

Cloning

In The Light Of Shariah

ISLAMIC FIQH ACADEMY (INDIA)

161-F, Joga Bai, P. O. Box: 9746, Jamia Nagar

New Delhi -110 025

Tel/Fax: 26981779, Email: ifa@vsnl.net

Website: ifa-india.org

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Preface:

“New problems will continue cropping up with increase of sinfulness and impiety in this world,” said Hazrat Omar Bin Abdul Aziz, a righteous caliph.

Islamic Shariah encourages research and enquiry in every field including science and technology. However it also cautions about the direction to be taken by such pursuits. It cautions against those pursuits, which cause evil. In its view absence of right direction in the scientific pursuits has potential to cause immense damage to the basic human values thereby undermining the very existence of humanity itself.

Scientific researches are progressing at a lightening speed. New horizons in various fields are being conquered. Man has been able to conquer new frontiers by setting his feet on new planets. Possibility of life on new planets is being explored. It is all-understandable. In fact many scientific discoveries are vindication of what Allah (Subahanahu wa Ta’ala) has said in the Holy Qur’an.

Direction of research is as important as the subject matter itself. It is in this context recent pursuits in the field of Genetic Engineering assume significance. Some of the areas in this important discipline have assumed dangerous dimensions.

Had the gamut of research been limited to understanding the process of creation it would have lead us to numerous medical and other benefits. Besides it would have then considered a

part of the study of human body. It could have helped understanding the signs of nature scattered all around us leading to strengthening the faith in the Creator. Many scientists, including a few non-Muslims as well, have admitted confirmation of the facts mentioned in Holy Qur'an in what they could find in their scientific researches. Some of them even embraced Islam.

Nevertheless, failure in understanding the ethical scope of the research has added a dangerous dimension to the researches in the Genetic Engineering.

Human cloning or human photocopying is one such highly sensitive issue. The issue has generated a lot of debate worldwide. It is indeed a matter of satisfaction that Muslim jurists are also not oblivious of the moral dimensions of this new development. They too are busy in finding the guidance of Shariah on this issue of vital importance.

In this connection a seminar held at *Darul-Beha*, Morocco with the cooperation of Kuwait and Morocco deserves appreciation. The seminar, organised by the Organization of Islamic Medicines, Kuwait and the Institute of Humanities of Morocco, deliberated upon the issue and adopted some resolutions offering Islamic guidance.

It would be pertinent to mention here that the Organization of Islamic Medicines, Kuwait has been actively engaged in finding solutions to vexed contemporary problems and has held many such seminars in the last few years.

Similarly the Islamic Fiqh Academy under the Organization of Islamic Conference included this issue in the agenda of its 10th session held at Jeddah and adopted some resolutions on the subject.

The Islamic Fiqh Academy, (India) too has contributed to this debate. The Academy in its 10th Fiqhi Seminar held at Mumbai

from 24th to 27th of October 1997 deliberated upon this sensitive issue and passed some prudent resolutions.

Present booklet is a compilation of the papers presented in the seminar organised by the Academy.

Besides including the resolutions passed in the Mumbai seminar, the present compilation also includes translations of the resolutions adopted by the Morocco seminar and the Islamic Fiqh Academy, Jeddah.

Some experts also attended the Mumbai seminar to enlighten the Ulemas about the scientific facts relating to the subject. Presentations of these experts have also been included. Therefore present volume seeks to introduce the subject as well the guidance offered by the Ulemas.

The debate on the issue of cloning is continuing. New researches in the field are further dimensions to the debate. We are contributing to this debate with a view to provide a guidance towards the right direction to the new researches that shall be unfolding in the coming days, insha'Allah.

May Allah make the present endeavour of the Academy beneficial to the humankind and the Academy may continue its endeavours (*Ameen*)

Mujahidul Islam Qasmi

Secretary General
Islamic Fiqh Academy (India)
29 January 2001.

Cloning: An Introduction

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Qazi Mujahidul Islam Qasmi

2. Creation and Cloning

Dr. Mohd.Aslam Parvaiz

3. Human Photocopying: Introduction & Analysis

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4. Cloning: Meanings & Definitions

Dr. Mohd. Hisham Khayyat.

Cloning

A Thought-Provoking Scientific Research

Qazi Mujahidul Islam Qasmi

Cloning is a serious global issue today. It is being debated internationally in various fora. It has a potential to give rise to a number of social problems if allowed to be put into practice. Some very serious ethical issues may arise in the human society around the globe. If we go by the media reports, the breakthrough in cloning has been represented as if the man has attained the power of creation. In this manner the faith in Allah as the sole creator has seemingly come under question. In fact posing such a question itself amounts to ascribing partners to Allah, a form of polytheism.

“Is it ye who create it, or are we the creators?” (Quran – 56:59)

Let us be clear at the outset that Allah alone is the Creator, the science is not about creating anything out of nothing, it is only an enquiry into the facts which already exist. Science is only about unveiling the mystery of the existence of a matter and the facts related thereto making its secrets known and understandable. Creation of a thing without any specimen or material or out of nothing are quite different from discovering secrets of an already existing matter or creature.

The science with its continuous progress reveals which enhances human faith in Divine powers and His unmatched ingenuity.

“Taught man that which he knew not”(Quran – 96:05).

Here it will be interesting to mention that Allama Ibn-e-Khuldoon, a great Arab savant and scientist, has discussed many propositions in his famous book “Muqaddama–e-Tarikh-

e-Ibn-e-Khuldoon.” Though the book basically deals with the discipline of chemistry, he has raised the question about the possibility of reproduction otherwise than the natural process of reproduction i.e. outside a mother’s womb.

It is certainly a very strange and curious question in his times. Ibn-e-Khaldoon is one of the ancient Muslim scholars. He had argued that if the temperature and the other factors available in the womb of a mother could be provided to sperm of a man and egg of women for fertilization outside her then the reproduction is possible outside a mother’s womb.

Ibne Khuldoon put forward this proposition at a time when applied science and facilities for practical experimentation were nearly non-existent. Scientists of those days were mainly involved in the theoretical research. Ibne Khaldoon did not have facilities to test his proposition. Still he further wrote that though it was difficult but the possibility did exist. We have seen advent of the Test Tube Baby and now new researches are leading to cloning.

We must be aware that Allah has joined every cause with an effect. He has joined necessity with invention and a cause with an effect. In other words He creates causes and gets effects out of them.

In fact science is the discipline of enquiry into the relationship between cause and effect. It seeks to explore the causes of various effects existing in the universe. Whole universe is based upon system of causes and effects which we call the Divine course.

Science tries to explore this course. An experiment is conducted in a laboratory and its findings are applied in the real world situation. Application of the laboratory finding must be sufficient to overwhelm a scientist about the mysteries of creation. He must be able to have an idea of enormity of Divine powers.

I firmly believe that a simple discovery about this vast universe is sufficient enough to make a true scientist prostrate before Allah. Sufficient to make him declare that Allah alone is the Creator of the whole universe and His knowledge cannot be matched. He alone has created the earth and heavens.

In the light of Islam and knowledge I am quite justified in saying that scientific discoveries do not cause any mental or ideological jolt to a Muslim who firmly believes in Allah and follows guidance of the Holy Prophet (Peace Be Upon Him). We know that the nature has many secrets. We believe that Allah has bestowed upon man the ability to explore and seek knowledge with the declaration that whatever a man has found is very less as compared to what remains to be discovered.

Allah asks to proceed in the pursuit of knowledge with the guidance and faith that “ of knowledge it is only a little that is communicated to you (O man) (Quran – 17:85). This spurs the scientists into action and provides them a valuable guidance.

The Holy Qur’an tells to those who are working in the field of science that Allah has provided the way of knowing what they do not know. It also advises them not to be content with whatever knowledge they may have gained. “What you have got is much less than what you do not know” is the constant advice.

Therefore, the scientific wonders are no cause of concern or confusion for a faithful Muslim. But the problem is that while our predecessors had made all these inroads in the field of science and research in the light of this Qur’anic guidance, today Ulemas are being accused of shutting the door of *ijtihad*.

It is also a tragedy that the unparalleled scientific discoveries and progress in various fields of knowledge achieved during Islamic rule in Spain, has altogether been forgotten and forsaken in the whole Islamic world. It is indeed a sorry state that the Muslims and Islamic countries spend a lot of money on

different cultural programmes but are neither supporting Muslim scientists nor establishing good scientific laboratories. This is very essential to create openings for such scientists who believe in the modern scientific progress through the guidance of Islam. We did have such a great such expertise and achieved progress in the past.

Several terms have been coined about cloning in different languages. As the research has been recent the terms too are recent, therefore they do not necessarily convey full meaning of the cloning. One may call it photocopying or grafting as well. Grafting is a old practice in trees and plants. It is done by grafting a branch of one tree on a different tree and in the process a variety of plants comes into existence.

In my opinion the closest thing to cloning is the birth of twins who have so close resemblance to each other that sometimes it is very difficult to differentiate one from the other. Allah has endowed the capability of division and bursting into pieces when the sperm of a man meets the egg or ovum in the womb of a woman

Here I recall an anecdote from my student days when our teachers used to say that Greek philosophers considered the human body as primary and an unmixed thing and not a mixture of several compounds. Damoqratis believed that inferior constituents create compounds. The scholars endlessly argue about the non-divisible matter, divisibility and non-divisibility of matter. The scholars believed that the 'atom' is breakable while the philosophers denied it. These are the controversial problems about which our teachers enlightened us. They asserted that if the body is taken up as a compound, made up of several components, the combination can finally break and it can disintegrate and perish forever, casting its adverse effect on our belief of the Dooms Day. Such things do not happen in case of a non-compound matter. No question of the breaking of its combination arises.

Taking the argument further one may say that when the man's sperm fuses with the egg in a woman's womb a process of division start. There are millions of sperms in the human seminal fluid but one of them is able to fertilise the egg. Rest of them die. By this fusion of one sperm and an egg, a life is born. If two eggs are fertilised than two children are born. Likewise if more than two, say eight, eggs are fertilised by the will of Allah, eight children will be born.

This creates the conception of the birth of twins. Scientists say that there is a nucleus in every cell, which contain chromosomes. You can name it as matter. The nucleus is sort of a seed found in a date. The seed is placed in the heart of a fruit and forms its centre. In the human cell it is the nucleus. According to the scientists humans have 46 chromosomes. The scientists claim a thing is created when the $23+23=46$ chromosomes that completed. They have arrived at this particular number of 46 through researches. They also claim that in every part of a human body and even the tiniest piece of human body is a complete Genetic Packet.

