Jawaharlal Nehru as a Scientific Humanist

5. Jawaharlal Nehru as a Scientific Humanist

Jawaharlal Nehru was a leader with great concern for man. The supreme secret of his success was that every cell of his soul was humanism writ large. He urged the people of India to recondition their mind, equipping themselves to face the problems of the present and with a perspective on the future, and openly advocated a modified path for future India. The advancement of science and technology is one of the distinguishing features of our time. Nehru insisted on science because he believed that it was the only way by which we could transform our country. He was convinced that India’s progress and prosperity in all fronts lay in the establishment of vast and firm scientific base. He considered science as a method of using various kinds of powers to better the lot of human beings.

Pt. Nehru maintained his faith in a bright future which emerged from his philosophical self analysis, faith in science and faith in man’s capacity to march upwards to a better life. This great humanist who was passionately interested in the welfare of man stated that "a living philosophy must answer the problems of today." Scientific Humanism, according to him, was this living philosophy and

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1 Jawaharlal Nehru. ‘The Discovery of India’ (New Delhi: Jawaharlal Nehru Memorial Fund, 1982) p.31.
he made it the basic faith and creed of his life. Nehru classed the highest ideals of the age under two heads, of humanism and the scientific spirit. "Between these two there has been an apparent conflict but .... There is a growing synthesis between humanism and the scientific spirit, resulting in a kind of scientific humanism." Through this synthesis he wanted to free humanism from the abstractness of and influence of religion, and to strengthen it by its union with science.

The relevance of Jawaharlal Nehru lies not only in what he did in the field of political structuring, creation of nation-state in India and his contribution towards national integration, but also in the special attention he paid to the growth and development of science and technology. As the first Prime Minister of free India the greatest responsibility Nehru had to carry on his shoulders was to take India on the path of development and prosperity. He had a deep appreciation and special concern for science and wanted to apply it for human welfare. He saw science as the vehicle of progress which could transform society without any violence and as a great force for the betterment of mankind. "It is the scientific method alone", he insisted, "that offers hope to mankind and

Ibid. p.558.
bring about an end to the agony of the world."³ This clearly shows Nehru's profound belief in the power of science and scientific method.

Nehru realized that we would not progress without the help of science and technology and so he welcomed their revolutionary impact. In Discovery of India he noted, "the methods and approach of science have revolutionized human life more than anything else in the long course of history and have opened doors and avenues of further and even more radical change, leading up to the very portals of what has long been considered the unknown"⁴ Science, for Nehru, was an essential and basic component of development and progress. He was convinced that if we wanted to compensate the centuries of backwardness, the only way was to develop science and technology. It was clear that without modernizing our methods of production, we could never produce enough to get rid of our poverty". He observed at a Public meeting in Bangalore in 1962, "Poverty has ceased to be inevitable now, because of


⁴ Jawaharlal Nehru, 'The Discovery of India' (New Delhi: Jawaharlal Nehru Memorial Fund, 1987), p.31.
science ........ there is no other way than to modernize India in methods of production. We have to absorb the spirit of science in India.\textsuperscript{5}

Nehru was engaged in the difficult task of creating a modern nation state out of a religio-cultural entity called India, So he was eager and anxious to change the outlook of India through the application of scientific methods and thus wanted to give her a garb of modernity. However, despite his modernity, Nehru did not forget the rich, resonant and vibrant spiritual tradition of India. He wanted us to be proud of our ancient heritage and reminded us always that without it we would become rootless. Though he was a modernist, there was also something of the traditionalist in him. "We can never forget the ideals that have moved our race, the dreams of the Indian people through the ages, the wisdom of the ancients, the buoyant energy and love of life and nature of our forefathers, their spirit of curiosity and mental adventure........ We will never forget them or cease to take pride in that noble heritage of ours. If India forgets them, she will no longer remain India ........."\textsuperscript{6} Nehru was thus one of the first to realise that the future greatness of India lay in the harmonious fusion of the ancient values of India with all that was best in modern civilization. He


\textsuperscript{6} Jawaharlal Nehru. 'The Discovery of India'. (New Delhi: Jawaharlal Nehru Memorial Fund, 1982), p.509.
emphasized that Indian people should remain attached to their ancient heritage while making advances in the process of modernization through science and technology. According to him, future should be built on the foundations laid in the past.

