

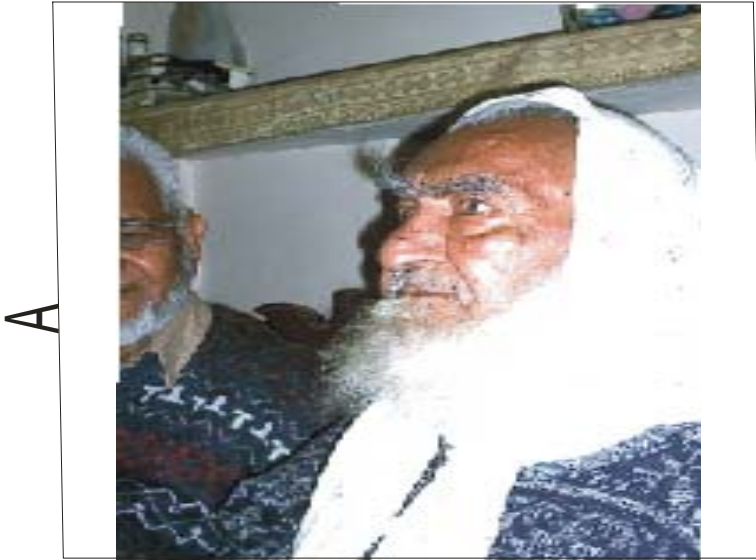
THE CASE OF THE ATOMIC ENERGY IN THE COURT OF LORD JUSTICE SCIENCE.

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**PROCEEDINGS OF THE COURT OF LORD
JUSTICE SCIENCE**

The decision of science against the adoption of atomic energy-for-peace is something which should come as a surprise just as surprising as the fact that the Quran should, predict, describe, and warn against the atomic hell with a view to averting the atomic danger from mankind. Equally surprising will be the declaration that this age was the most ignorant in spite of its proverbially great knowledge. This age indeed may be deemed as ignorant, due to its ignorance of the subject on which were now staked the peace as well as the existence not only of mankind but also of all life on earth. We allude to the subject of nuclear science. Not only that all the knowledge available concerning the subject of nuclear science is too elementary and scanty as yet, the knowledge of that scanty portion too is a rarity. The masses all over the world are utterly ignorant of it. The Non-Scientist Scholars all over the world fare little better. Among the scientist community, the nuclear scientist it is that may be expected to know of this subject, but unfortunately, few among the nuclear scientists are to be found in the world who really know the subject which in itself is proverbially minute, proverbially complex, and one that appears to be functioning in regions beyond human ken and defying with relentless insurgency the efforts of man in affecting perfect control and command. We will try to show the situation in the court of science. There we will see the extent of the present-day knowledge of man about the subject, and there we will see how far the decision of recommending the atomic-energy-for-peace at present in the present situation is hasty,

premature and disastrous. This might be an eye-opener. The case is conducted in the court of Lord Justice Science:-

The spirit of sagacity has filed the suit against the nuclear scientist in the court of the Lord Justice Science and has engaged an advocate. It is an historic case. The galleries of the court are full to the brim, and, beam with the revered, serious and sagacious faces of the scientists of every era of human history, and philosophers from early Greek to the most modern of this age. All occupying their seats according to the order of the era of history and the subject. Faces like *Einstein, Chadwick, Rutherford, Fermi, Madame Curie, Muller, Oppenheimer, Teller*, and many others of the modern atomists and radiobiologists can be recognized. Philosophers like *Socrates, Aristotle, Plato*, among hundreds of others of prime note may also be seen in the company. Yet the two faces that appear most conspicuous among this gathering of the notables are of *Bacon* and *Democritus*. *Darwin* sits with a peculiar air of his own. The worried face of *Bertrand Russell* too could be discerned in a corner. On the whole an air of seriousness, anxiety, and greatness prevails throughout the galleries. In another apartment may be seen the newspapermen to report the sensational proceedings of the case to the impatient, distressed world around.