Qari Tayyab Saheb used to tell us that microcosm and macrocosm have made this universe by joining together and the whole human being is enclosed in a very small particle of the body. Now let us assume that if a tiny piece (Cell) from a man's body is taken out and inserted in a woman's egg after removing its nucleus. When the chromosomes of the sperm and the egg meet together, a process of division and multiplication starts.

“And we dispersed them all in scattered fragments” (Quran – 34:19).

These fragments multiply from 2 to 4, 4 to 8, 8 to16 and so on. In this way it is perhaps possible to enhance the number of human beings at a very fast rate during this era of “Family Planning.” This process has so far not been experimented on human beings, but the process has started with the birth of

“Dolly,” the sheep which has come into existence through application of this principle.

The object of discussing the above details is just to tell that that genetics is basically a study of the process of creation and reproduction. It is the purpose of application of this knowledge which gives rise to many ethical and moral issues.

Men do possess many skills. For example a person has the skill of manufacturing wine. He has the ability to bring about many chemical changes that may enhance quality of the wine. He also has the skill of to change the wine into vinegar. Now the question arises the knowledge should be used to manufacture wine or vinegar?

Knowledge is a sort of weapon. The purpose behind the application of knowledge is the most important factor governing its permissibility.

Cloning shall have wide-ranging implications. One implication could be that another human being, bearing all external and internal distinct qualities and with exact similarity with the person from whose cell the cloning has been performed, would come into existence. Though scientists have some reservations about the proposition as according to them even if nucleus is extracted from the egg or ovum, some genetic effects of the nucleus are likely to remain, therefore, the newborn will have some similarity with the mother as well. And complete similarity may not be achieved.

Nevertheless, birth of such individuals gives rise to many moral questions. It is not difficult to believe as miracles do happen. Prophet Adam was born without any parents, he had neither a father nor a mother. Mother Hawwa (Eve) was born out of a man only. Prophet Isa (Jesus) was born out of a woman only. These were miracles and they are from the category of super naturals.

Now in case men finds a new path of reproduction through research, the first question shall be about the lineage and parentage of the cloned new born. The idea of cloning has so advanced that a child can be cloned by the chromosomes of only a woman as well.

The chromosomes of any part of a woman's cell is taken and attached with her egg extracting its nucleus. This process can create a creature without the necessity or participation of a man. All these things bring out several questions which may prove very dangerous in social and collective life and can create serious problems.

Americans are also almost unanimous that human cloning should not be allowed. Here another question regarding genes can be posed. There are some genes which carry the hereditary diseases and transfer these diseases into the offspring. Such genes can be removed and another healthy genes can be inserted making the child disease free. This is possible by genetic engineering. Advances in this science have the capability not only to remove fatal diseases but perhaps even eradicate them altogether. It means that this knowledge can be utilized in the deliverance of human beings from all sorts of diseases. At the same time it can also be used for the destruction of the whole human society. The issue of cloning and the application of genetic engineering assume vital importance in this context.

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Creation and Cloning

Dr. Mohd. Aslam Parvaiz

[This is the transcription of the talk by Dr. Mohammad Aslam Parvaiz delivered at the 10th Fiqhi Seminar held in Mumbai from 24th to 27th October 1997.]

The body of every creature including human beings is made of numerous small units, which are called cells. These have the same status in our body as the bricks have in a wall. Being put together the bricks form a wall, likewise the cells jointly make our body. When we are born the cells are lesser in number in our body and as our bodies develop and we grow old these cells multiply and their number increases. This process is true not only as far as human beings are concerned but with all animals, trees and plants. In fact the size of the cell does not enhance beyond a limit, their number increases. The cell is a basic unit like a brick. A whole world is inside a cell. In fact if we see the cell and understand its function we comprehend the greatness of Allah. I firmly believe that you can very well understand Islam and Quran through the study of modern science. How can we understand and feel the Greatness of the Creator if we do not fully understand His creations?

The world today asks too many questions and wants their answers. And the world will certainly understand the Greatness of Allah when all these things will be explained. Let me tell you here something about the size of the cell. Its average size is so small that twenty thousand cells can be easily placed on the pinhead of an ordinary pin that we use for attaching the papers.

All the praise is really for Him who made such a wonder. It is such a complicated machine that even the finest and greatest factories of the world cannot produce its like. There are two

basic parts of one cell. There is a nucleus or a central part in the cell, which floats, in a jelly-like substance. Inside this nucleus there are some thread-like bodies, which are called chromosomes. The cells are of different shapes. But for the sake of simplicity we may take its body as a balloon or a packet. The balloon-like cell contains different bodies and has at its centre is the nucleus- a round ball-shaped body. Besides the nucleus there are some other parts of different kinds, all being very tiny.

The size of these organelles can well be comprehended by the fact that when twenty thousand cells can be easily placed on a pinhead, certainly they will be extremely tiny and for their measurement special scales are invented which comprise a millionth and still smaller part of a millimeter. Yet their performance is greatly disciplined. This kind of creation can only be found in the universe created by Allah and definitely not in a humanly creation or invention. Our intellect is bewildered to know this great and wonderful order.

The center of our concentration at present is the nucleus. The chromosomes, which are inside the nucleus, have the shape of English letters (I, O, U and V). They are generally found in these four shapes. One more specialty of these chromosomes is that they are found in pairs and both partners in a pair are similar to each other, like one and one, two and two, three and three, four and four. Here we find the same Divine skill under which He has given us limbs and organs in pairs like two hands, two kidneys, two lungs etc.

In human beings there are 46 chromosomes i.e. 23 pairs. Pick a hair from any part of the body or a piece of skin from the inner cheek, all of them contain cells. They can be seen and counted through microscope. We have done so, it is a fact.

An interesting thing is that we can divide our body into two parts, the body which performs physical tasks and the body which contains those specific organs which are used for

reproduction. This second part has some special cells called sex cells. The division of the sex cells is of a special kind.

I had earlier mentioned the specific cell division from which a creature grows i.e., 2 to 4, 4 to 6, 6 to 8 etc. and quite like a photo copy one cell is made from the other cell without any change. The change occurs at a particular place, for example the cells which form hands, its change begins in the womb of the mother although basically the cell is the one and same. It is also a skill of Allah and in spite of development of science to this extent we fail to know how this phenomenon occurs. It is called differentiation.

How does it happen that one cell after its division becomes two and so on and begins to build the brain, hands, bones, skin and all other organs. Science knows nothing about this differentiation, only Allah knows. Perhaps efforts may be made to create a man artificially like we make some plants artificially because this process is easy in plants; you can control it in the laboratory. But it appears impossible in creatures, and specially very much complicated in human beings. Allah has said:

“We have indeed created man in the best of moulds”. (Quran – 95:04).

Allah has provided the best structure to human beings, and certainly the best structure will be the most complicated. Nowadays the greatest inventions are in the field of electronics which are generally controlled by a remote control. A human body-the greatest creation, is the most mind-boggling because it is the creation of the greatest Creator- the Allah.

The story of the 46 chromosomes is that generally the division of cells is from 2 to 4 and they are produced alike. But there is a particular type of division in our sex cells which starts in males and females from the age of puberty. Its sign in women is the start of menstrual course and in males the discharge of

seminal fluid. The difference is that in females the system is a time-bound one when its flow begins at a particular date of each month and in males the discharge is without a particular cycle.

There is special type of division in the cells which constitute sex organs. The specialty is that in the division of chromosomes the pairs are separated and halved which means that chromosomes found in these cells are 23 and not 46. This ensures that when the cells from male and female unite they make up 46 chromosomes in total. The half comes from the female and the other half comes from the male and thus together they both make a total of 46 in the developing embryonic cells.

Now the division is the same old one i.e. 2 to 4, 4 to 8 etc. and then after a period of three months the foetus nearly begins to take shape. This is a natural phenomenon. This act is also being done by the doctors artificially, only to the extent of Germ Banks where the semen and the eggs are preserved in super cooled cabinets. It is the first step taken in this regard, i.e. preserving eggs and sperms in artificial (outside the womb) atmosphere. It was necessitated because many couples are unable to produce children due to some deficiency in their bodies. This technique was adopted to overcome and control such situations. The sperm and egg of a man and woman are fused artificially but after this exercise the embryo is returned to the womb of the mother because an artificial womb is not available as yet.

A recent report from Japan suggests that some scientists have claimed that they have made a plastic womb and tried to nurture foetus of a sheep but the research is still only at an experimental stage. Researches done in the field of cloning are quite different. Till now the artificial fusion was done by means of sex cell in which the chromosomes were half i.e. 23.

Scientists nurtured the idea of getting a cell of ordinary nature from a body, which contains 46 chromosomes and use it as an egg. The experiment was first performed on frogs and then on other animals. In the case of sheep they got an egg of the sheep and took out the nucleus from it.

It is now known that the whole control is inside the nucleus. When we are born we bring with us 46 chromosomes which contain the whole instruction for our growth, our features, our appearance, our structure, our character, in short all our external and internal attributes are hidden in it.

The chromosomes of every creature including human being have a particular chemical substance called DNA. Its full chemical name is De-oxyribo Nucleic Acid. Many chemical substances are found in the body, however, the DNA is such a special and unique molecule that it can create a molecule similar to its own, i.e. it also has the capacity of reproduction which makes it unique and distinct from other chemical substances.

The reason of this distinction depends upon the four kinds of nitrogen bases, from which it is formed. These four bases are A (Adenine) G (Guanine), C (Cytosine) and T (Thiamine). In the molecules of DNA, A is always paired with T and C is always paired with G. All the four bases are always found in the groups of three i. e. AUG, ACG, GCC, TCA. This triplet or group of three of the nitrogen bases is called the Genetic code.

This is the secret language hidden in DNA molecules in which the details of the working and constitution of every body is packed inside the chromosomes. We can call it the alphabets and signs of the secret language of the cell. The one meaningful word made by joining of these letters is called Gene. Just as A, R, M form a meaningful word "ARM", similarly some or many codes jointly make a Gene which is the

key of instructions for performing a certain task. The DNA within a chromosome contains thousands of such Genes.