Though Nehru stood for industrial progress through the application of science and technology, he always insisted that scientific temper should be one of tolerance. In the Inaugral Address at the 44th session of Indian Science Congress in 1957, Nehru said, "The message of Buddha, was a part from its religious significance, a message of tolerance......... It was a message essentially in the scientific spirit. He asked no man to believe anything except what he could prove by experiment and trial. All he asked man was to seek truth and not to accept anything by the word of another even though he might be Buddha. That seems to me the essence of Buddha's message and, of course, tolerance and compassion, and it struck me that the message far from being out of date has a peculair significance in this world of ours, even today."\(^7\) Again in the 50th session of the Indian Science Congress he added "And therefore I hope that science as it goes ahead will also encourage tolerance and compassion. Then it comes into line with the thinking of great men of old and the thinking of

\(^7\) Baldev Singh, ed. 'Jawaharlal Nehru on Science: Speeches delivered at the annual sessions of the Indian Science Congress' (New Delhi: Nehru Memorial Museum and Library, 1986), p.55.
the modern age which, if it is fitted into the thinking of the old age will produce wonderful results."\(^8\)

Jawaharlal Nehru was greatly attracted by the questions regarding man - human nature, human affairs and human interests. His knowledge of science and his search for truth made him retain an unqualified faith in man "God we may deny, but what hope is there for us if we deny man and thus reduce everything to futility?"\(^9\) asked Nehru in The Discovery of India. Thus, he looked at man with almost the same devotion which is associated with faith. The spirit in man attracted Nehru most. This is clearly expressed when he stated "How amazing is this spirit of man! Inspite of innumerable failings, man, throughout the ages, has sacrificed his life and all he held dear for an ideal, for truth, for faith, for country and honour. That ideal may change, but that capacity for self-sacrifice continues, and, because of that, much may be forgiven to man, and it is impossible to lose hope for him. In the midst of disaster, he has not lost his dignity or faith in the values he cherished."\(^10\)

While advocating the retention of what is best and constructive in India’s ancient tradition and culture, Nehru fought against the hegemony of religious

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\(^8\) Ibid. p.90.

\(^9\) Jawaharlal Nehru. ‘The Discovery of India’ (New Delhi: Jawaharlal Nehru Memorial Fund, 1982), p.468.

\(^10\) Ibid., p.33.
dogma, mysticism and orthodoxy as they were forces causing obstruction to the progress and development of the country. He directed his humanism against the orthodoxies of a modern state, because it attempted to subordinate the individual to vague political beliefs. His humanistic approach to life directed all his thoughts and actions to work for the welfare of the common people. He was well known for his faith in the freedom and welfare of the individual. His faith in a bright future for man emerged from his faith in science and in man's upward march to a better life through it. He made it clear that "Science does answer more and more questions, and help us to understand life, and thus enables us, if we will but take advantage of it, to live a better life, directed to a purpose worth having. It illuminates the dark corners of life and makes us face reality instead of the vague confusion of unreason."\textsuperscript{11} Science, for him, meant an approach to all life's problems. It is to be applied to the problems relating to our family, religion, and everything else. He affirmed, "In the solution of these problems, the way of observation and precise knowledge and deliberate reasoning, according to the method of science, must be followed........ A living philosophy must answer the problems of to-day."\textsuperscript{12} Science is the very texture of life today. So Nehru

\textsuperscript{11} Jawaharlal Nehru: 'Glimpses of World History' (New Delhi: Jawaharlal Nehru Memorial Fund, 1995) p.870.

\textsuperscript{12} Jawaharlal Nehru: 'The Discovery of India' (New Delhi: Jawaharlal Nehru Memorial Fund, 1982) p.31.
insisted that if we wanted to solve our problems we should approach them in a scientific and rational way.

Obviously, Panditji was primarily interested in the material welfare of the people, i.e., in the eradication of want and poverty by the application of science. He was convinced that science alone could solve the problems of hunger and poverty, of insanitation and illiteracy, of superstition and deadening customs and traditions. Emphasising the positive role of science, he said in the 46th session of Indian Science Congress, "We have this magnificent and majestic sweep of science advancing onwards. For the first time in human history, mankind has the capacity and power to get rid of physical ills that the humanity suffers from, to bring about a measure of welfare to all the thousands and millions of inhabitants which nobody could dream of previously...."13 So for all people of all countries, the application of science has become a necessity.