The Lord Justice Science has taken his seat and the proceedings of the court begin. The Prosecutor-General rises to read the accusations. He is heard to read the following :-

Nuclear Scientists :You are hereby accused in this Augustus Court of the Lord Justice of Science, of

recommending the use of the atomic-energy-for-peace, Without first having full control over so exceptionally dangerous a force, and without first providing the means of protection against the deadly radiations to the millions residing in the neighbourhood of the reactors despite the fact that the reactors may explode any moment inundating the neighbouring districts with the floods of pernicious radiations leaving the unfortunate populations on the mercy of the elements, and without first discovering any sure cure for radiation sickness, or discovering any means of detecting or destroying the genes mutated by radiation, thus throwing the future generations of humanity into grievous jeopardy, and indeed without first obtaining sufficient knowledge of the subject in question, nay even being content with the most meagre knowledge and being overhasty in recommending the use of atomic energy, a force most insurgent and most unusually dangerous to the health, life and well-being of mankind, animal species, and plants all over the world, this honourable court takes the most serious view of your gross violation of the general rules of the methodology of science inspite of your professed allegiance to our Lord the Science. You are charged with the murder of mankind, as the originator and the author of the untold miseries and afflictions and sufferings and the total annihilation of life on earth arising from the long-term effects of atomic radiations, the product of atomic energy, the energy which you now recommend despite your knowledge of the serious hazards incident thereon. The seriousness of the charges is clear. Do you plead guilty to the charges?

The reply of the nuclear Scientist to the charges is as follows:-

“ The truth of the hazards incident upon the adoption of atomic energy could not be denied in the light of the experimental knowledge obtained by the best of authorities. But the adoption of atomic energy we recommend, firstly because of the inevitable necessity of energy; secondly, because we believe that some discoveries might be made during the utility-cum-experiment process that might solve the problem of the hazards of atomic energy. If the accusation be truthful then it is not we, the nuclear scientists that are to be blamed alone, but there is the politician, there is the industrialist and there is the mankind in general to share the blame with the nuclear scientist who is nothing but an instrument in the hands of this present age. Murderers of mankind are the originators of the sufferings of the future generations, we are not, rather we may justly think ourselves as the benefactors of the mankind, and there is the proof in this very world so clear that you cannot miss the mark of material bliss on any thing or any place that you may see yourself the world over. I therefore with a clear conscience plead not guilty to the charges that are laid against me as the nuclear scientist.”

Here the *Lady Nemesis* rises to her feet, and addressing the nuclear scientist cries at the top of her voice:-

“ You may deny the charges now , but if the facts of science are true, and they certainly are true, then a day will come in this very world that these your organs will

themselves be witnesses against you. Your cancer-ridden body and hands and feet, and your skin, your eyes and your eyebrows shall bespeak the truth of the charges laid against you in this court of true justice.”

In response to outburst of the lady Nemesis, the nuclear scientist says nothing, only eyes her piteously. The Lord Justice Science then orders the council of the plaintiff to proceed with cross examination. The Advocate then rises and begins his questions and the nuclear scientist gives his answers. The cross examination of the nuclear scientist by the Advocate:-

ADV: Do you recommend the use of the atomic energy-for-peace in the present situation of the nuclear science as it is, that is without any protection to the masses against radiation inspire of the possibility of the leakage and the explosion of the reactors, and without any sure cure for radiation sickness, and without any understanding of the subject for discovering any cure.

NUCLEAR SCIENTIST: Yes! Of course I do. And I do not only recommend the use of atomic-energy-for-peace, but also I offer my hearty co-operation in the enterprise.

ADV: Why so and wherefore?

N/S: Because the need for the energy is imminent. The means and sources of energy are dwindling and the danger is that if no alternative means of energy are discovered, the world may face economic crisis unprecedented in human history and this mankind may face the worst type of famine. The world demands it and we endeavour to the best of our ability to supply the demand.

ADV: No doubt the sources of energy are dwindling, and no doubt the world demands it, and no doubt you very sincerely try to supply the demand, but do you know that the atomic energy has some very exceptional, very unusual hazards incident upon it?

N / S: Yes, there are some extremely touchy points therein, but we hope to surmount the difficulties in time. As scientists we have to be optimistic and have to maintain the hope of one day being able to make some discoveries that may serve as the remedies of all expected atomic ills.

ADV: Do you agree that radiation in any amount is harmful?

N / S: Yes, I do.

ADV: And those radiations are inherent in the very nature of atomic energy?

N / S: Yes, that is right.

ADV :And that atomic radiation can involve mankind in many and very pernicious diseases like cancer , radiation-sickness , abnormal birth to the extent that this entire life on earth may become extinct after a miserable spell of sufferings in the form of chimeras ?

N / S: As far as the principle is concerned, it is possible. Judging the affair, however, in the present situation of atomic energy and its scantiness in the world, such views may be merely treated as alarmist view. Only a few reactors function all over the world and even the secret genetic effects of radiation that appear in some future generation may be considered well within the margin of safety.

ADV: You do accept the truth of the principle and then you call the view an alarmist view, only because the affair is yet in the beginning and the effects may appear in some future generation which is not as yet born.