I think that the attribute, which Allah calls “destiny”, is inside it. It is not related with mind. During the sheep cloning experiment a cell was taken and its nucleus was removed. Now another cell from a sheep’s udder, which was not a reproductive cell, was taken, its nucleus was taken out and the nucleus so extracted was fused with the enucleated cell. This is no less than a miracle of Allah.

We see that the flower contains pollen grains. When these pollens go to the female portion it pollinates and produces the fruit. It was done regularly in the plants of dates. There is a Hadith regarding this phenomenon.

During artificial fusing the cell and the nucleus are joined by applying a very light electric shock. This shock joins both of them. It was a very important discovery because before this shock they both neither joined nor divided. When they are joined the cell division starts from one to two and two to four starting the process of embryo formation.

Scientists and doctors had always been helping in the formation of embryo. However now the cell was in the womb of another sheep and after a certain period the sheep “Dolly” was born and that resembled the sheep whose nucleus was utilised. This was because the genetic material happens to be inside the nucleus and the real control is in the nucleus. Whatever kind of nucleus would be put inside the cell same kind of new organism would be formed.

In my opinion the important aspect of cloning is that though it is full of dangers and complications, still it is a knowledge given by Allah. As a student of science I understand that 999 experiments out of a thousand fail, to my mind the failure can be attributed to the will of Allah. But when one is successful it has the consent of Allah. In this case it is a point of

deliberation for us because it has been emphasized again and again by Allah that those who have intellect should deliberate.

When the experiment related to Dolly has been successful, our deliberation should start from this point. Now what is the benefit in it? Whether the technique is useful or not? No technique is completely beneficial or harmful. It all depends upon its perception and use.

This technique too has some benefits for example in the removal of such genetical maladies, which are hereditary and transferred from generation to generation, and is not possible to be treated. Take for instance a couple. There is some sort of genetic disorder, which is hereditary and is certain, to pass from one generation to another. Now the situation arises that either the couple would be deprived of having a normal child or no child at all. In such a situation a normal child can be cloned from a cell of the husband's body alone as it is now possible. The young embryo thus produced may be put in the womb of the wife if it is functioning properly.

The other possibility is putting the fertilised cell into the womb of surrogate mother or a "rented" womb. Now the question arises whether an egg-devoid of its nucleus, fertilised with another nucleus can be put into some other woman's womb?

However, I firmly believe that it is dangerous from the scientific point of view. Take the example of a machine. Every part of a machine has a certain age after which that part becomes useless. In case an exhausted part of a machine is fitted in a comparatively new machine we do not know when the machine may completely stop functioning.

Another important thing from scientific viewpoint is that the chromosomes, which Allah sends with a creature, are meant to work properly only up to that very generation. If we try to create a new life out of them then in case of a failure many questions would arise. The new creature born out of this

experiment would face tremendous problems without any solution. Who would be responsible for the distress and troubles of this creature or how would we remedy it?

Questions like these are coming up and we do not have any answer. But it can be safely said that the technique does have a utility to a certain extent.

Another great danger hidden in the technology relates to the organ trade. Trading in human organs has reached menacing proportions. Many hospitals are involved in this degrading trade. Simple, uneducated women who come to hospitals for consultation and check up during pregnancy are cheated. Abortions are performed on one pretext or the other and the organs of the aborted child are used for the benefits of ailing persons. The process has been narrated in some novels and a few feature films have also been made on the subject. Using the cloning technique, it is also possible that some imperfect humans would be cultured just to get their organs.

Dr. Ian Wilmut had caused ripples throughout the world in 1997 by cloning a sheep “Dolly”. It was the first instance when a big animal specially a mammal was cloned. Afterwards in the same Roslin Institute of Edinburgh, Scotland, where Dolly was cloned, another cloning experiment was undertaken in which four sheep were cloned as a quadruplet having same genetic composition. When these sheep grew up, not only their appearance was different but their temperaments too were different. This happened despite the fact they had been cloned from a single cell and have same genes.

The in charge of this project was Prof. Keith Campbell. This experiment completely ruined all expectations connected with cloning and it became clear that even if a man gets a clone by using some of his body cells, the new creature will be different from him. It proves that every person is unique and it is impossible to create another exactly similar person.



Human Photo-Copy: Introduction And Analysis

Mohd. Fahim Akhtar Nadvi

Introduction

Numerous creatures are born every day in this world. However, in February 1997 a Scottish scientist declared birth of a lamb which astonished the whole world. The news of this birth started an unending series of bewildered questions and issues.

Creation among humans and animals through sexual union of a male and a female is the tradition of Allah. The birth of Dolly has been unique in the sense that it had not only defied the natural course of sexual union but negated the need of a male for procreation altogether. It so happened that a cell was taken from the udder of a six year old sheep. The cell was used to fertilise the ovum of another sheep. The fertilised ovum was placed inside the womb of a third sheep. After the gestation in the womb, lamb subsequently named “Dolly” was born.

Dr Wilmot had carried out the experiment at the Roslyn Institute of Edinburgh. Dr. Wilmot and his team claimed that human being also could be created through this technique.

Here it seems appropriate to briefly discuss the normal reproductive process so that the process of cloning could be understood in a better manner.

The Process of Procreation

A human body contains innumerable number of cells. Each cell has a center called nucleus which contains forty-six chromosomes shaped like a net. These 46 chromosomes are the keepers of all human qualities. In other words it could be

said that entire composition of a person is hidden in these chromosomes. The formation of these chromosomes is unique in every human being, therefore, no two humans could be similar.

All the body cells like the cells of bones, cells of skin, cells of nerves etc. multiply and assume indefinite numbers from one to two, two to four, and so on. Each separated part itself becomes a complete cell containing 46 chromosomes.

However, the aphrodisiac cells (or sexual cells) have a different composition. The sperm cells of a man have only 23 chromosomes instead of 46. Like wise the ovum cells of a female also has 23 chromosomes. Therefore when the sperm fuses with the ovum and fertilises the same, a fertilised ovum becomes a complete cell containing 46 chromosomes.

This is perhaps the “single person” from which every new life begins.

“It is He who created you from a single person” (Quran – 7:189).

A process of division and multiplication of the fertilised ovum starts and cells are multiplied from one to two, 2 to 4, 4 to 8, 8 to 16, 16 to 32 etc. Afterwards these cells proceed in different directions to perform different special tasks like the formation of bones, skin, entrails, nerves, muscles and all other organs.

It is pertinent to mention here that each cell containing 46 chromosomes contains information on all the human organs and qualities. As these cells are created from a single cell called the mother cell, all are similar to each other.

But as per the secret order of the nature, these very cells start the formation of skin, bones, intestines, skin, eyes, and brain as they begin their own particular work assigned to them by Allah. Although every cell contains 46 chromosomes but because each cell is assigned one particular task, its one

chromosome (out of 46) starts performing that particular task (like that of making bones) while other chromosomes become passive. This stage is called the stage of distinction and from this stage the embryo formation begins. Finally by the order of Allah a new being comes into existence after the gestation period.

How cloning is done

Cloning is an English word drawn from the Greek “Klon” meaning “branch” or “new born”.

Cloning or the technique of “creation of the copy” is very ancient. Its use has been very common in vegetables and fruit trees or flower plants. Its experts have been obtaining the copy of a plant or getting a third kind of plant by combining two different plants.

The later half of the 20th Century saw the beginning of important experiments on animals. Two American scientists Robert Burges and Sir Thomes King claimed of creating a frog in 1952. Such experiments continued from time to time on frogs, flies and mice. Efforts of human cloning were also made in 1993. But after the initial success the fertilised ovum was not put in the womb a woman. Two monkeys were produced through cloning in Oregon University of America in 1997.

Different methods of cloning

First Method

When the sperm and the ovum or egg meet and the fertilisation of egg takes place, the wall of the egg bursts and a process of division and multiplication starts. If this wall is again joined artificially both the divided cells become like the mother cell. Since both these cells have come out of one mother cell both of them are quite similar to each other and the process of division can be activated in both of them by separately providing suitable atmosphere. Later on these become two embryos.

This process can be adopted at any stage with the exception of the first stage of division before differentiation. For example, this process can prepare four embryos in the second stage, eight in the third stage and sixteen in the fourth stage. All these embryos will be quite similar to each other. This process when occurring naturally results into the birth of twins and sometimes even more than two children. Thus several infants who are quite similar to each other can be obtained through this technique. It is also possible that only one cell out of several cells may be activated and used while rest of the cells can be preserved for a long time for use as and when required. The two monkeys were produced through this technique in the Oregon University in 1997.

Second Method

The nucleus of a female egg is destroyed and a skin cell from any part of the body is obtained and its nucleus is entered inside the empty egg.

This skin cell can be obtained even from the body of the same female in whose egg it is going to be inserted. Now, because the egg from which the nucleus containing 23 chromosomes has been destroyed or taken out, therefore, when the nucleus of the skin cell is inserted in the empty egg it becomes a complete cell containing 46 chromosomes.

In the natural way the sexual act also make a complete cell containing 46 chromosomes. This happens by the union of the sperm having 23 chromosomes and the ovum having 23 chromosomes which make it a packet of 46. The difference is that the complete cell formed by the meeting of the sperm and the egg contains some qualities from the sperm (man) and some from the egg (woman). But in the process of cloning all the 46 chromosomes belong to the nucleus taken from the skin cell, therefore the embryo formed out of this cell shall be quite similar to the person from whose body the cell is obtained and inserted in the egg. It means that in case the cell of the male is

inserted, the embryo would be an exact copy of the male and if the cell of a female is inserted a woman exactly similar to her can be produced. The sheep Dolly was also produced through this technique. In this case a cell from the udder of a six-year-old sheep was obtained, its nucleus was destroyed making the egg empty, then the nucleus of the cell taken from the udder was inserted into this empty egg. Later it was given a very mild electric shock to fuse them together. The ovum or egg so fertilised was put in the womb of a third sheep where it got natural gestation and a sheep was born which resembled the sheep from whose udder the cell was taken.

The success was achieved after the failure of 277 experiments and Dr. Ian Wilmut named her Dolly. According to some scientists even in this method of cloning when nucleus of the egg is destroyed completely, some of its portion may remain stuck in the folds / walls of the egg. Therefore the embryo, which comes into existence, would certainly get some characteristics of the nucleus stuck in the walls of the egg. Therefore the embryo would not be the exact copy of the owner of the cell. This dissimilarity may get expression in appearance, temperament, or in any other characteristics.

A human cloned through this technique shall also be affected due to environmental factors.