Science has made great progress in the West and raised the standard of living in some countries to astounding heights. The material progress of the developed countries has given the developing countries the hope that they can also make quick progress by using the methods of science and technology appropriate to their needs. So Nehru from the very beginning itself recognised

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the supreme importance of science and technology for the modernization of Indian Society. Nehru's great zeal for science and technology could be seen from his expression that "Whenever chance offers I say something about the importance of science and technology, and we should realise that modern life is an offspring of science and technology." So he insisted that a scientific approach should be accepted as a way of life. According to him, this was absolutely necessary to build the foundation of modern India. He firmly believed that national progress could not be achieved by ancient methods. New patterns must be developed and integrated with the old. He wrote "I am a socialist because I feel that socialism is a scientific approach to world's problems..... Therefore, I would like you to consider the various cultural and other problems and apply the scientific approach to your personal life ....."  

Nehru wanted to use science and technology as an instrument to free Indian mind from the shackles of prejudice and superstition and for this reason he emphasized the need of developing among our people a scientific temper. He emphasized the necessity of impressing upon the common man the need for scientific progress, because he knew that ultimately in a democracy, it would be

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the public opinion that will prevail. He explicitly stated: "It is the scientific
approach, the adventurous and yet critical temper of science, the search for
truth and new knowledge, the refusal to accept anything without testing and
trail, the capacity to change previous conclusions in the face of new evidence,
the reliance on observed fact and not on pre-conceived theory, the hard
discipline of the mind - all this is necessary, not merely for the application of
science but for itself and the solution of its many problems......... The scientific
approach and temper are, or should be, a way of life, a process of thinking, a
method of acting and associating with our fellowmen." 16

Nehru saw the social consequences of science rather than the simple
application of scientific knowledge to individual problems. This larger view of
the impact of science on society he usually referred to as the scientific way of
looking at things or 'the scientific temper', which he hoped would permeate all
aspects of Indian society. This led him to conclude that "some elementary
scientific training......... is essential for all boys and girls. Only thus they can
understand and fit into the modern world and develop to some extent at least,
the scientific temper." 17 He wanted this training in the scientific attitude and
outlook to begin from the stage of primary education itself. That was the only

16 Jawaharlal Nehru: 'The Discovery of India' (New Delhi: Jawaharlal Nehru

17 Ibid. p.330.
way to purify and strengthen the rational and spiritual heritage of our country. So Nehru felt that science should be an essential part of education. In his address to the golden jubilee session of the Indian Science Congress in Delhi in 1963, he remarked "I do believe that teaching should be oriented more and more towards science, though by that I do not mean that humanities should suffer at all."  

Panditji wanted science and scientific attitude to be brought to bear on the burning issues of the day. With the inputs he got from the meetings with scientists, he wanted to carry the spirit of true science to the people, who had little or no knowledge about science. This was the true implication of his constant references to the scientific temper. While the people in India had begun to realize the importance of science, he thought that, there were many who do not realize the necessity of scientific research. He wanted scientists to impress upon the common people about it and to make them aware of it. Thus Nehru wanted to draw science and scientists closer to the common people, and also to bring them and their problems closer to the scientists.

Nehru realized that science was not something to be restricted to an elite practicing scientific community, but that it should permeate all levels of society.