N/ S: Yes, no doubt it is a fact, yet we are very optimistic that some discovery will in the course of experiment appear that will solve the tricky problems.

ADV: Do you think this attitude, this optimistic attitude of your's in the particular case of the atomic energy, this hoping in some future discovery that would appear to solve the problem to be very scientific?

N/ S: Whether scientific or not, the circumstances force us to adopt this optimistic attitude.

ADV: Radiation, you say, is harmful to health in any amount whatsoever, and is inherent in the very nature of atomic energy. Have you sought to find any means of protection against it?

N/S: Yes! We have known that the only method of protection against radiation is by completely covering the source of radiation materially.

ADV: Is that all?

N/S: Yes. We do cover every reactor and every other source of radiation completely materially by means of lead or concrete. Thus do we ensure the protection against radiation? Also a sort of radiation-proof dress has been invented, and the employees of the atomic plants are provided with it.

ADV :Indeed, but can you cover with lead or concrete every individual in the neighbouring district of the

exploding reactor or is it possible for them to wear that radiation-proof dress you spoke of ?

N/S: No, of course not. The dress is too inconvenient and could not be worn round the clock from birth to death.

ADV: But are there no reactors leak-proof?

N/S: No. They are not only not leakproof, they begin to leak radiation at times, but they also can explode to inundate the neighbouring districts with the flood of radiations. And the crux of the matter is that every reactor must as a rule finish its natural life of about forty years in explosion, besides occasional disturbances. Recently in America one reactor went out of order and unruly, and the American Government was obliged to evacuate about a million people from the neighbouring district to some safe place, for if they are not evacuated in time, that is within a day or two, the consequences are to be dire. Besides the death and radiation sickness, the danger of the genes mutation is there that would affect some generation in posterity with disastrous results.

ADV: You spoke about gene mutation. What is that and what are its effects?

N/S :Radiation very readily attacks the genes and it mutates them. These mutated genes appear in the form of abnormal births. But these mutated genes secretly move from generation to generation, and then in some generation they manifest their existence in the form of abnormal births. These abnormalities are inheritable, that is they move from generation to generation, that is the monsters beget similar monsters. The abnormalities multiply in forms and numbers through marriage. The number of those involved is

gradually increased, and it may increase to the proportions that may prove disastrous to the entire populations. Full countries may become the asylums for the infirm and sick, who being incapable to continue their existence on earth would be wiped out from its face after a spell of misery and suffering as poor miserable cancer-ridden chimeras.

ADV: If so dangerous be the case what means of protection against the radiation you can or you have provided to the unfortunate people who happen to reside in the neighbourhood of the reactors? Indeed it is certain that you would have looked to this very important point.

N/S: Nothing absolutely. Nothing could possibly be done. It is not possible even to detect the gene mutation. Nor there is anything to be done after the mutated gene has manifested itself in abnormal birth. Such is the nature of the affair. It is not possible to cover every individual in the neighbouring districts or the reactors, and when afterwards the entire earth is covered with the reactors, every individual of the entire mankind, not only mankind, but every species including plants that existed on earth, will be within the reach of radiations as an easy prey, and it is hard to imagine, into what monstrous and what hideous form the species will be changed in time by the genetic effects of radiation. The occurrence of death and radiation sickness and cancers is besides. There are simply no means of protection to be provided to the generality of mankind and the radiation proof dress to which I have presently alluded cannot be possibly worn by the peoples. It is like a huge sack fitted with goggles to see through. It is very difficult to carry on the normal work while such a dress is on. Again it

has as a rule to be worn by every individual on earth round the clock from birth to death like the normal skin without having a chance to change. For there is no time for radiation. It may attack any moment. Even in the bath room. And it is undetectable. In the case of death as a result of the radiation attack, or in the case of radiation sickness, the attack of radiation might be known, but in the case of the radiation attack on the genes, not even a sign will be there throughout the life of the individual in spite of the fact of his genes having been mutated. The radiation-proof dress is not practicable for the general mankind. In case mankind was obliged to wear such a dress, surely they would soon prefer to go without the material boons of atomic energy and cry out against such a dress. Again how to cause every animal and plant to wear the radiation-proof dress.

ADV: That means the mankind and all the creation of God on earth is being treated as guinea pigs in a most disastrous, universal experiment.

N/S: It indeed sounds very evil. Yet we have to take it as the lesser evil. The greater evil being the fear of the industrial breakdown and the consequent famine.

