding on their bodies and on their psychological states. These dairy cows are literally milk machines, and they are not allowed to be mothers, to care for the young whom they have brought into the world. These babies are also deprived of their mother's nurturing. These calves, who were bred by humans so that their mothers would keep producing more milk for the dairy industry, end up being slaughtered to produce the luxury meat called veal. The life of every nonhuman species inside a locked closet hasn't any control over their own life. They can't choose when and what to eat, and even they can't decide that when the light of their life will go on and off. Can we imagine about spending our whole life inside a locked closet though we do not commit any crime?

The answer may be of course we can't live like prisoners. But the life of animals used for research is just like this: it is a kind of deprivation, isolation, and misery. Animals in laboratories are usually injected with diseases that they never normally faced. Tiny mice grow tumours as large as their own

body. Kittens are purposely blinded, rats are made to suffer seizers and primates skulls are cut open and electrodes are implanted in them. After, enduring these terrifying, painful procedures animals are then usually dumped back into a cage without any painkillers. Video footage from inside the laboratories reveals the fearful activities that happen with non- human beings. That is why Samuel Butler once wrote that "a hen is only an egg's way of making another egg" (Gooch 2015: 2). And to emphasize the business- like attitude of poultry firm Haley adds "the object of producing eggs is to make money. When we forget this objective, we have forgotten what it is all about" (Gooch 2015: 3).

Usually, after experiments animals are often burned, cut, addiction to drugs and infected diseases often with no anaesthesia. In various experiments, primates are deprived of food and water for up to 23 hours a day, are bound at the waist and neck in "restraints chairs" for up to 104 hours in a row, are subjected to electric shocks, electrodes, and other devices surgically attached and implanted (Sarkar 2005). Generally we may think that research involving animals will contribute significant role for gaining present and future knowledge, which may lead to the protection and improvement of the health and welfare of either humans or animals. But in this situation the question that begs for an answer is, as a rational human being is it morally justified to use animals as tools for painful research? And also as natural specie is man morally justified to hurt another of natural species in such a way.

Approximately one third of all research involving animals is undertaken by the pharmaceutical industry to develop new treatments for a wide range of human diseases. The breeding of animals under cages handling them for experiments and sacrificing their lives are violating the species specific life. The lives of factory and farmed animals are run only for economic profit. The animal welfare institute reported that elephants do not live in captivity due to poor living conditions, neglect, loneliness, and depression (Sarkar 2005). In modern times animals are subjected to experiments on vision, hearing, hunger, reproduction, drugs and so on. Once an experiment is completed researchers just euthanize animals as a means of limiting the suffering of animals when they were unable to eat or drink without assistance (Sarkar 2005). Humans have a duty to treat sick people as well as save lives of people and animals. In order to do so, they must improve their knowledge of biology and veterinary medicine. That is why humans carry out animal research where there are no other appropriate investigational methods. Similarly on basis of the above mentioned views one may claim that animal research does not require further justification. But there are also some people who assert that the use for harmful purposes of one species by another without consent is fundamentally unethical. But those who disagree assert that there are many significant research questions which can only be answered by using animals. Thus, we may say that continuities in the form of behavioural, anatomical, physiological similarities provide sufficient grounds for the hypothesis that animals can be useful models to study specific aspects of biological processes in humans. Some people who support animal research may argue that it is a natural behaviour of every human being to obtain knowledge through methodological enquiry and hence for this all research activities hold its own significant intrinsic value, but on the other hand, some people thought that if animals were so, like humans that result from animal experiments were valid for humans, then these similarities made it unethical to use animals for experimentation.

For an animal lover, to be a good citizen implies respect to the neighbours as well as pets; to be tolerant, honest, modest and do things which set good examples to our children, family, and society. Animal moralists sometimes feel that scientists are quite irresponsible towards future generations. By adopting extreme moralistic standard animal activists look at animal researchers as cruel and corrupt. We can say that the fundamental pragmatic value of biomedical enquiry for both humans and other animals is to relief the suffering for both humans and animals. "If possible, relieve suffering" is the fundamental motto of all. Biomedical researchers and relief of human suffering is the basic aim of all.