Jawaharlal Nehru puts this extremely well when he said that, "science is not a matter merely of looking at test tubes and mixing different gases and producing things big or small or gadgets. Science, ultimately is a way of training the minds and the mind's working and their whole life functioning according to the ways and methods of science, of their whole structure, social and other, functioning according to it." This demands a continuing long range programme of developing in all sections of society what Panditji used to refer to as 'Scientific temper' or 'the popularisation of Science'. He called upon the scientists to create the necessary mental climate and scientific temper essential for the implementation of development plans. It is from that point of view that Dr. M.G.K. Menon, said, "The process of popularisation of science will not only result in an increasing scientific attitude to life in society at large, and as a result, enable local problems to be identified for which local solutions can be found, as a result which material progress can be made, but also enlarge the base from which the scientific community dervies its own members and strength."
The importance Jawaharlal Nehru attached to science and technology was reflected by his participation in the Indian Science Congress. His association with the Indian Science Congress began in 1938 when he sent a message to its silver jubilee session in Calcutta as the Chairman of National Planning Committee. He spoke at fifteen sessions of Indian Science Congress. He utilised these occasions to reflect upon the relationship between science and human development and bridge the gulf between the social, political and economic realities of life and the work carried on by the scientists. In the 40th session of the Indian Science Congress, he enjoined upon Indian Scientists "to help to solve - (1) material problems of food and necessities of life, (2) larger problems of social, economic and psychological and finally (3) bring about a temper of science."\textsuperscript{21} He thus wanted scientists to be concerned about humanity. His stress on 'temper or climate' of science was partly intended to create the necessary environment for industrial and economic development and modernisation. Nehru firmly believed that the scientific outlook would lead to rational decisions and its wider application would lead to the creation of preconditions for socialism. He said, "perhaps it (science) improves our condition of industrial life, but the basic thing that science should do is to teach

us to think straight, to act straight, and not to be afraid of discarding anything or accepting anything, provided there are sufficient reasons for doing so.......
I should like our country to understand and appreciate that idea all the more, because ....... Our country encumbered itself to such an extent in matters of social practice that its growth has hindered and in a hundred ways, even today. For changing the hearts, change in the thinking was necessary. Socialism could take roots in a feudal society, he believed, if the thinking was progressive through scientific approach. Nehru's strategy for transforming the Indian Society, thus consisted of two elements - one was spread of 'Scientific temper' among the Indian masses and second was the development of Indian economy through the applications of science and technology.

Nehru was convinced that scientific method and approach alone can revolutionise human life. He visualised that the establishment of a strong industrial base for promotion in the spheres of agriculture and food production in India was possible only through the maximum use of science and modern technology. He thus wanted to give India a modern outlook in every sense of the term through large scale industrialisation and extensive application of science and technology. The objective before science, according to Nehru, must

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be to remove the ills of the community. So he regarded science as the spirit of the age which dominated the modern world. He repeatedly stated that the only solution to our problems is through the method and spirit of science. This he made clear in the message he sent on the occasion of the silver Jubilee session of Indian Science Congress in 1938, when he said, "Even more than the present, the future belongs to science and those who make friends with science and seeks its help for the advancement of humanity....... If science is the dominating factor in modern life, then social system and economic structure must fit in with science, or it is doomed."²³

Insistence on science and social reconstruction had been the fundamental feature in Nehru's Outlook. He gave practical shape to his social, political and economic ideals through the application of science and technology in these fields. He realized that achievement of higher living standards and social security depends on our success in securing rapid economic development. This become possible only on full utilisation of science and technology. For Nehru, science was an essential and a basic requirement for the transformation of an economy of scarcity into our of abundance. He remarked, "the technical achievements of science are obvious enough: its capacity to transform an

economy of scarcity into one of abundance is evident, its invasion of many problems which have so far been the monopoly of philosophy is becoming more pronounced."\(^{24}\) He was convinced that India's progress and prosperity in all fronts lay in the establishment of vast and firm scientific, managerial and technical base. Because of his ceaseless efforts, clear vision and commitment to science and technology, India developed as a major force in social and economic transformation. Nehru visualised that science and technology would be effective instruments to tackle many problems confronting India from time immemorial. So he took many steps to modernise India on scientific lines. In the 47th session of Indian Science Congress, he admitted: "My own main interest in science arises naturally from the social consequences of science than science itself. We have to face major political, economic and in the main, social problems of a growing country and of raising the level of hundreds of millions of our people. It is clear that we cannot solve these problems without taking recourse to science and its application."\(^{25}\) Nehru's strategy for planned economic development was thus characterised by the emphasis on

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24 Jawaharlal Nehru: 'The Discovery of India' (New Delhi: Jawaharlal Nehru Memorial Fund, 1982), p.31.