ADV : The atomic energy may then be treated as the greater evil than the expected famine caused by the breakdown of the industrial set up. But let us proceed on our topic. You have described a harrowing tale of the radio-genetic effects. Can you do anything to avoid or to avert the danger?

N/S: No. Absolutely nothing could be done in this respect. There are no means to detect or to destroy the mutated

genes. And nothing could be done when afterwards they have manifested themselves in the form of abnormal births or even thereafter.

ADV: It indeed is grievous to hear all this. It is horrible enough to cause one's hair to stand on end.

N/S : Indeed horrible enough to cause shudders.

ADV: Do you still insist on recommending the use of atomic-energy-for-peace?

N/S: Yes. I do. For we think a certain proportion of a population may be allowed to be involved in the abnormality brought about by radiation and other horrific radiation hazards with the sense of safety for the rest of population.

ADV: But if this proportion begins to increase and exceed the appointed limits of safety, can you do anything at all to prevent the further growth?

N/S: No. Nothing at present, but may be in future in the course of the continuing experiment we come across some new discovery that may provide us with the desired remedy.

ADV: Is this a scientist we are listening to? Supposing no discovery came before radiation has done its insidious work?

N/S: No. That is not like that. Something at some stage might appear to save the situation. We ought to be optimistic.

ADV: Do you believe in miracles?

N/S: No. That is unscientific to believe in miracles.

ADV: To believe in a miracle is better than believing in the possibility of any discovery in nuclear science such as may

prove to be the remedy of the nuclear ills judging from the particular nature of nuclear science and the particular nature of the nuclear experiment. Are you sure that some discovery will come at some time?

N/S: No. There is no surety. It just depends.

ADV: Is it not better then for the nuclear scientist to leave the actual utility of the atomic energy and resort to the laboratory and there make experimentation till the discovery is made, and the question of protection against radiation is solved, and sure cure for radiation sickness is discovered, and then thereafter only to allow the adoption of the atomic energy for practical purposes?

N/S: The course you have suggested is right and proper. But there are difficulties. Firstly that the necessity of the energy is urgent. Secondly that the particular nature of the experiment of atomic radiation warrants the actual inclusion of the very species (human beings) in the experiment. The results derived from the guinea pigs may or may not be applicable to other species, and thus there is the possibility of a dire mistake. Thirdly that the experiment of nuclear science requires the lapse of generations before the actual results are obtained.

ADV: That is why the human species is being treated as guinea pigs in the experiment of adopting the atomic energy then.

N/S: Precisely.

ADV: You know that the long-term effects of radiations may prove ruinous to mankind and the entire life on earth. And you say that generations are required to lapse before the actual results of the nuclear experiment appear. Then in

case by the time the results have appeared in some future generations , is not there the possibility that the health of mankind would have been by then irreparably impaired , so that even if after that atomic energy is abolished, that would be of no avail ?

N / S: That is right.

ADV: Then allow me to call it the suicidal experimentation and not simply the experiment of science, this adoption of atomic energy.

N / S: No. That is not that. Optimism is the rule of the scientist. We hope for the best.

ADV: There are exceptions everywhere in the world, and this case of the atomic energy may well be taken as exception in the realm of science. Your optimism in the case of nuclear science may be called the optimism of improbability, indeed a folly.

N / S: The nuclear scientist is a scientist and not a philosopher.

ADV: Our demand from you is not of philosophy but of science. We request you to assume scientific attitude. Nor the philosophy is the name of wishful or whimsical dreaming only. The philosopher has to assume the scientific mode of thinking. Your unscientific optimism will damn this world surely.

N / S: Let us proceed with the actual topic.

ADV: You have prescribed a permissible dose of radiation.

N / S: Yes.

ADV: Are you sure about the correctness of that amount?

N / S: No. There is no certainty about the correctness of the dose.

ADV: Is there any danger if the amount prescribed is not correct?

N / S: Yes in case the amount prescribed is in excess of the actual tolerable amount, then considerable damage to health and life of mankind could be anticipated.

ADV: Do you still insist on the adoption of the atomic-energy-for-peace?

N / S: Yes. I think I do. Continuous experimentation is the rule of science, and this we will carry on.

ADV: In spite of the exceptional situation of atomic energy?

N / S: Yes, of course, we are bound. The rule is the rule.

ADV: Have you ever imagined the state of the future world of full-fledged atomic energy with thousands of reactors, and the earth covered with the net of radiations, and converted into an asylum?

N / S: As far as the imagination is concerned; I certainly can view the future state of the world with its full-fledged atomic energy. Yet to reach to that state, experimenting continually is our business. The affair will be dealt with in a practical, matter of fact manner.