Both the above-mentioned methods are called animal or foetal cloning.

Third Method

Apart from the animal and foetal cloning, a third kind of cloning is called Gene cloning. Gene are small corn like objects who form chromosomes. These Gene are responsible of all human qualities, hereditary disease and other attributes of character. Science has now made it possible to remove a defective Gene and in its place insert a healthy Gene. In other words if a Gene is responsible for a particular disease, its

removal may result into getting rid of that disease. Accepting the benefits of this technique some Muslim Doctors say that the technique may be utilised for identifying serious or incurable diseases like cancer etc. in order to provide for their cure. Indeed this technique has very bright prospects as far as eradication of many incurable diseases is concerned.

Some important aspects of the new research

Dr. Wilmut's experiment did create ripples. In the din of these ripples many question relating to religion, morality, law, society and polity were raised. However, many scientific questions too were raised.

The most important scientific question that arose was that why division started in 29 experiments only out of a total of 278 experiments undertaken simultaneously? And why only a single lamb Dolly could be cloned out of the 29 such cells put in the womb?

Though the birth of Dolly itself was significant but many questions still persisted. Will this sheep Dolly live upto her natural age? The cell was obtained from the udder of a sheep who had passed six years of her age, therefore these six years could be deducted from the age of Dolly? Will this sheep Dolly born through cloning be able to breed?

These are only a few questions. A long list of serious questions have been raised pertaining to health, society, law, morals, politics, economics and kinship, etc, in case the experiment is replicated in humans. We propose to discuss some of them in later part of the chapter.

As mentioned above, the efforts related to cloning of animals have been going on for some time now. Frogs, mice etc. have been produced in the laboratories. But, in case of Dolly, two things have been amazing. Till now the experiment of cloning was done from the cells of embryos which had crossed initial stages of development.

However in case of Dolly, the cells had been taken from a mature animal. The cells had hardened and all their chromosomes except the functional one had become passive or inactive. It was of course surprising that such inactive or passive chromosomes could be activated in the cell.

Dr. Wilmot used the mature cells of a six-year-old sheep. But how passive chromosomes got activated? Dr. Wilmot did not have an answer.

The second amazing fact was that fusion of the sperm and egg cause process of division and multiplication leading to the first stage of the formation of embryo. It was a difficult task to start the process of division after inserting 46 chromosomes of the udder cell into the empty egg. Dr. Wilmot administered a very mild electric shock, i.e. he gave a mild electric shock which was similar to that which naturally happens during the mating of a male and a female.

Here it should be noted that the liquid matter called plasma found between the nucleus containing chromosomes and the outer wall of a cell is of vital importance. According to the scientists the secret of life inside a cell lies in this substance.

Keeping the nucleus of the cell got from the udder of the sheep inactive in a suitable atmosphere was indeed a great achievement. Further, starting the process of division by inserting it in the empty egg and providing a suitable atmosphere was another significant challenge met successfully.

Summary of the invention

The following are required in the process of cloning.

1. The egg of the female is essential because the sex cell alone has the power of fusing with other cells and start division and multiplication. This capacity is not found in other cells.

2. The presence of 46 chromosomes is vital. It may be completed either from the sex cells of the male and female adding 23+23 making it 46 or by destroying 23 chromosomes of the egg and inserting the 46 chromosomes from any ordinary cell of the body into the empty egg.
3. It is necessary to put the egg into the womb after fertilisation where it is gestated and an offspring is born by natural process after the natural period of gestation.

The above three points are essential in the technique of cloning.

The following points emerge after this deliberation:

- (a) All the elements which Allah has made essential for the reproduction of the creatures, are required. None of these elements are man-made. They may be chromosomes, cytoplasm or an ovum or a womb; the One and Only Creator - Allah, has created all of them.
- (b) The method and technique of creation instituted by Allah is still vital i.e. the presence of 46 chromosomes in an egg, its fertilisation, division and multiplication, formation of limbs, embryo and birth at an appointed time. Dolly also passed through these stages. Only one attempt out of 278 could reach the last stage of birth and rest of the attempts failed.
- (c) There has been no change in these two basic affairs i.e. the birth of a creature and its stages. Whatever has happened in cloning, different from the natural method, is different only in a way that completion of 46 chromosomes had not taken place by fusion of sperm and ovum. In the cloning the number of 46 chromosomes has been completed within the egg and then the process of division was started.

The scientists studied the stages of the procreation process. Afterwards exactly repeating this process, with a slight change in its elements and contents, the scientists experimented. The nucleus of the body cell, which was inserted inside the empty egg, was also produced by the union of male and female.

The great Divine skill is at work in the natural way of birth through the union of 23+23 chromosomes of the male and female. It ensures birth of a third person having his/her own personality and individuality with the combined qualities of both the mother and father. It is a vital base of keeping the system of life firm and secure.

This important system also gets affected by inserting all the 46 chromosomes of a cell in the empty egg according to the present cloning method.

These details help in comprehending the implications of cloning.

The truth of this declaration of Quran still abides steadfastly with all its splendour:

“Verily, His are the creation and the command?” (Quran – 7:54)

“Allah is the creator of all things,” (Quran – 39:62)

“Or do they assign to Allah partners who have created (Anything) as He has created, so that the creation seemed to them similar? Say, Allah is the Creator of all things. He is One, the Supreme and Irresistible”. (Quran – 13:16)

“Those on whom besides Allah, ye call, can not create (even) a fly, if they all met together for this purpose!”(Quran – 22:73)

This act of cloning can neither be called “creation” or even slightest sort of partnership in creation. The Islamic belief is still firm that Allah alone is the Creator.

The negative effects of cloning

Many questions of different natures revolve around cloning. Some questions are such that their answers are not available. Only the future would enlighten us.

Apart from this some aspects regarding cloning are quite manifest and their negative effects are also quite clear. These effects relate to different fields of life and are briefly mentioned below:

1. The child born through cloning will be devoid of his personal identity which will create several difficulties and problems in the field of law and society.
2. Most of the births through this technique would be defective. If several children are simultaneously reproduced through cloning; the defect shall be present in all of them.
3. The system of family and kinship shall collapse and problems of lineage and legacy shall arise.
4. The newborn child shall be deprived of the parents and their love and affection and shall always face psychological problems.
5. What will be the relationship between the new born child and the owner of the cell and egg? Will he be the brother of the person from whom he is cloned, or son or what? What relation will be the woman from whose womb he has taken birth? In case the body cell also belongs to this particular woman, then will this child will be her son, brother or what?
6. Dreaded criminals may create havoc in the world by their cloned specimens who shall be equally dreadful.

7. The possibility of getting rid of a tyrant despot after his death to the suffering humanity will not end.
8. What would be the legal status of this child? How many cloned copies can a person get produced of himself? Would any body have the authority or permission of obtaining a cloned copy of some body else?
9. What shall be the moral codes for all these problems? How shall these codes get hold upon matters secretly performed?

These are only some of the issues which may arise in case human cloning is allowed. The list of damages is unending and cannot be comprehended at this stage.

Cloning from the point of view of Shariah

Above is a brief discussion of the issue in a general manner. It would be appropriate to look into it from the viewpoint of Islamic Jurisprudence.

Cloning is currently being debated hotly among the great clerics and scholars. Several institutions of Arab world have already deliberated upon it deeply and many cautious judgments have been issued.

In this regard the Casablanca (Al Darul Beha) Morocco Seminar jointly organised by the International Islamic Fiqh Academy (Jeddah) and the Islamic Organisation of Medical Sciences and the 10th Seminar of Islamic Fiqh Academy Jeddah are specially significant. The Seminars resolved that the participation of a third person in the marital relationship of a husband and wife was *haram* (prohibited) in every manner; whether this participation is in the shape of the donation of sperm or egg or body cell or hiring of womb for gestation.

The process of cloning conflicts with several Shariah principles. It is obvious that the unpredictable implications of a scientific research, which is completely free from faith and

morality cannot, be fitted into the framework *Deen*. There is a real danger that some powerful insane profligates may, taking advantage of such researches, unleash cruelty and oppression on the humanity. As we see today huge stocks of atomic weapons and nuclear arsenal with their capacity of destroying the whole world ten times over have posed permanent hazards for the very survival of humanity.

The basic principle of Islam is the respect of marital relations and condemnation and prohibition of extra-marital relationship. This principle comes to naught in cloning and with it ends the kinship, relationship and family set-up.

In view of such anti-Shariah matters the Islamic scholars have not welcomed cloning. Dr. Yousuf Qardawi has declared cloning *haram* on three counts. The first is that Allah has put differences and distinctions among the people.

“And so amongst men and beasts and cattle are they of various colours” (Quran - 35:28) and “And among His signs is the creation of the heavens and the earth and the variations in your languages and colours”. (Quran – 30:22).

This distinction and identity is finished in cloning

The second is that Allah has established the order of couple (pairs) in this universe. He says:

“And (have We not) created you in pairs” (Quran – 78:8)

“And of every thing We have created pairs,” (Quran – 51:49)

And cloning is against this order too.

The third is that Allah has made family (lineage) the standard base in the society of human beings. Every child is brought up under the wings of the family. This family set-up collapses if cloning is allowed.

The Last Word

The fact is that the cloning process is still only a claim. Human cloning has not been announced. However, cloning has been performed on animals in various ways. Now experiments have been undertaken on mammals. Although cloning of animals is supported. As far as human cloning is concerned we have the Islamic laws before us. Detailed decisions shall be taken before time. Therefore some persons have opined that separate orders should be issued for separate conditions only after their appearance because it is as yet the first step of the new research.

Islam has put no bar on the acquisition of knowledge and research. On the contrary it has encouraged it but it has set regulations specifying that it should be beneficial and in the best interest of humanity. Allah has restrained us from harmful knowledge. What information will dawn upon us by future research and what powers of Allah will manifest upon mankind, only the future will reveal.

Apart from looking into the issue of cloning from Islamic jurisprudential outlook, another aspect of this problem is also worth consideration. The question is that after stating that Islam has prescribed regulations about knowledge and research, what is the status of the ongoing research on cloning from Islamic point of view? Is the research in cloning is still permissible though human cloning has been declared prohibited? Shall the research itself be declared prohibited? What are the strict regulations which should be framed in case of such researches? What should be the punishment for those who violate them? If a human clone comes into existence despite all the prohibitions, what would be the instructions for different kinds the clones.

These are some of the issues. It is imperative to keep in touch with the latest developments in this area so that the correct decisions may be reached promptly.