25 Baldev Singh, ed. 'Jawaharlal Nehru on Science: Speeches delivered at the Annual Sessions of Indian Science Congress' (New Delhi: Nehru Memorial Museum and Library, 1986) p.73.
industrialisation, modernisation and the opening up of gates for the fresh developments in science and technology.

Nehru possessed a real and substantial commitment to science and modern technology as major forces in the 20th century vital to India's growth and future prosperity. As a mature politician, he realized that economic salvation of millions of India's lay in the development of science and its application to resolve the problems of hunger, ignorance, poverty and unemployment. He insisted that only when those problems were solved, there will be fulfilment for the freedom we have achieved. He felt that "we have to build the structure of our state and our society anew, and we have to build this on scientific, planned lines, if it is to endure. The approach of science is essential as well as specialist and technical knowledge."\(^{26}\)

The marriage of science and industry has been approved, since we have already begun to utilise science for the betterment of people. Science has transformed human life and environment mainly through the advance technologies leading to the development of industries of various kinds. "Just as Industrial Revolution of the 18th century led to the Machine Age, the Electrical Revolution is now leading to the Power Age. Electric power, which is used for

industries, railways and numerous other purposes dominates everything. Huge machines are now controlled by one man handling some levers and switches. This results in increasing the production of manufactured goods.27

So Nehru advocated large scale industrialization of the country. He believed that the problems of poverty and unemployment could be solved only by large scale industrial production. He said that all his endeavours were to lead mankind from its age-old state of bare subsistence level to a social level which provides security, material well-being, opportunities for advancement and comfortably life to all. These could be achieved through establishment of mighty projects and heavy industries. These industries are necessary not only for the economic development of India, but also for safeguarding its political independence and strengthening its defence. Without rapid industrialization, India would continue to depend on the advanced countries of the world and would also lack adequate means to defend herself, if attacked.

The wealth and prosperity of a nation depend on effective utilisation of its human and material resources through industrialization. Nehru thought that political independence was a risk to industrially backward countries since economic control would tend to pass on to others. In 1944 he said, "It can

hardly be challenged that, in the context of the modern world, no country can be politically and economically independent, even within the framework of international interdependence, unless it is highly industrialized and has developed its power resources to the utmost. Nor can it achieve or maintain high standards of living and liquidate poverty without the aid of modern technology in almost every sphere of life. By rapid industrialisation, he meant the development of basic and heavy industries, extension of railways and transport facilities, enlargement of communication network, enhancement of education and medical services and transformation of rural life through community development programmes.

Jawaharlal Nehru extended adequate encouragement to private industrialists in the country and motivated them to invest heavily in industries like iron and steel, chemicals, fertilizers, petroleum refining, textiles, cement, sugar, paper etc. The gigantic industries of steel and iron, coal, iron refineries and ship-building industries established during Nehru's period have provided a strong industrial base to the country. As a result many new items like machinery for cement, paper industries, urea, phosphate, synthetic fibres, newsprint, dye stuffs etc. were produced for the first time in India. Many Jute, Sugar and Cotton

textile mills were modernised and re-equipped. This resulted in the increase in production of various consumer goods. Commenting on the 'Place of Big Machine', once he said, "We cannot keep pace with the modern world unless we utilise the sources of power that are available to the modern world." Nehru not only emphasised the immediate and massive employment of science and technology for the purpose of rapid industrialisation, but also appealed to the industrialists to consider industrialisation in the context of appalling poverty of the Indian people, as he wanted the whole of Indian masses to be benefitted through it. He wrote, "The problem of poverty and unemployment, of national defence and of economic regeneration in general cannot be solved without industrialisation. As a step towards such industrialization, a comprehensive scheme of national planning should be formulated. This scheme should provide for the development of the heavy key industries, medium scale industries and cottage industries." 