ADV: Have you ever thought of the miseries, sufferings, afflictions, diseases which will have their origin in the atomic energy. Have you ever shuddered over that, or have you ever shed a tear over that state, or have you ever thought of your share in all that as the discoverer and the promotor of the atomic energy. All the benefits and boons of science and the scientist will then be swallowed by the miseries created by science and the scientist.

N / S: By that time some discovery might have been made to solve the problems.

ADV: The discovery already is there that can within moments solve all the problems of mankind.

N / S: What's that?

ADV: The nuclear bomb.

N / S: That is up to men not to apply that method.

ADV: How the radioactive residue of the atomic plants is faring?

N / S: Oh. That is pretty nuisance. Do what we may with it, bury inland, bury beneath the sea, bury anywhere, it certainly will show its nefarious effects.

ADV: That is good example for you to take a lesson from.

N / S: Necessity over-rules the lessons and blurs every sentiment.

ADV: You have confessed complete helplessness in the case of radioactive residue and you have no safe place on earth for dumping that irresistible and insurgent stuff, and you are obliged to carry that to the moon but a moony could dream of doing that, and the poor earth it is and its inhabitants that will have to suffer from that obnoxious issue. You have confessed your complete helplessness in providing protection to the neighbouring millions of atomic reactors. And you have confessed your helplessness in detecting the mutated genes or destroying them, or doing anything after they have begun to manifest their existence in the form of abnormal births. Now pray tell us your position in the case of somatic effects that is the bodily effects of radiation.

N/S :Excepting cancer which we can destroy with radiation, and that does not mean cure, we are absolutely helpless in the case of radiation sickness, or the blindness which is produced by certain radiations. No sure cure for radiation sickness has as yet been discovered, nor any such cure is in sight. Nothing can be done to avoid or to cure the injury caused by radiation. When the cell has once been attacked by radiation, whether the cell is killed or mutilated or whether it survives, is a question of its own ability and the lethal efficacy of the radiation. Man is helpless in the conflict and has no power to affect the response of the cell to radiation. No therapeutic measure hitherto has been of any avail in case of radiation sickness. As far as cancer is concerned, we can destroy its cells by radiation, but cannot cure it in the proper sense of the word: cure. But the crux of the matter is that radiation is a double edged sword. It can destroy cancer as well as create cancer.

ADV: A strange summary indeed and a strange conclusion. Radiation inherent in the nature of the atomic energy, and capable of bringing untold miseries to the world and rendering all life on earth extinct after a spell of miserable existence. The control of men over it next only to nothing. The leakage as well as the explosion of the atomic energy reactor being a possibility and the consequent flooding of the neighbouring districts containing millions of people with deadly radiation a certainty , and the arrangements for the protection of the unfortunate neighbours of the exploded reactor against the radiation nil. Radiation sickness is the sure result of the exposure to radiation, and any sure cure for radiation sickness unavailable, nor any

sign of any discovery of such a cure in sight. Radiation mutating the genes with dire consequences to future generations of man, animals, and plants, and no means at all either to detect the mutated genes, or to destroy them. The mutated genes to make their existence manifest in some future generation in the form of abnormal births, and nothing there to prevent or to cure the malady. Species to be changed due to the mutated genes into miserable chimeras on their way to extinction and no control of man over the situation, and nothing to do but to suffer and perish. The danger of the atomic war associated with the presence of atomic-energy-for-peace and the scientist content with merely avoiding the mention of the atomic weapons as a sign of inherent disgust with the subject. Judging the nuclear scientist as a man of sense and one endowed with the sense of great responsibility he bears, to what his complacent and over-optimistic attitude towards atomic energy be attributed other than the darkness impressed upon the eye by the impelling influence of the three causes of the appearance of the atomic hell pointed out by the Holy Scripture, that now compel the mankind towards the grievous doom of atomic bombs and the atomic radiation.

N/S: The nuclear scientist is obliged by the rules of research and experimentation to continue and to carry on the experiment to its scientific end. If the fears that you have entertained and expressed in the discussion be treated by the scientists in the same manner as you have done, then all research and experimentation and consequently the progress would come to an end, and there you can see the

results of such an attitude on the part of the scientist. Optimism has to be our rule. It is simply impossible for us to think otherwise. If the scientists suffer in the course of a research and experimentation, they take it in the spirit of sacrifice for mankind. The sailor cannot abandon the ship to the storm.

ADV: Alas then, it appears that you will give no attention to the proposition of taking the atomic energy as an exceptional case.