RESPECT TOWARDS ANIMALS

During the Second World War, it is said that a pigeon played the role of messengers and flew with a message for the soldiers. On the way, the pigeon was severely injured but did the job properly which, actually saved the life of around 200 soldiers (Snyders 2015). The job of the pigeon proves that

animals could be entrusted with some kind of responsibility. They are just like us humans; they can breathe, eat, sleep, give birth to young and feed their young as human beings do. We need to say that animals are born to be free and enjoy discovering the world and helping people, so why do we harm animals? Is it right to interfere with the freedom or the life of animals just because we undertake animal research?

We know that animals are being used as good research models for a variety of reasons, but PETA argues that as 90% of medicines testing on animal's falls on animals, there is need for some rethink (Snyders 2015). It is the fundamental problem that comes with experimenting on different species as well as the ethical concerns that should warrant us to stop any further testing. That is why the ultimate goal is to advocate for a world in which the important benefits of such research could be achieved without causing pain, suffering, distress, lasting harm or death to animals involved in research. It is a fact that different types of laws for research involving animals are currently put in place. But inspite of this, animals are deliberately killed or used in many research laboratories, factories, and other different fields. Some people argue that the primary reasons given for using animals in research is to ensure scientific progress in basic and applied biological and medical science. Some people argue that the value of any life is such that it would be wrong deliberately to take life for any purpose, even for the saving of a greater number of human lives. This implies the view that life has absolute value (Hood 2013). On the other hand, some are of view that human life is much more important than the comfort and lives of laboratory animals, and that view clearly supports the experiment on animals. They assume that a laboratory mouse does not have any absolute value of life.

In case of research using an 'alternative method', it does not involve using an animal. Recently the term 'alternative' has been used to all of the Three Rs (Replacement, Reduction and Refinement) as an overarching term referring to any procedure that reduces the harm caused to animals in experiments, not only by replacing them (replacement), but also by reducing the numbers used which is called Reduction or by causing less animal suffering known as Refinement (Van Zutphen 2004). Reduction means reduction in the number of animals used to obtain information of a given amount and refinement means any decrease in the severity of inhuman procedures applied to those animals which still have to be used (Van Zutphen 2004). Russell and Burch initially defined reduction as reduction in the numbers of animals used to obtain information of a given amount and precision. More recently this definition has been developed to state the use of fewer animals in each experiment without compromising animal welfare (Van Zutphen 2004). These two approaches have a special relevance for assuring us that numbers of animals those are used in a specific research are reduced as soon as possible. These three RS are probably the easiest process to reduce the suffering of all types of animal use.

In animal studies that involve harm to animals, the use of fewer animals will normally minimize, as it were, collective animal suffering. That is the primary ethical motivation for reduction (Van Zutphen 2004). But reduction may also have reverse impact. Using too few animals to produce meaningful results is unethical as using more animals than necessary (Van Zutphen 2004). Thus many animal studies used too few animals to provide reliable data (Curzer 2016). Such studies cause harm without benefits and involve poor use of resources. Furthermore, there has arisen a conflict between reduction and refinement because lowering the total number of animals used will sometimes place a greater burden on each animal that continues to be used. As for example- if a given quantity of plasma can be obtained by bleeding the same animal several times instead of bleeding several animals once, can we say that we would make the world a better place by doing the former? Refinement urges people to minimize any pain or suffering that will be caused by amending experimental procedures. So experiments can be refined in many ways. The most direct way is to adapt experimental procedures so that they cause less pain or distress. Furthermore, in some experiments appropriate anaesthesia can play a vital role in pain management (Curzer 2016). In spite of these, the majority of researchers who use animals consider that, despite progress in the implementation of the three RS, animal research will remain an essential part of their work. Moreover, the current regulatory frameworks for approval of chemical products and medicines require tests involving animals. Members of the research community who use animals in their work frequently refer to evidence from opinion polls to

support their claim that most people support research on animals because of the benefits to humans. They thought that more information on the benefits of research involving animals would help engender further support from the public.

CONCLUSION

Animal research has had a vital role in many scientific and medical advances of the past century and continues to aid our understanding of various diseases. Throughout the world, people enjoy a better quality of life because of these advances, and the subsequent development of new medicines and treatments - all made possible by animal research. However, the use of animals in scientific and medical research has been a subject of heated debate for many years. Opponents to any kind of animal research - including both animal rights extremists and anti-vivisectionist groups - believe that animal experimentation is cruel and unnecessary, regardless of its purpose or benefit. There is no middle ground for these groups; they want the immediate and total abolition of all animal research. If they succeed, it would have enormous and severe consequences for scientific research.