It would be wrong to conclude that Nehru attached an undue importance to heavy industries. When he talked of industrialization and emphasized heavy industries, he also talked of balancing heavy industries by emphasizing that we

30 Jawaharlal Nehru: 'The Discovery of India' (New Delhi: Jawaharlal Nehru Memorial Fund, 1982), p.396.
must have village and small scale industries. In his scheme of things, there was place for both types of industries. This comes out clearly in his speech in the Parliament on 15th of December 1952. He said "I have no doubt that we cannot raise the people's level of existence without the development of major industries in this country........ We have to develop the village and cottage industry in a big way, at the same time making sure that in trying to develop industry big or small, we do not forget the human factor. We are not merely out to get more money and more production. We ultimately want better human beings." 31

In his various speeches and addresses Pandit Nehru had emphasised again and again the important place of village and small-scale industries in our economy. In the Presidential Address at the Lucknow Session of Congress he said, "I believe in rapid industrialisation of the country and only thus I think will the standards of the people rise substantially and poverty be combated. Yet I have co-operated whole heartedly in the past with the Khadi programme, and I hope to do so in future because I believe that Khadi and village industries have a definite place in our present economy. They have a social, political and an economic value which is difficult to measure but which is apparent enough to

those who have studied their effects. But I look upon them more as temporary expedients of a transition stage rather than as solutions to our vital problems. That transition stage might be a long one, and in a country like India, village industries might well play an important, though subsidiary, role after the development of industrialism.\textsuperscript{32} Nehru wanted to change the mental outlook of our people by making them used to more and more modern techniques and methods. He encouraged small factories in rural areas in large numbers. He thought that, through these, we can not only add to our production and lessen unemployment but also change the mentality of our people in favour of industrialization. This paves way to the effective progress of industry in a big way.

Nehru wanted to combine political and economic freedom with his idea of socialism, so that India would be not just politically powerful, but also industrially progressive. He put forward a policy of creative change through economic planning and socialism. For raising the standard of living of the masses, industrialization was necessary and for socialism, equitable distribution was needed. Nehru was of the view that industrialization should come before

socialism, as there should be enough to redistribute. In the absence of this, there would be only miseries and poverty to be distributed.

India is predominantly an agricultural country, and so Nehru felt that unless we give special importance to the agricultural section, we cannot raise the living standards of our people. He was firm on his belief that if our agricultural foundation was not strong, then the industry we seek to build would not have a strong basis either. This was made clear when he stated that, "industry is important. But the moment you touch the growth of industry, you come up against a basic problem that industry cannot progress except on a sound agricultural basis. And immediately you are thrown back to agriculture, and agriculture is for any agricultural country like India certainly, the most important thing ultimately. I realise that agriculture by itself will not solve the country's problems. But agriculture is the basis. if you don't have proper agriculture, then you will not get the surplus from agriculture which can be utilised for production in industry." 33 It is obvious that modern agriculture with high levels of production is based on modern science and technology, for it depends on machinery and giant dams and other steps taken to improve irrigation facilities, introduction of better strains of scientific breeding and an abundant use of

33 Baldev Singh, ed. 'Jawaharlal Nehru on Science: Speeches delivered at the Annual Sessions of Indian Science Congress' (New Delhi: Nehru Memorial Museum and Library, 1986), p.103.
fertilizers, which are products of chemical industry. Nehru said that agriculture has grown greatly in many other countries because of the application of science and modern techniques.

In Nehru's strategy of planned development, agriculture had high ranking as far as priorities listed in the Third Plan are concerned, because he considered agriculture as the biggest industry in our country. He observed that, "we attach far greater importance to agriculture and food, and matters pertaining to agriculture. If our agricultural foundation is not strong, then the industry we seek to build will not have strong basis either. Apart from that, the situation in the country today is such that if our food front crack up, everything else will crack up too. Therefore, we dare not weaken our food front."\(^{34}\) No doubt, as Dr. A. Amruth Rao and K. Asaiah have said, "If today we are much less dependent on the advanced countries than most of the countries of the third world not merely in the economic field, but also in that of defence supplies, if manufactured goods are occupying an increasing share of our exports to various countries and if we have become self sufficient in food production, it is due to

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modernisation of agriculture. We owe all this in good measure to the attention paid to the modernisation of our economy during the Nehru Era.\textsuperscript{35}

The developments made through the application of science and technology had to be distributed satisfactorily in the various sectors of economy. Careful planning was necessary for this. The fundamental principles that still guide our planning processes were outlined by Nehru about twenty years prior to independence. Nehru was convinced that science was an important component of all sectors of development. So he started planning with the possibility of science and technology in mind. Thus he clubbed science with planning. Nehru's commitment to the importance of science as an instrument of economic and social transformation began to take concrete form in terms of priorities of Government action. Writing about the work of the National Planning Committee, he observed that "the three fundamental requirements of India, if she is to develop industrially and otherwise are a heavy engineering and machine making industry, scientific research institutes, and electric power. These must be the foundations of all planning, and the National Planning Committee paid the greatest emphasis on them."\textsuperscript{36} He felt that most careful