N / S: The methodology of experimentation in the realm of science entertains no such idea as the exception of anything. All the universe is controlled by the same laws and everything has to be taken on the same level.

ADV: This then is the example of compound ignorance and hence incurable. The subject of nuclear science has done damage to the cells of thought in human brain, and the damage which the nuclear science has done to the cells of human brain appears irreparable and irreversible as is the case of the damage done to the genes by the atomic radiation.

N / S: This is philosophy and the scientist is not at all concerned with philosophy. Experimentation, practical, material experimentation is our business and anyone who has conversation with the scientist ought as a rule to keep to the scientific side of the problem and must not diverge onto the philosophical implications.

ADV: Only if the nuclear radiations too would be convinced by your argument and leave off their habit of stinging the people with deadly rays. Let us, however,

revert to science. Has any key discovery, hitherto been made in radiobiology?

N / S: Clues are there, indeed numerous, but the key discoveries have yet to be made.

ADV: It sounds strange, when seen against your recommendation of the use of the atomic energy in which radiation is as an inherent factor and indeed very deadly one. But tell us, if anything is known as yet of the details of the fine structure of the nucleus of the cell in the resting stage?

N / S: Nothing as yet.

ADV: Is the division of function between cytoplasm and nucleus clear cut?

N / S: No. It is not, and there is considerable evidence for the presence of some genetic factors in the cytoplasm while a considerable amount of synthesis of structural material also occurs in the nucleus.

ADV: Which of the two current hypotheses about the chromosome breaks is correct?

N / S: None, and a theory will have to be evolved which incorporates the features of both.

ADV: Is the nature of the injury which holds up the normal cell cycle for a time known?

N / S: No.

ADV: Is the mechanism by which Enzymes can cause specific chemical reaction to take place understood?

N / S: No.

ADV: Have the chemists understood the reaction that takes place in the synthesis of protection from amino acids?

N / S: No. It has so far defied the ingenuity of the chemists.

ADV: Has any convincing reason been put forward to explain why there are tremendous variations between different cells in their response to radiations?

N / S: No. None.

ADV: Is it possible then to base radio-therapy of cancer or methods of protection against radiation on a reliable foundation?

N / S: No. It is not possible. It is a measure of difficulty and complexity of the subject that not even a tentative answer can be given to the question. The key problem of cancer research is : What stimuli cause a cell to stop dividing when an organ reaches a correct size, and to repair damage after injury?

ADV: Is the mechanism by which radiation eradicates the tumours quite simple?

N / S: No. It is extremely complex.

ADV :Is the way in which tumour cells are killed or sterilized fully understood?

N / S: No.

ADV: Can as yet all the stages between the passage of radiation through the irradiated organs and the final injury be followed?

N / S: No.

ADV: Is it easy to predict the course and outcome of radiation treatment?

N / S: No. It is difficult.

ADV: The most obvious effect of radiation on cell is death, yet is it easy to define even this drastic change for the individual cell?

N / S: No. It is far from easy.

ADV: Can any complete explanation be given for the paradox that although the pathological changes from whole body irradiation are diffused and ill-defined, yet death occurs with remarkable regularity?

N / S: No. This is a sort of a mystery which of all the various kinds of poisons is a peculiarly distinctive characteristic of atomic radiation.

ADV: Well, this may be taken as an argument for the encompassing trait of atomic energy, but can the symptoms of acute radiation sickness tell anything about the cause of death?

N / S: The symptoms of acute radiation sickness can be summarized but they tell us little about the cause of death. If a pathologist carries out a postmortem examination on a mammal which has succumbed after a radiation dose of a few hundred roentgens, he would find it very difficult to pinpoint death to failure of a particular organ.

ADV: Has any treatment yet been found which applied after irradiation can reduce the number of mutations ? Is recovery possible from mutation?

N / S: No. No treatment has yet been found which applied sometime after irradiation, can reduce the number of mutations since no recovery is possible from mutation, no post irradiation treatment would be expected to restore a mutation. Even that little which has been discovered to be of some effect before irradiation can be considered of little practical use due to the insidious nature of radiation.

ADV: Has any treatment been found for radiation sickness? Or is there any sign at present of such a discovery?

N / S :None.

ADV: Has anything been found to detect, or destroy the mutated gene?

N / S :No. Nothing.

ADV: Has any real cure been found for cancer?

N/S :No real cure for cancer. Only the cancer cells are destroyed by radiation.

ADV: Can the chemicals protect against the long-term effects of radiation?