Despite the inherent limitations of some non-animal tests, they are still useful for pre-screening compounds before the animal-testing stage, which would therefore reduce rather than replace the number of animals used. An example of this is the Ames test, which uses strains of the bacterium Salmonella typhimurium to determine whether chemicals cause mutations in cellular DNA. This and other tests are already widely used as pre-screens to partly replace rodent testing for cancer-causing compounds. Unfortunately, the in vitro tests can produce false results, and tend to be used more to understand the processes of mutagenicity and carcinogenicity than to replace animal assays. However, there are moves to replace the standard mouse carcinogenicity assay with other animal-based tests that cause less suffering because they use fewer animals and do not take as long.

Although animals cannot yet be completely replaced, it is important that researchers maximize reduction and refinement. Sometimes this is achieved relatively easily by improving animal husbandry and housing, for example, by enriching their environment. These simple measures within the laboratory aim to satisfy the physiological and behavioural needs of the animals and therefore maintain their well-being. Another important factor is refining the experimental procedures themselves, and refining the management of pain. An assessment of the method of administration, the effects of the substance on the animal, and the amount of handling and restraint required should all be considered. Furthermore, careful handling of the animals, and administration of appropriate anesthetics and analgesics during the experiment, can help to reduce any pain experienced by the animals. This culture of care is achieved not only through strict regulations but also by ensuring that animal technicians and other workers understand and adopt such regulations. Therefore, adequate training is an important aspect of the refinement of animal research, and should continually be reviewed and improved.

REFERENCES

1. Akpan, B. S., & Leonard, N. (2018). Environmental ethics: from philosophy to movement. *Bulletin Social-Economic and Humanitarian Research*, (2).
2. Akpan, C. (2017). The Morality of Same-sex Marriage: How not to Globalize a Cultural Anomie. In *Online Journal of Health Ethics*. 13(1),1-10.http.// dx.doi.org110.18785/ojhe.1301.02
3. Attal, N., & Bouhassira, D. (2019). Translational neuropathic pain research. In *Pain* (Vol. 160, pp. S23–S28). https://doi.org/10.1097/j.pain.0000000000001522
4. Bassey, S. A. (2019). "Anthropoholism" as an authentic tool for environmental management. *Вісник Харківського національного університету імені ВН Каразіна. Серія «Філософія. Філософські перипетії»*, (60), 71-81.
5. Bassey, S. A., & Pimaro Jr, T. M. (2019). Enyimba's Notion of Madukaku and The Question of Anthropocentricism in African Environmental Ethics. *International Journal of Environmental Pollution and Environmental Modelling*, 129-136.