\textsuperscript{35} See, Dr. A. Amruth Rao and K. Asaiah. 'Jawaharlal Nehru and development through science and technology' in Dr. V. Bhaskara Rao and Dr. A. Amruth Rao, ed'Nehru and Administration (Delhi: Ajantha Publications, 1989), p.131.

\textsuperscript{36} Jawaharlal Nehru: 'The Discovery of India' (New Delhi: Jawaharlal Nehru Memorial Fund, 1982), p.410.
planning was necessary to reap the full benefit of industrialisation. As the objective of planning for him was the removal of poverty and rise in the standard of living of masses, he was always conscious of the ultimate aim, i.e., higher production and greater employment opportunities.

Nehru made it clear again and again that "what is happening today behind the Five Year Plans and other economic programmes in India is the change-over from the traditional into a modern society." The building of a new economic society was based on agriculture at as well as industrial progress. This in turn required emphasis upon the promotion of science and technology, through scientific research and an adequate relationship between the government and the scientists and their work. Realizing this, Nehru took the lead in building up of a scientific culture in India. Successive Five Year Plans laid emphasis on building up of National Laboratories and Research Institutions. Nehru personally formulated the Government of India’s Scientific Policy.

After independence, as the first Prime Minister of free India, Nehru ceaselessly strove for the development of science and technology by setting up of a number of scientific institutions and national laboratories covering a wide spectrum of science. To encourage scientific research and technological

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innovations, he set up twelve national laboratories in various parts of the country to do research in different subjects, such as, agriculture, industry, tropical medicine, nutrition, fuel, drugs, leather, glass and ceramics. These national laboratories, the five Indian Institutes of Technology at various centers, the Tata Institute of Fundamental Research and many other institutions including universities grew up rapidly in Nehru's India.

Nehru had a special fascination for Nuclear Research and so he kept the Department of Atomic Energy under his own charge and established two nuclear research institutes in Bombay and Calcutta, and Atomic Reactors at Trombay and Kota. The nucleus for the Council of Scientific and Industrial Research (CSIR) came into being even before independence with the constitution of a Board of Scientific Research in 1940. But it was with the enthusiastic support of Nehru and the dynamic leadership of S.S. Bhatnagar that so many laboratories of the CSIR came rapidly into existence.

Nehru was very much aware of India's technological lags and backwardness and so he took the above steps in order to achieve self-reliance in the scientific and technological fields. He requested the services of many eminent scientists. He wanted to produce trained scientists and technologists who would guide our country into an increasingly science dominated future through their works in these national laboratories and other technological
institutions. Again to quote Dr. A. Amrutha Rao and K. Asaiah, "If India today is one of the leading countries in the world with third largest reservoir of trained scientific manpower in the world and occupies a place among those countries, which are highly advanced in the use of Atomic power for peaceful purposes, it is largely because of the far-sightedness and able leadership of Nehru."\(^{38}\)

The scientific Policy Resolution adopted by the Government of India on 4th of March 1958 at the instance of Jawaharlal Nehru was a major conceptual accomplishment. This reflected the strong faith of the government in the power of science and technology as an instrument for economic and social change and its use for the well being of the society. The policy thus aimed at connecting science and technology with the task of national reconstruction. It paved the way for the growth of scientific research and the involvement of scientific and technical personnel for modernizing agriculture, industry and defence. It also recognised the need to give science and scientists a position of prestige in India.