N/S: No answer can be given to the question, whether chemical can protect against the long-term effects of radiation. Technical difficulties make it extremely hard to measure accurately the mutations produced in mammals.

ADV: How is it that a dose of radiation sufficient to kill or visibly injure a cell represents such a minute amount of energy that it could only affect a very few molecules, a change totally insufficient to bring about the pronounced biological effects directly?

N / S : It is not known, and it in fact is a challenge to the scientists.

ADV: Has any effective substance against radiation effect has been found?

N/S: It is both a disappointment and surprise that no effective substance against radiation effect has been found.

ADV: Would to God, that your sentiment of astonishment and surprise in so important a matter touch your faculty of thought regarding your attitude in case of the recommendation of the use of the atomic energy and cause you to pause and think of your recommendation before finding answers to all such questions, and find enough

patience to wait till full control over the subject of nuclear science has been achieved. This dialogue that has gone between you and me has shown the poverty of man's knowledge of the subject of radiobiology at present. Though I am not unaware of the sufficiency of the available knowledge of this subject. It indeed is great and is the result of admirable exertions of the concerned scientists who have toiled and laboured day in day out, and their painstaking have been mingled with great ingenuity and appreciable intelligence. Great geniuses all. Judging from the extreme difficulty and complexity of the subject of their findings deserve real admiration , and are sufficient to recommend a stoppage of the adoption of atomic energy till further discoveries that ensured safety from radiation effects are made. The nature of the subject is such that they have to go a long way as yet before issuing recommendations of the adoption of the atomic energy. Their hasty conclusions are sure to subject the world to ruin. What urgently is desired is the realization of the fact that the margin now left is too short to allow a long-term investigation. Instantaneous recoil from the brim of atomic hell is that which is expedient.

And now my Lord Science! I bring my cross examination of the nuclear scientist to its end. Surely in the light of that which has passed between us, the reality which has come to light without any doubt, is that the recommendation of the adoption of atomic energy before achieving full control on the subject, and providing safeguards against the effects of radiation means to throw this world right into the blazing hell of atomic energy without any protection. The decision

of recommendation on the part of anyone is erroneous, hasty, unjustifiable and ruinous, and therefore is liable to impeachment, conviction and sentence. The knowledge of the nuclear scientist in the field of nuclear science is as yet too meager, his control on the nuclear phenomena too little, and the subject of the atomic energy is one that is fraught with dangers, hazard and implications of so unusual and so unknown a kind, that only if the mankind in general could realize the true picture thereof, and could have but a glimpse of the disasters, catastrophes, destructions, diseases, miseries, sufferings, untold and unknown, unusual and unique, this mankind would run off with hysterical shrieks, Germans before English, English before Americans, Americans before French, French before Italians, Italians before Yugoslavs, running and cursing, cursing and running and reprobating and damning the atomic energy as well as its makers, under terrifying guffaws of the ghost of the Hiroshimians and Nagasakians. My Lord Science, it is thus by adopting the atomic-energy-for-peace without first having the full control over the natural force involved, and particularly the atomic energy, that the general rule of the methodology of science that science could be used for construction as well as destruction is being thrown into jeopardy, for, the result of this hasty adoption of the atomic energy is going to be nothing but destruction, the initial construction being swallowed by the subsequent damages to final ruin. This attitude of the nuclear scientist therefore could well be marked as a gross violation of the established rules and

regulations of science whose allegiance he hitherto has claimed to have professed with all his heart.

My Lord Science! The nuclear scientist has more than once asserted his sense of optimism and has always declared it as a necessary element in the course of scientific research and experimentation. The reason for his optimism appears to be in the fact that this present generation unless involved in atomic warfare, would pass away without suffering the damage of the radiation and enjoying only its fruits. A cancer-ridden community of nuclear scientists would perhaps renounce such optimism. It is a lamentable fact that a generation would leave so much debt of genetic load, a debt that is to be paid by their own posterity, their own blood and their own kin. And lastly, your Lordship is requested to give a decree that let the practice of adoption of atomic energy for practical purposes cease forthwith at pain of death, and let not the adoption of atomic energy be undertaken until full control of the subject has been achieved, until every single individual human being, animal and plant is afforded full and complete protection against radiation. Anyone violating this edict should be charged with the murder of humanity and every living thing on earth and the plants. If , then it is found impossible to comply with the conditions set above , then let the case of the atomic energy be dropped from the book of science for ever , for ever for the sake of humanity.