Cloning: Meanings & Definitions

Dr. Mohd. Hisham Khayyat

The word “cloning,” despite being vague, has gained currency as it has been widely used by the mass media. The word has several meanings. However, the word is being used in four meanings. First: The nucleus of any cell of the father is inserted in such an egg whose nucleus has been removed and both of them together form one complete cell which consists of complete Genetic Packet. It also has the capacity of division for the completion of its Genetic Packet. If this cell is inserted into the womb of the mother, it begins to get complete after gestation and by the order of Allah adopts the complete shape of the creature. This is the interpretation the word “cloning”.

Here it is necessary to clarify that the new creature is not cent percent similar to the father because in spite of getting out the nucleus from the egg of the mother, some portions of the nucleus keep stuck in the folds of the egg and leave their own influence on the qualities formed by the father’s cell.

Second: Half of the Genetic Packet obtained from the sperm of the father is attached with the half Genetic Packet of the mother’s Genetic Packet, and both jointly become a cell which while comprising of a complete Genetic Packet, has the power of division and dispersal. Now when they begin to divide and disperse in the cells similar to their own, some cells are separated from other cells in the initial stage before being mutually categorized. By the grace of Allah each of these cells has the capacity of turning into a complete creature and has many similarities with other cells like itself.

Third: Obtaining nucleus from the cell of the father which is augmented in a particular atmosphere by a special method. This process is adopted to get insight of some disease or its remedy.

Fourth: A Gene, or it can be called a quality of character (Gene is a cluster of small grains which are called chromosomes) is taken out and separated so that in case it bears some disease it may be cured by the order of Allah. These methods are undertaken in human beings and I think it is the topic of our discussion as well. So far as I know no specimen of the first two kinds has appeared. Work is being successfully done on the third kind for the past few years and on the fourth work has started.

Experimentation of cloning on animals and plants is not under our deliberation. If the experimentation is for the betterment of people there is apparently no denying or questioning it by anybody.

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Cloning from the Point of view of Shariah

- 1. Hazrat Maulana Mufti Nizamuddin Sb.**
- 2. Mufti Azizur Rahman Bijnori Sb.**
- 3. Mufti Habibullah Qasmi Sb.**
- 4. Maulana Sultan Ahmad Islahi Sb.**

Maulana Mufti Nizamuddin Saheb

Received your letter pertaining to the problem of cloning seeking my comments on the Jeddah and Morocco seminars held to discuss this issue. I had written an article on human cloning ten years ago which covers almost every branch of cloning from Shariah viewpoint. The article is spread from page no. 337 to 346 in “*Bab - ul - Hazar Wal Abaha*” of the book “*Muntakhebat Nizamul Fatawa*”.

To put the matter straight, in my opinion, the Morocco seminar is not worthy of importance. Rather, its direction is very dangerous, though; one may not discern it right now. However, the Jeddah seminar is, to some extent, better, though it has also not addressed the issue in its entirety.

First of all it should be kept in mind that Qur’an is the word of Allah, which is “*Jwame-ul-kalm*” i.e. it not only contains statements & commands but also explains them. It is not only honourable but also miraculous.

Allah says: “We sent not a Messenger, but to be obeyed, in accordance with the leave of Allah” (Qur’an – 4:64). At another place He says: “So take what the Messenger gives you and refrain from what he prohibits you” (Qur’an – 59:7).

The emphasis of these and other categorical orders is that one should not digress or even slightly shy away from these divine commands even a slight deviation would put one in a grave danger of straying away from the right path. Allah says, “Verily this is My Way, leading straight; follow it; follow not (other) paths; they will scatter you about from His path”. (Qur’an – 6:153).

According to a Hadith, Allah has favoured the Holy Prophet (PBUH) with “*Jwame-Al-Kalm*” which means his acts and statements are also divinely inspired therefore the slightest

dissent or deviation would have a danger of leading astray. Apart from this, during the lifetime of the Holy Prophet (PBUH), by his blessings and the devotion of the companions, full meaning of Qur'an and the Hadith used to be fully explained without leaving any doubt. Likewise, after the death of the Holy Prophet (PBUH) all the scriptural orders were fully explained by the holy companions (RA) and their successors (RAA) by acting entirely on the apparent and hidden instructions of the Hadith and the Qur'an without leaving any scope of doubt. These companions (RA) and successors (RAA) had no other ideals and ideas before them other than the Qur'an and Hadith. Hence they could easily understand and followed the direction contained in the scriptures.

Allah says:

“On evidence clear as the seeing with one's eye – I and who ever follows Me.” (Qur'an – 12:108)

Because this faith (Islam) will last up to the Dooms Day; it is the last of the faiths of this world and its advent had annulled all other religions, the source of getting knowledge of all the orders of Allah were and still are the verse of the Holy Qur'an, and the Hadith. Allah knows the visible and the invisible, every minute detail of every revolution was and is known to Allah as He has said,

“He is the first and the last, the Evident and the Hidden and He has full knowledge of all things.” (Qur'an – 57:3).

Therefore it was also known to Him that with the passage of time the devotion and steadfastness possessed by the holy companions (RA) and their successors (RAA) would not survive among the common faithfuls, therefore Allah favoured the faithfuls by revealing the Qur'an in such a way that some verses be explained by others and certain Hadiths be explained by others. And people could understand intention of Allah with such help and explanation. There are numerous verses and

Hadiths in this regard and it will take a lot of time in writing all of them. Therefore I will quote here one verse only to emphasise the import which also contains several realities and orders:

“Blessed be He in Whose hands is Dominions and He over all things hath power – He, who created Death and life that He may try which of you is best indeed and He is the Exalted in Might”. (Quran: 67:42)

Likewise the Holy Prophet (PBUH) has stated another way of instruction and before departing from this world he had by way of testament said, “I have left two things amongst you. You will never go astray till you hold both of them firmly. One is the book of Allah i.e. Qur’an and the second is Hadith i.e. the tradition of the Holy Prophet”. In this Hadith the word “never” has been use as a negative advice or an advice to avoid something in the future which means “till the end of this world or Doomsday”.

“Then shall anyone who has done an atom’s weight good, see it! And any one who has done and atom’s weight of evil, shall see it”, (Qur’an – 99:78). Its obvious connotation is that we will have to give the detail of whatever good or evil we do. Therefore this testament and admonition will certainly last till the Doomsday.

Therefore it is quite evident from these scriptures that even the slightest deviation in understanding the meaning of the Qur’an and the Hadith is not permitted. Such deviation would open the door of apostasy.

The writings (attached with your letter) have drawn parallel between the cloning of plants with that of humans. This is against wisdom besides being unjustified. It would amount to shamelessness, immodesty and insult, which are never permitted by Shariah. In fact these innovative, educated persons have distorted the meaning of Qur’anic verse:

“And He has subjected to you, as from Him all that is in the heavens and on earth: behold, in that are signs indeed, for those who reflect”. (Qur’an – 45:13).

The ayah actually calls upon the people to reflect and draw lessons from the signs of Allah.

“Each (just) swims along in (its own) orbit (according to Law)” (Qur’an – 36:40).

“We have indeed decked the lower heaven with beauty (in) the stars – (for beauty) and for guard against all obstinate rebellious satans”. (Qur’an – 37:7-6).

All these clearly tell to obtain real knowledge by pondering over these facts, and understand that all these facts gifted to us are merely informative and functional so that one may get further insight into the powers of Allah, to gain proximity to Him. One must recognize that he has not been given the powers of creation.

If we think deeply and use our intellect, the truth will unravel. For example think about the chromosomes and observe that how in a female unification of egg and sperm containing genetic packets get the capability of procreation. This capability has been given by the Allah alone. No other power could do so, or had Allah not created egg, who could have create it! We know and believe that creation is the work of Allah alone.

Likewise Allah has given capability to procreate to the females in the animals and plants, if Allah stops creating females no power on earth would be able to create it. Therefore knowing very well all these handicaps and weaknesses how one can call his functional and informative knowledge as knowledge to create.

Allah has clearly stated that He has kept the work of creation in His own hands. Apart from this Allah has also revealed certain

other verses which further enlighten the people about His absolute powers and one becomes convinced that whatever He has performed is far beyond human powers.

For example when Prophet Zakariyah saw some unseasonal fruit with Hazrat Mariam and asked “O Mary! Whence (comes) this to you”, she said from Allah”. Allah provides sustenance to whom He pleases without measure. There did Zakariyah pray to his Lord saying: “O my Lord! Grant unto me from a progeny that is pure; Thou art He who Hearth prayer (Qur’an – 3:38).

Prophet Zakariyah got the tidings of the birth of his son Hazrat Yahya, and then he wondered like any other human being that his wife was old and barren, therefore, how the child could be born. And he said, “O my Lord how shall I have a son, seeing I am very old and my wife is barren”? “Thus”, was the answer “Doth Allah accomplish what He willeth”. He said “O Lord! Give me a sign!” “Thy sign”, was the answer “shall be that thou shalt speak to no man for three days but with signals”. (Qur’an – 3:40- 41).

This verse is a categorical regarding miracles and supernatural events. Then look at the case of the pregnancy of Hazrat Mariam. It is mentioned in detail in Qur’an.

“When she withdrew from her family to a place in the East She placed a screen (to screen herself) from them; then We sent to her our angel, and he appeared before her as a man in all respects”. (Qur’an – 19:16-17).

She said: “I seek refuge from thee to (Allah) Most Gracious (come not near) if thou fear Allah”. He said: “Nay, I am only a messenger from thy Lord, (to announce) to thee the gift of a holy son”. (Qur’an – 19:18-19).

She said: “How shall I have a son seeing that no man has touched me and I am not unchaste? He said: “So (it will be): Thy Lord saith, “that is easy for Me: and (We wish) to appoint

him as a Sign unto men and a Mercy from us. It is a matter so decreed”. (Qur’an – 19:20-21).

During this dialogue their eyes met and in this condition she felt that she was pregnant. After some days the angel appeared again and gave her some instructions like “sit under a try date palm and a source of pure fresh water would be produced beneath you” and “shake the trunk of the tree and fresh ripe dates would fall from the tree”.

Only this much is told in the Qur’an about the pregnancy of Mariam. Rest of the things i.e. was the pregnancy a result of physical union or was it only spiritual, are such matters which have not been clarified. One should not use one’s imagination or intellect to guess about it. It has been directed in a Hadith that one should not draw inferences by his own knowledge. Use of the unreliable Israelite narratives about the event is against the Islamic Shariah.