The Scientific Policy Resolution adopted by the Government of India, 1958 No.131/CF/57 dt. 4 March 1958 says, "The dominating feature of the contemporary world is the cultivation of science on a large scale and its application to meet country's requirements ....... It is the characteristic of the

\(^{38}\) See. Dr. A. Amruth Rao and K. Asaiah, 'Jawaharlal Nehru and development through science and technology' in Dr. V. Bhaskara Rao and Dr. A. Amruth Rao, ed. 'Nehru and Administration' (New Delhi, Ajantha Publications, 1989), p.131.
present world that the progress towards practical realisation of a welfare state differs widely from country to country in direct relation to the extent of industrialization and the effect and resources applied in the pursuit of science.............. Science and technology can make up for deficiencies in raw materials by providing substitutes or indeed, by providing skills which can be exported in return for raw materials........ It is an inherent obligation of a great country like India, with its traditions of scholarship and original thinking and its great cultural heritage, to participate fully in the march of science, which is probably mankind's greatest enterprise today.

The Government of India have accordingly decided that the aims of their scientific Policy will be:

1) to foster, promote and sustain, by all appropriate means, the cultivation of science, and scientific research in all its aspects - pure, applied and educational.

2) to ensure an adequate supply, within the country, of research scientists of the highest quality, and to recognise their work as an important component of the strength of the nation.

3) to encourage and initiate, with all possible speed, programmes for the training of scientific and technical personnel, on a scale adequate to fulfil
the country's need in science and education, agriculture and industry and defence;

4) to ensure that creative talent of men and women is encouraged and finds full scope in scientific activity;

5) to encourage individual initiative for the acquisition and dissemination of knowledge, and for the discovery of new knowledge, in an atmosphere of academic freedom; and

6) in general, to secure for the people of the country all the benefits that can accrue from the acquisition and application of scientific knowledge.

The Government of India have decided to pursue and accomplish these aims by offering good conditions of service to scientists and according them an honoured position, by associating scientists with the formulation of policies, and by taking such other measures as may be deemed necessary from time to time.”

In his policy of scientific growth, Nehru stressed the importance of making use of the achievements in science only for human betterment. Science is essential and without science we cannot go ahead as a nation. But it is not complete by itself. The developments in science have unleashed enormous

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power, but that power can do as much harm as it can do good. As Swami Tattwajnanananda puts it. "It (science) has converted knowledge to power by technology, creating in the process an entirely new culture and civilization of world wide dimension. However, with increase in technology, there is an increase in problems of global dimensions. Ecological imbalances, environmental pollution on one side and psychic distortions like crime and inclination to suicide on the other, haunt human civilization". So today there is a crying need to channelise the powers of science and technology to ensure the very survival of humanity, for, otherwise man will destroy himself by misusing it. It is therefore important that their progress, as it moves forward, should be tempered with wisdom. Hence Nehru kept on warning us that "the fact remains that a good deal of compassion is necessary, not merely scientific discovery and achievement."

It is only through science that we can hope to solve our basic problems since it promises enormous good to humanity. It has led to the discovery and use of tremendous powers of nature, which can be used for good or evil. In the


41 Baldev Singh, ed. 'Jawaharlal Nehru on Science: Speeches deliveredat the Annual Sessions of Indian Science Congress' (New Delhi: Nehru Memorial Museum and Library, 1986), p.64.
Glimpses of World History, Nehru stated, "Science, as we have seen, has brought many good things in its train, but science has also added enormously to the horrors of war ........." The immense powers of science can thus be used for construction as well as destruction. So Nehru always stressed the need for the development of the spiritual side of man. In the Indian Science Congress of 1963, Nehru summed up that "without science, there is no future for any society, but even with science unless it is controlled by some spiritual impulses, there is no future. Science must be backed by moral values." He was firmly convinced that the two must go together to enable human beings to lead a life of peace and happiness. He believed that human mind is hungry for something deeper in terms of moral and spiritual development, without which all the material advances will be of no value.

To sum up we may say that if science is to be turned away from the courses of destruction, it is necessary to combine the developments of science with ethical and moral values. Nehru recapitulated the teachings of Gandhiji who stressed that 'the means were as important as the ends' and suggested that if science is to be used for peaceful purposes, the mind must be turned in the

direction of peace. He believed that "the great increase in knowledge does not necessarily make us better or wiser. We must know how to use that knowledge properly before we can fully profit by it." As pointed out by J.V. Narlikar, "It is here, ....... that we can draw on our rich cultural heritage - or the wisdom of our forefathers over many centuries. I am optimistic that if we are not blinded by traditions and dazzled by science, but keep our eyes open, our country will make a triumphant entry into the year 2001."  

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