SCIENCE GIVES THE DECISION

The Lord Justice Science rises to give judgment and thus prevails. The Lord Justice Science then reads his decision as follows:-

“The ability of the counsel, and the honesty and the ability of the nuclear scientist have saved this court a lot of bickering and haranguing. The case has been conducted in a most amiable and genial atmosphere. We have a reason to express our satisfaction at the honest and complacent attitude of our votary the scientist. As far as the case is concerned, it is clear, and so is the decision of this court. Let the practice of the adoption of the atomic energy for practical purposes cease forthwith at the express command of this court. Let the nuclear scientist resort to the laboratory for experimentation. Utility-cum-experimentation method of nuclear scientist cannot be allowed in the case of nuclear energy. Mankind cannot be allowed to be made as the accessories of the nuclear experiment, as guinea pigs, for, the result of the nuclear experiment might prove dire and the losses irreparable and damages irreversible. Let all the stock piles of the atomic weapons be destroyed forthwith and let no true scientist cooperate in the making of deadly monsters used for no other purpose than the destruction of the life and property acquired after such toil and labour, and so highly prized by its owners. The proposition of abandoning the plan of atomic energy for ever is also not out of question. If the scientist at any stage thinks the plan as unfeasible, let him declare it so, and sooner the better due to the particular hazardous nature of atomic energy. Radiation due to its long-term genetic effects is the dread fullest thing worth avoiding.

The court adjourned and there stood someone on the gate. He offered every out coming personality a leaf of paper. A mere fragment like the DE RARUM NATURA. The following writing was recorded therein :-



“ Woe to every backbiter , defamer , who amasseth wealth (of this world) and arrangeth it (against the future) . He thinketh that his wealth shall render him immortal . Nay , for verily he will be cast into *AL-HOTAMA* . And what could teach thee what *AL-HOTAMA* is? It is fire of Allah enkindled , which leapeth up onto the hearts . It is (a fire) closed in on them in outstretched columns ” . (Quran - CIV - Al -Hotama)

Desirable reaction of the scientist to the decision of science

Now let the top scientists of the world call a conference and there declare in the clearest of terms the following to the entire world :-

“We, the scientists of the world declare to mankind that, we had been the victims of grievous misunderstandings. We now fully understand the nature of our nuclear experiment. We solemnly confess that we have done the greatest wrong to humanity in our blind zeal and ill-applied enthusiasm. And now let this be known that to provide all the millions

with means of protection against radiation is in no way feasible and certainly all the millions are in danger of ill-effects of radiations, particularly in the case of expanding atomic energy. It is not even in the power of the most industrialized countries to cope with the problems of radiation. As far as the genetic effects of radiations are concerned, man is completely helpless while such effects constitute great hazards that can destroy all life on earth after a span of untold miseries. And as far as the control on atomic radiation is concerned, it has to be treated as impossible. The reactions of nuclear energy as the name implies are localized in nuclear regions, the regions that are too minute and too remote from any easy control of man. At present it appears not very possible that man will ever be able to have full control or full knowledge of nuclear reactions of atomic energy. And until this is achieved, it is naturally impossible that either any means or methods of protection against the atomic radiations will be found, or any sure cures for radiation sickness etc will be discovered. Due to these difficulties and indeed innumerable others already existing and swiftly increasing, we most solemnly and indeed honestly declare the atomic energy programme of entire world as dropped and banished and sealed forever as impossibility and as only the means of destruction without any attempt on ever reviving it anywhere. This has to be treated as a will, to be respected by the posterity that may any time be tempted to resume it under the pressure of economic or industrial necessities. We, scientists, have at this very moment our hands off the atomic energy. Any scientist disobeying this decision will be severely treated

and the Governments of the Common wealth of Nations are requested to issue instantaneous and strongest edicts forbidding the adoption of atomic energy for any purpose whatsoever. Let the scientist community try to wipe off the blood of humanity from their hands before they begin to appear as an abomination in the sight of a mankind caught in inspeakable miseries brought about by the discoveries of the scientists, and let the scientists now cease to act as the instruments of the ambitious but ignorant and unjust people in the world. The same or nearly the same would have been expected from the great atomists that have died and left this world. A very little margin is now left and let the opportunity be availed in full before the die is cast. At most a scientist may be allowed to carry on his nuclear experimentation in a laboratory, and not beyond that. But there is no hope of any good results. It is now fully known without any doubt that the atomic radiations will never accept the control of man, nor will man be ever able to provide the means of protection against radiation to every individual human, animal, plant in the world. It is ruinous to ignore both short-term and long-term effects of radiation, the genetic effects in particular".

The End

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