At that juncture, some indications could have been given regarding cloning or human photocopy or nucleus and the working of chromosomes. However, it was not done and the knowledge was kept reserved and the humankind was told that it was a matter of supernatural and beyond your intellect. But it should be understood that it is neither absurd nor contrary to reason. Your intellects may be average or lofty; all of you are helpless to comprehend the reality and secret of these things.

As has already been stated, I would like to reiterate that try to enter into such experimentation amounts to putting oneself into peril and an affront to Allah. It is evident from the verse that was revealed when some Jews asked the Prophet (PBUH) about soul to test genuineness of his prophet hood. The verse says:

“Say”, The Spirit is of the Command of my Lord, of knowledge it is only a little that is communicated to you (O men)” (Qur’an – 17:85).

We have been restrained to delve into these matters as it is supposed to be insolence to Allah. It is why I had said that there is something wanting in the Seminar which should be removed. And now I finish it with the prayer that may Allah bestow upon us true knowledge and right insight. Saying anything more would be audacity, I conclude.

Allah knows best.

III

Mufti Azizur Rahman Bijnori

Initially there were only two human beings on this earth, Prophet Adam and his wife Hawwa. Progeny of this couple multiplied. Now according to some historical data, within five or five and half thousand years, billions of human beings inhabit this earth today while many billions came into this world and died. Qur'an says about this growth in the progeny of Adam:

“Man We did create from a quintessence (of clay); then We placed him as (a drop of) sperm in a place of rest, firmly fixed; then We made the sperm into a clot of congealed blood; then of that clot We made a (foetus) lump; then we made out of that lump bones and clothed bones with flesh; then We developed out of it another creature”. (Qur'an – 23:12-14).

In this verse the gradual stages of the development of a human have been explained. Immediately after this verse the man is told about his final destination i.e. his extreme decline after the extreme elevation – his death and disintegration is described

“After that, at length ye will die. Again on the Day of Judgment will ye be raised up”. (Qur'an – 23:15-16).

The Qur'an has provided the beautiful exegesis of the verse quoted above in different manner at another place:

“It is He who created you from a single person, and made his mate of like nature, in order that he might dwell with her (in love); When they are united, she bears a light burden and carries it about (unnoticed). When she grows heavy, they both

pray to Allah their Lord, (saying): “If Thou givest us a good child, we vow we shall (ever) be grateful”. (Qur’an – 7:189)

In this verse the known system of human birth has been described. It has also been said that the woman (wife) is the means of respite and peace for man. If human beings are born through cloning method, the woman will no longer be the means of peace and respite but shall become a necessity. It is said in another verse:

“And among His signs is this that He created for you mates from among yourselves, that ye may dwell in tranquility with them and He has put love and mercy between your (hearts)”. (Qur’an -: 30-21).

It reveals that apart from being a source of peace and respite, the wife is also a source of blessing and companionship. This object will also be lost if we approve cloning. Though the process of reproduction can be carried in the brothels as well but neither love nor blessing are found there. At such places, not only the carnal desires are satiated by immoral means, but lineage is also lost in the procreation. Holy Qur'an says:

“O mankind! We created you from a single (pair) of a male and a female and made you into nations and tribes, that you may know each other (not that ye may despise (each other)”. (Qur’an – 49:13).

The identity of people would be lost if human cloning is resorted to as in the cloning presence of mother is sufficient, father is not required. In the following verse Allah says:

“The nature in which Allah has made mankind: No change (there is) in the work (wrought) by Allah”. (Qur’an – 30:30).

Birth by way of cloning brings changes in Allah’s creation and no one has the right to bring about such a change. Take for example, painting of live creatures, although painting and photography does not come in the category of creation but they

have a resemblance with the creation. The Holy Prophet (PBUH) has said in this regard:

Most rigorous punishment will be inflicted on those (on the Day of Judgment) who adopt similarity with Allah's creations (Mishkat).

Portrait painting is supposed to be the worst and there are many traditions of the Prophet (PBUH) in which severe punishment has been declared. Mullah Ali Qari writes in "Marqaat", basing the argument on the above Hadith, that one who believes in the painting or sketching of live creatures is a heathen.

Therefore, the reasons mentioned in the scriptures are final on the point. Seeking justification for something which has been definitively dealt with in the Qur'an and Hadith is not only unlawful but a blasphemy as well.

Earlier days some people used to obtain chicken by hatching eggs of the hen under the pigeons. After that some people started getting the egg from hen by injecting her. Now experiments of births through injections started in monkeys and even in the human beings which is against the categorical injunction of Holy Qur'an. It is very strange to note that the inventors of such methods are either the Jews (*Bani Israelis*) or the people influenced by them. Further our theologians are busy in determining permissibility or otherwise of such techniques. Sometimes such exercises are undertaken to provide justification for them. Involving the Muslim Ulemas into such exercises causes diversion of attention from constructive and reformative pursuits. In the earlier times, such people were engaged in fabricating spurious Hadiths of the Holy Prophet (PBUH) which made total fabrications and Israelite traditions important part of the Islamic literature. In my opinion the so-called Academies are also carrying on this very mission.

Only Allah knows better.



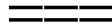
Mufti Habibullah Qasmi

Advancement of science and technology has carried unnatural methods of reproduction from plants and animals to the humans named as the cloning. All its forms, as discussed in the forwarded article, are unlawful and prohibited as they clash with the permanent tradition of Allah. Allah has said:

“He bestows (children) males and females according to His will (and plan) or He bestows both males and females and He leaves barren whom He will: for He is full of knowledge and power”. ((Qur’an – 42: 49-50).

Therefore a faithful believer should wait for the will of Allah after living conjugal life in a lawful and permissible way. Adoption of scientifically invented methods in this connection is not only in conflict with the categorical injunctions of Qur’an and Hadith but also give rise to many social evils. These evils are not hidden from the wise. Therefore every faithful should save himself from such inventions and steadfastly follow the nature’s arrangements.

Allah knows better.



Maulana Sultan Ahmad Islahi

The recommendations of Jeddah Academy and Morocco Seminar regarding this problem are sufficient to a great extent and at present the confirmation and ratification of the Islamic Fiqh Academy (India) would be enough. However the usefulness of a discussion cannot be denied as it may throw up some new dimension.

The recommendations of Morocco Seminar and its proposals are more apt, useful and to the point in comparison to those of the Jeddah Academy. Some time ago the fortnightly magazine "*Ehtasab*" of Aligarh had serialised an article entitled "Moral problems of Genetic Engineering" by Prof. Fazlur Rahman Ginnori who is currently based at Karachi. It shall be appropriate to keep this article in view in discussing this problem. Here I am submitting whatever opinion I could form on the subject.

1. At the present stage of research, when some benefits for humanity could be expected from cloning (details of which will come later) should not be declared absolutely unlawful and prohibited under Islamic Shariah.
2. The birth of progeny through cloning in which any third male or female other than that the husband and wife participates is absolutely prohibited and illegal from Islamic point of view.
3. It is commendable and laudable if, through cloning, a barren couple can become parents without the participation of a third man or woman.
4. It is also very much desirable and commendable if the child born through this technique under the aforementioned conditions is saved from some hereditary disease or his physical or mental capabilities are enhanced.

5. The research in the field of cloning, including on the plants and animals, should be restricted so that it may become a source of betterment and welfare in the world and not a cause for chaos and disturbance.

It is just a summary of my humble opinion regarding cloning. Detailed arguments can be separately provided if desired, however, at the moment it does not seem necessary.

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Shariah Directives On Cloning

- 1. Decision of Morocco Seminar**
- 2. Decision of the Islamic Fiqh Academy Jeddah**
- 3. Collective Decision of Islamic Fiqh Academy (India)**

Recommendations of the Morocco Seminar on Cloning

A. The Foreword:

The Organization of Islamic Medical Sciences held a Seminar in 1983 on “Birth: in the light of Islam”. In the two articles presented in the seminar discussed the possibilities of human cloning after successful cloning experiments on plants, frogs and small sea animals. It was recommended in the seminar that Shariah order on human cloning should not be issued in haste just after the experimentation on animals. However these issues should be continuously studied from both medical as well as Shariah point of view.

This topic appeared in a more serious way when in 1993 cloning of human embryo was experimented in Scotland. Subsequently the birth of a sheep “Dolly” through cloning was announced in 1997 after eight months’ delay. Later two monkeys were produced through another method in the Oregon University of the USA. The technique through which the scientists had achieved this success could be very easily used on human beings, therefore this subject drew immediate attention and very strong reactions were expressed.

Although cloning experiment on human beings has not been announced, however, in order to fathom its expected results and to chalk out laws and ethical codes, the western countries suspended the experiments on human beings for some years to come and in the meanwhile complete the required research. Therefore the Organisation decided to deliberate immediately in this seminar on this topic.

B. Definition of Cloning:

Producing two or more than two creatures one of which is the copy of the other is called cloning. It has two methods.

(a) Cloning by splitting the egg: It begins from an inseminated egg (i.e. an egg in which the sperm has entered). It divides into two and each one of them begins functioning afresh as if itself it is the Mother cell. Each one of them develops into an embryo. Both of them are quite similar to each other as both of them have come out of the same eggs.

(b)The complete cloning: In this method of cloning, nucleus of an ordinary body cell (instead of sex cell) is inserted in the egg cell from which its nucleus has been extracted. Insertion of nucleus makes it a complete cell. Such egg cell divides and develops into an embryo which is quite similar to the person from whose body the cell was taken.

C. The Discussion:

Detailed discussion and deliberation was done on the medical aspects of this subject in the Seminar, and the under mentioned two bases, upon which the process of cloning depends, were arrived at.

1. The experiment of human cloning was done in 1993 through the method of splitting the egg. A process similar to the naturally induced one in case of the birth of similar twins was generated into an inseminated egg. After the first division of the egg, both these cells start functioning as if it is itself an original egg and passing through the division it becomes a permanent embryo. When both the embryos are inserted inside a womb of a female two offspring similar to each other would be born as both of them are the product of a single egg. This research remained incomplete because both the scientists who were carrying on this experiment did not insert the embryos into the womb. Instead they took a defective cell which did not possess capability to reproduce beyond the initial process of

division. The reason of this deliberate evasion was that experiment on human embryo is a dangerous and sensitive act; therefore, it is necessary to lay down moral and legal codes for this purpose which requires some time.