6. Baumeister, D. (2019). Kant, Chakrabarty, and the crises of the Anthropocene. *Environmental Ethics*, *41*(1), 53–67. https://doi.org/10.5840/enviroethics20194115
7. Clarkson, F. (2020). The rise of dominionism. In *Trumping Democracy* (pp. 142–149). https://doi.org/10.4324/9781315438412-15
8. Cochrane, A., Garner, R., & O'Sullivan, S. (2018). Animal ethics and the political. In *Critical Review of International Social and Political Philosophy* (Vol. 21, Issue 2, pp. 261–277).
9. Curzer, H. J., Perry, G., Wallace, M. C., & Perry, D. (2016). The Three Rs of Animal Research: What they Mean for the Institutional Animal Care and Use Committee and Why. *Science and Engineering Ethics*, *22*(2), 549–565. https://doi.org/10.1007/s11948-015-9659-8
10. FAO. (2016). The Global Dairy Sector: Facts. *Food and Agriculture Organization of the United Nations*, 5. https://www.fil-idf.org/wp-content/uploads/2016/12/FAO-Global-Facts-1.pdf
11. Felipe, S. T. (2014). Fundamentação ética dos direitos animais. O legado de Humphry Primatt. *Revista Brasileira de Direito Animal*, *1*(1). https://doi.org/10.9771/rbda.v1i1.10249
12. Franklin, J. H. (2016). Animal Rights and Moral Philosophy. In *Animal Rights and Moral Philosophy*. https://doi.org/10.7312/fran13422
13. Frierson, P. R. (2000). Ideas and Mechanism: Essays on Early Modern Philosophy (review). *Journal of the History of Philosophy*, *38*(1), 125–126. https://doi.org/10.1353/hph.2005.0092
14. Gheaus, A. (2012). The role of love in animal ethics. *Hypatia*, *27*(3), 583–600. https://doi.org/10.1111/j.1527-2001.2012.01284.x
15. Gooch, J. (2015). Butler, Samuel. In *The Encyclopedia of Victorian Literature* (pp. 1–3). https://doi.org/10.1002/9781118405376.wbevl046
16. Hood, L. E., & Lazowska, E. D. (2013). XEvery life has equal value. In *Cell* (Vol. 154, Issue 6, p. 1178). https://doi.org/10.1016/j.cell.2013.08.046
17. Mahaliyanaarachchi, R. P. (2018). Research Ethics in Animal Research. *Journal of Agricultural Sciences – Sri Lanka*, *13*(3). https://doi.org/10.4038/jas.v13i3.8392
18. Morton, D. B. (2020). Ethics and animal research. In *Veterinary Record* (Vol. 186, Issue 11, p. 356). https://doi.org/10.1136/vr.m1081
19. Ojong, L. O. (2019). Singer's Notion Of Speciesism: A Case For Animal Rights In Ejagham Culture. *International Journal of Environmental Pollution and Environmental Modelling*, 116-121.
20. Okeke, J and Akpan, C. (2012). An Inquiry into the Moral Question of Xeno-transplantation. In *online Journal of Health Ethics*. 8 (1), 1-13
21. Osuala, A. N. ., & Nyok, E.-I. E. (2018). New Twist to Political Corruption in 4th Republic Nigeria given Non- Human Animals Stealing millions: A Case for the Defense of Animal Rights. *GNOSI: An Interdisciplinary Journal of Human Theory and Praxis*, *1*(2), 15-37.
22. Peterle, T. J. (1977). Hunters, Hunting, Anti-Hunting. *Wildlife Society Bulletin*, *5*(4), 151–161.
23. Petermann, S., & Fiedler, H. H. (1999). Beak trimming in poultry - an animal welfare assessment. *TIERARZTLICHE UMSCHAU*, *54*(1), 8+.
24. Rollin, B. E. (2012). Ethics and animal research. In *The Ethics of Animal Research: Exploring the Controversy* (pp. 19–30). https://doi.org/10.7551/mitpress/9780262017060.003.0002
25. Rowan, A. N. (1997). The benefits and ethics of animal research. *Scientific American*, *276*(2), 79. https://doi.org/10.1038/scientificamerican0297-79
26. Ruetenik, T. (2016). Transactionism, Dominionism, and Moral Exceptionalism in Animal Ethics. In *Contemporary Pragmatism* (Vol. 13, Issue 2, pp. 205–217). https://doi.org/10.1163/18758185-01302005
27. Ryder, R. D. (2005). The case against hunting and for democracy. *Think*, *4*(11), 91–96. https://doi.org/10.1017/s147717560000141x
28. Sampson, P. (2018). Evangelical christianity: Lord of creation or animal among animals? Dominion, darwin, and duty. In *The Routledge Handbook of Religion and Animal Ethics* (pp. 63–72). https://doi.org/10.4324/9780429489846
29. Sarkar, S. (2005). Use of animal products in vegetarians and others [11]. In *Anaesthesia* (Vol. 60, Issue 5, pp. 519–520). https://doi.org/10.1111/j.1365-2044.2005.04204.x
30. Scott, C. D., & Coetser, Y. M. (2015). Rewriting Aquinas animal ethics: The primacy of reason in the determination of moral status. *South African Journal of Philosophy*, *34*(3), 289–303. https://doi.org/10.1080/02580136.2015.1055450

31. Snyders, H. (2015). "More Than Just Human Heroes" The Role Of The Pigeon In The First World War. *Scientia Militaria - South African Journal of Military Studies*, *43*(2). https://doi.org/10.5787/43-2-1127
32. Thompson, P. B. (2017). Animal ethics: Probing the philosophical issues. In *Advances in Agricultural Animal Welfare: Science and Practice* (pp. 51–67). https://doi.org/10.1016/B978-0-08-101215-4.00003-1
33. Van Zutphen, B. F. M. (2004). The European science foundation: Three Rs policy and education. *ATLA Alternatives to Laboratory Animals*, *32*(SUPPL. 1B), 533–537. https://doi.org/10.1177/026119290403201s86
34. Winders, D., & Chilakamarri, V. (2019). Animal Welfare Act Enforcement. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3466562