This session is of the opinion that this method is right as far as the method of insemination is concerned but its benefits or harms can be evaluated only in the coming days. One of the benefits is that the process of diagnoses on one of the two embryos or on its cells is possible. If it is found healthy after diagnosis the embryo may be transferred to the womb. In this way the problems of sterility among women can also be overcome through this technique. All the regulations regarding the test tube baby will be necessary for this technique also.

The seminar extensively deliberated upon the technique adopted in the birth of the sheep named “Dolly”. In this technique the nucleus of a body cell is inserted in an egg, whose nucleus has been taken out, which after a process of division develops into an embryo.

2. It is evident that many harmful consequences would follow if this practice is adopted. Among the problems that crop up the most conspicuous is the loss of personal status, individuality and the distinction of the personality of the new born. The strong social edifice would be demolished. The foundations of relationship, kinship, lineage and family, pedigree would be shaken. These have enjoyed a prominent place in the whole of human history and are considered as the base in relationship of family, society and the individual by Islamic Shariah as well as all other religions of the world. It will cast adverse effects on kinship, marriage, and legacy besides spelling disaster on the social, cultural and penal laws. Apart from these, numerous apprehensions and doubts are being mentioned in this regard.

Participation of a third party in a legitimate conjugal relationship is unlawful in every way; therefore the Seminar excluded such issue from the ambit of discussion.

Some experts of Islamic jurisprudence also threw light on several moral, practical and matters of beliefs relating to cloning.

3. It was also brought to notice that in certain western countries where research and experiments on cloning were being carried on very adverse and worrying reaction have been expressed. Some of these countries have even prohibited the experiments on human cloning. Some countries have prohibited state funding for such experiments while others have stopped them for the time being so that the committee of experts may study the issue so that an appropriate decision may be taken.

In view of these developments this Seminar feels concerned that some influential and wealthy persons and pharmaceutical companies may try to overcome these prohibitions by providing financial assistance to carry out these experiments the third world countries as has been their practice in many other cases in the past.

4. Islam has put no impediments on the freedom of scientific research because this path reveals the traditions of Allah among the human beings. But Islam also orders that this door should not be left wide open in such a way that while bringing the results of scientific researches before the public the restrictions of law be forgotten and the seal of Shariah, which permits the lawful and prohibits the unlawful, may not be put on it. Nothing should be permitted only on the ground that it is practicable. It is imperative for its permission that it should not only be safe from any harm but should also not be against the Shariah. There are some mischiefs, which appear only after the passage of a long time; therefore, all possible enquiries and understanding should be made and no hasty step should be taken.

5. On the basis of the aforementioned points, which were agreed by all the participants, some scholars have opined that human cloning is absolutely unlawful both in *toto* and in parts, while in the opinion of others that the opening should remain as if any present or future conditions may offer some benefits within the bounds of Shariah which may allow some exceptions in some specified situations by deliberating upon them individually on case to case basis.

6. In the present situation human cloning has not been done practically. Perception of benefits and harm keeps changing from time to time. Therefore it will not be correct to say at the moment that the cloning experiments among the plants will remain useful for human beings even after the passage of a few years while this process in animals is still in the initial stage. The most disturbing issue in this regard is the ambiguity of results of the future. Humanity should never forget the lessons of the near past which happened in the field of atomic explosion where many unknown and unexpected terrible consequence appeared after passage of some time. Even the results of the experiments performed on animals and plants will keep on appearing for quite a long time.

7. The Islamic world should not become mute a follower of the western world in the modern biological sciences. Therefore this seminar emphasises that we must have such scientific institutions and centers where researches in accordance to Shariah rules and regulations might be conducted.

8. This seminar does not see any harm in adopting the technique of cloning in animals and plants under some credible regulations.

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Human Cloning

Recommendations of the 10th International Islamic Fiqh Academy Seminar held on 28 June to 3 July 1997 (23to 28 Safar 1417Hj) at Jeddah.

This Academy, in the light of the deliberations on cloning in its 10th. Session, in addition to the details and deliberations of the Medical Fiqhi Conference organized under the aegis of this Academy and the Organisation of Islamic Medical Sciences held at Darul Beha (Morocco) from June14-17, 1997 has reached the following conclusions.

Introduction

Allah has created the human beings in the best form and has exalted him on the highest pedestal of respect. He has said:

“We have honoured the sons of Adam; Provided them with transport on land and sea; given them for sustenance things good and pure; and conferred on them special favours, above a great part of Our Creation”. (Qur’an – 17:70).

Allah bestowed upon man intellect and made him obey His orders and settled him on the earth as His vicegerent and granted him apostleship which is harmonious not only to his disposition but with his very nature. Allah has said:

“So set thou thy face truly to the religion being upright, the nature in which Allah has made mankind: No change (there is) in the work (wrought) By Allah: that is the true Religion”. (Qur’an – 30:30)

Islam has protected the human nature through five universal objects (faith, life, intellect, race, and wealth) and guarded him against any changes spoiling his nature. Whether that changes may be either the cause or the result. This is corroborated by this Hadith which is in the “Sahih Muslim”.

“I created all my creatures honest and upright. The satans come and turn away from their faith....and incite them to bring about changes in my creation”.

Allah gave the human beings all knowledge that he was ignorant of. Addressing the human beings in various verses the Qur’an invites him to reflection, deliberation, debate, and ponder.

“Don’t they see”? “Don’t they deliberate”? “Has the man not seen that We have created him from a drop of semen”? “In it there are signs for those who think”. “In it there are signs for those who have intellect”. “Read (proclaim) in the name of thy Lord and Cherisher who created...”

Islam has put no restrictions on the freedom of scientific research. It reveals the traditions of Allah to the creatures. But Islam also cautions that the door of research should not be left so wide open in a way that while presenting the results of scientific research in the public field the restriction of any law or regulation is altogether omitted and the seal of Shariah’s approval is not fixed on it. This seal permits the lawful and bans anything that is unlawful. Something cannot be permitted simply because it is feasible but it is imperative to see that the knowledge should be beneficial, meant to remedy a harm. Besides, it is also essential to see that it does not impinge upon the human dignity and status and upon the very object of his creation. A human being cannot be subjected to experimentation. Human personality, individuality and identity cannot be tempered with. Neither any fissure can be allowed in the established social structure nor the arrangements of kinship, genealogy, breed, relationship or family lineage as these are continuing under the shadow of the Shariah of Allah and the solid formulation of Islamic law throughout the human history.

A new discovery made in the world of knowledge in the recent times called “Cloning” is echoing through the media. Ruling of Islamic Shariah on this important issue has become imperative, therefore, the details presented by the Muslim

experts and religious scholars and their decisions thereon are being presented below.

Definition of Cloning

It is a well-known fact that according to the tradition of Allah that humanity has come into existence through the mixing of two cells. The nucleus of each of the two contains several chromosomes which are half in number of the chromosomes found in an ordinary cell. When the sperm of the father (husband) meets the egg of the mother (wife), both of them fuse and change into a full egg cell (*Imshakh* or *Laqih*) containing a complete genetic packet and develop into an embryo. The cell contains the power of division. When it is injected into the womb of the mother an offspring is born after the period of gestation by the order of Allah. During this process they increase their number from one to two, two to four, four to eight (all similar to each other) and so increasing their number in this way reach a stage where they separate from each other.

Before this distinctive stage a cell of the mother cell divides into two similar parts from which two twin children may be born. The experiment of artificial separation in the mother cell has been performed on animals resulting in the birth of two offspring similar to each other. But such experiment has not been performed on a human being. It is considered a sort of cloning because a breed similar to each other is produced by it. It is called foetal cloning.

There is another method of producing a creature similar to another. In this method a complete genetic packet is obtained in the shape of a nucleus from any cell of the body and is inserted into the cell of an egg from which its nucleus has been taken out. Both of them become one complete cell, based on a complete genetic packet. They also have the power of division. Now it is inserted into the womb of the mother where it is gestated and by the order of Allah and a complete progeny comes into existence. This sort of cloning is named "nucleus

transfer or the complete cloning. The sheep Dolly was born through this sort of cloning. But the creature born through this method is not similar to its original one because even after taking out the nucleus from the mother's egg some parts of the nucleus remain stuck in the folds of the egg and leave their influence on the qualities formed by the body cell or semantic cell.

Therefore the definition of cloning is process of breeding of one or more living beings through transferring the nucleus of a somatic cell into the nucleus-free egg or by separating the inseminated egg before the beginning of the stage of forming the limbs and cells.

It is no secret that such work cannot be dubbed as creation or participation in creation. Allah has said:

“Or do they assign to Allah partners who have created (anything) as He has created so that the creation seemed to them similar? Say, “Allah is the creator of all things. He is the One the Supreme and Irresistible”. (Qur'an – 13-16)

Allah says: “Do ye then see? The (human seed) that ye emit. Is it ye who create it or are We the Creators? We have decreed Death to be your common lot, and We are not to be frustrated from changing your Forms and creating you (again) in (Forms) that ye know not. And ye certainly know already the first form of creation. Why then do ye not take heed?”. (Qur'an – 56:58-62).

And Allah says, “ Doth not man see that it is We Who created him from sperm? Yet behold! he (stands forth) as an open adversary! And he makes comparisons for Us and forgets his own (origin and) Creation: He says “Who can give life to (dry) bones and decomposed ones (at that)? “Say”, He will give them life Who created them for the first time. For he fully knows all creation! The same Who produces for you fire out of the green tree, when behold! Ye kindle therewith (your own

fires)! Is not He Who created the heavens and earth able to create the like thereof? Yea, indeed! For He is the Creator Supreme, of skill and knowledge (infinite)! Verily when He intends a thing, His command is “Be”, and it is!” (Qur’an – 36:77-82).

He has also said “Man We did create from quintessence (of clay); then We placed him as (a drop of) sperm in a place of rest, firmly fixed; Then we made the sperm into a clot of congealed blood; then of that clot We made a (foetus) lump, then We made out of that lump bones and clothed the bones with flesh, then We developed out of it another creature. So blessed be Allah, the best to create” (Qur’an – 23:12-14).

The following decisions were taken by the Academy after due deliberations in the light of Shariah principles:-

1. The human cloning is unlawful by means of both the methods mentioned here or by any other method adopted for increasing the numbers of human beings.
2. If anything comes into existence in contravention of the above-mentioned decision listed above in Para 1, Shariah orders must be separately obtained for the results of those conditions.
3. The participation of a third person (male or female) in the conjugal relations between a husband and his wife for the purpose of cloning are unlawful in every case and under all conditions whether it is the use of womb or an egg or sperms or body cell.
4. Cloning and other genetic engineering techniques for producing germs, plants, animals and very small creatures is permissible as per the restriction of Shariah imperative of obtaining benefits and removal of harm.
5. Islamic countries should be appealed to enact laws and regulations which restrain regional, national and foreign institutions, scientists and experts from using, directly

or indirectly, the Islamic countries for experimentation of human cloning.

6. Study of the subject of cloning should be continued jointly by the Islamic Fiqh Academy and the Organization of Islamic Medical Sciences. Details of new researches in this field should be obtained; its technical terms should be explained and clarified. Meetings and workshops should be continued for the explanation of related Shariah injunctions.
7. Expert committees consisting of religious scholars and experts be formed to chalk out a code of conduct which may be adopted by Islamic countries regarding researches in the biological sciences.
8. Efforts should be made for the establishment and support of such scientific institutions which may perform researches in the fields of biology and Genetic engineering leaving aside human cloning in accordance to Shariah regulations, so that the Islamic world may not get marginalised these fields.
9. Let Islamic foundations of new scientific researches are provided and the media is invited to look into these problems from the perspective of faith, and avoid anti-Islam outlook. Public opinion should be awakened in such a way that before taking a stand against any problem, stability and dedication be maintained as Allah has said:
“When there comes to them some matter touching (Public) safety or fear, they divulge it. If they had only referred it to the Messenger or to those charged with authority among them, the proper investigators would have known it from them (direct).” (Qur’an – 4:83).



Recommendations of 10th Seminar of Islamic Fiqh Academy (India) On Cloning

Islam has kept the door of knowledge and research open. The matters and affairs which the human being study using the wisdom and knowledge granted to them by Allah are not an invention but only disclosures or discoveries. It is in no way a participation in the act of creation rather it is only an unveiling of the realities of the nature which already exist.

Islam has encouraged every such research which is beneficial for the human beings and advances the five objects of Islamic Shariah i.e. protection of faith, protection of self, protection of breed, protection of intellect, and protection of property, and should not be harmful for them. Keeping in view these propositions and fundamental teachings of Islamic Shariah, the Islamic Fiqh Academy (India) in its meeting held on October 24-27, 1997 at Mumbai deliberated on the issue of cloning keeping in view the resolution of the Islamic Fiqh Academy Jeddah on this issue. While agreeing with the resolution of Islamic Fiqh Academy Jeddah in principle, the seminar passed the following resolution:-

1. Keeping in view the details and methods relating to human cloning as available till date, and the possible dangers of moral and social evils due to such cloning, the human cloning is unlawful through every method.

2. Such cloning in plants and animals which is in the interest of human society and which is not harmful for human beings morally and physically is permissible.
3. This seminar of Islamic Fiqh Academy appeals to the government of India to make such laws which may restrain local and/or foreign research institutions or foreign companies from turning our country into an experimental centre for human cloning.



Recent Information on Cloning

1. Dolly was the most famous sheep in modern times. She was cloned by Dr. Wilmot of Roslyn Institute (Scotland) Dolly was born in February 1997 out of the cell taken from the udder of a six year old sheep. Dolly died of lung congestion in the second week of February 2003 at the age of six years. Her birth got every body wondering about where we were heading on reproductive front. About human cloning Dr. Wilmot has cautioned that the technology which pioneered Dolly would be dangerous to use on humans at the moment. The likelihood is that such attempts would result in many miscarriages and deformities, because the sheep was cloned by nuclear transfer process.
2. On October 1997 Cumulina, the first in a batch of 50 mice was born at University of Hawaii. This technology was believed to be more reliable than Dolly's. Cumulina died of old age two years and seven months later.
3. In November 1998 pair of calves was born in Japan's Ishikawa Prefectural Livestock Research Center by a similar technique as that of Dolly. Scientists think that this technique could be used for breeding cattle strains.

4. Five piglets were born in Virginia (U.S) produced by PPL Therapeutics from an adult sow using a slightly different technique from Dolly's. These were born in 2000.
5. In 2001, Bessie, the cow, gave birth to a wild Indian Ox called gaur. Scientists at Advanced Cell Technology Institute (U.S.A) used nucleus from a guar's skin cell. Noah, the newborn gaur died within hours due to intestinal failure.
6. In 2001 a kitten named CC was cloned by scientists in Texas (U.S.A) using a cell from a cat. But she was not similar to her mother. People now hope that their pets can now be cloned but efforts to clone dogs have so far failed.
7. Several Institutions in America are racing to produce cloned baby. They are (a) Clonaid (b) Raelians (c) The Andrology Institute. Clonaid announced the birth of two cloned human babies on December 26,2002. Dr. Brigitte Boisselier the C.E.O of Clonaid announced that an unnamed woman had given birth to a clone female baby. They named her Eve. Critics demanded evidence of the techniques used in this case. A French science journalist Michael Guillen was chosen as the independent verifier. But on January 6,2003 he backed out from this task as he felt that the entire exercise was an elaborate hoax to garner publicity for the Realians which is the prime force behind Clonaid. The C.E.O has stated before a court in February 2003 that the baby was in Israel. But she has not revealed details of the techniques used to produce the first cloned baby EVE nor of her parents. Meanwhile Clonaid has claimed a second cloned baby was born to a Dutch Realian couple in January 2003. But again no evidence was given for this claim as well.
8. Dr. Antinore became a household name among the infertile couples of America when he helped a 63-year-

old woman give birth to a child in 1994. He is an Italian gynaecologist at Andrology Institute of America in Kentucky. His stated aim is to help people who cannot have a child by any other means. But people are given to understand by scientists that there are unknown dangers of ending up with babies with genetic defects or permanent medical problems.



Cloning as a Cure

Raelians who are a prime force behind Clonaid has announced the birth of Eve on 26th December 2002. This claim is not backed by any evidence till now. Even if their claim turns out to be a hoax cloning has already changed the world. It has further polarized an acrimonious debate over what many thought earlier as unthinkable and impractical. Only an extreme fringe would want to use cloning to make copies of people, and such uses should be banned wherever they are not already. Similarly only an extreme fringe, which includes those who believe in Immaculate Conception, would want to ban therapeutic Cloning. Imagine balancing a cloned ball of cells no bigger than pinprick against a fully-grown thinking feeling human being. But experts say an irrational, ill-informed backlash is threatening to blur the distinction between the two forms of cloning. In therapeutic cloning embryos are created so scientists can mine them from stem cells. These so-called master cells of the body have been hailed as a potential medical breakthrough of the 21st century because of their ability, in theory, to replace damaged tissues. They could one day be used to patch up damaged heart muscle following heart attacks or to form new neurons in the brains of Parkinson and Alzheimer's patients. For diabetics stem cells may be a source of new islet cells in the pancreas. Later perhaps even whole organs might be grown, all free from the threat of tissue

rejection. But therapeutic cloning is also not on the verge of curing a disease or two. It may take five years before the first treatment for a rare condition such as Huntington's disease becomes available.



“My Clone will not be my duplicate self”

The word clone descends from a Greek word referring to a twig. The word as we understand it today is derived from a discovery by British biologist J.B.S Haldane from a study he conducted in 1963. He theorized it would be possible for exact genetic duplicates to be generated from all living organisms including human beings.

Here the question is “Will my clone be actually my copy”? No, and certainly not. The recent research on human genomes has taught us we are more than our genes. CC, the world's first cloned kitty does not look like (exactly) her adult twin. The reason is that she was cloned from a calico cat whose fur pattern is determined by environmental as well as genetic factors. Scientists say personality, even more than coat colour is determined by a combination of genetics and environmental factors that are difficult to control.

There is some misunderstanding about what constitutes a clone. A human clone would be the genetic identical twin, a generation or more younger, of the donor (not the surrogate mother) who provided the nucleus. But because they are more than a product of their genes, a clone would have its own personality, character, intelligence and talents exactly as

identical twins do (who are natural clones stemming from the same egg). You cannot clone a person's brain or mind, and chance factors, the environment, and a person's experiences contribute to individual traits.

This means that even if you want to, you cannot duplicate your identical self. Even if you were to clone yourself several times, you would not be able to create the same person each time because every human life, no matter how it is conceived, is unique. A cloned Hitler would not necessarily grow up to be neither a mass murderer nor a cloned Bush a Muslim-hater war monger nor a twin of Mother Teresa become a humanitarian like her. It is also impossible to copy a deceased family member or a past historical figure through cloning the cells from their corpses, because you need live DNA to make a clone. But human cloning is not going to be an easy task. Thousands of experiment will be done to get only one uncertain result. Animal cloning shows that it usually takes hundreds of eggs to get a single pregnancy. In the case of Dolly the number of eggs was 277. The researchers had begun by attempting to fuse 277 adult sheep cells with an equal number of eggs. This had yielded only 29 embryos which in turn resulted in only 10 pregnant sheep and only one sheep successfully made it to term and delivered Dolly. Given these odds would take not one but at least 29 surrogate mothers to produce one viable human clone. The animal which have been cloned most have severe abnormalities, malfunctioning livers, abnormal blood vessels, heart problems, under-developed lungs, immune system deficiencies and hidden genetic defects. The Japanese team of doctors had cloned twelve male mice. They appeared healthy and gained weight. But the first cloned mouse died only after 311 days and the rest died by about 800 days. Another idea is that human clones could be formed to provide spare body parts for their donors but it will be only in case your clone is willing.



How the Cloning works!

DNA – rich Nucleus from an unfertilized egg is replaced with that of a cell from the person to be cloned.

The rebuilt egg is stimulated through electric current to begin multiplying and form an embryo.

The embryo is then inserted into a surrogate mother. The embryo develops into a foetus.

Having developed from implanted DNA, the baby is a virtual genetic copy of the ‘parent cell’ donor.

The Cell

The DNA Molecules

Human Chromosomes

Dr. Tharian, advisor to the World Health Organisation (WHO), says that the reaction to Israel’s recent claim of the birth of a cloned child got a negative response from the WHO because it was not conducted with the approval of the WHO. He has also said that he is worried about the extremity of cloning because some people want to clone something with experiment between a man and a monkey. If allowed it will create monsters and strange creatures.