

Reorientation of Modern Science

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In his essay that won first prize from the Academy of Dijon in 1750, Jean Jacques Rousseau vehemently attacked science as the biggest enemy of moral life, quite unable to bring true benefit to mankind.

For more than a century thereafter, however, science and technology continued to produce better medicines and new means of comfort and enjoyment. Man satisfied his growing desire for knowledge and gathered increasingly greater wealth from the great nature. Rousseau's view and judgment appeared to have been discredited and forgotten altogether.

39 But, then, two successive world wars entangled mankind in a short span of 30 years, with science and technology providing more and more powerful means to kill and destroy. People are now under fearful shadows of nuclear holocausts. Advances in science and technology have made constant industrial development possible but, at the same time, have been aggravating environmental pollution and fast exhausting energy resources. The very survival of mankind is being direfully threatened.

Because of this sad realization, people are now returning to Rousseau's viewpoint and casting eyes of helpless fear and torturing doubt at what science has done and may yet perform.

If we act like prosecutors and carefully put down all the crimes committed in the name of science and technology, we will come up with a stupendous list. Because of the highly developed techniques now available for investigation, surveillance, mental manipulation and enforcement of control, modern autocrats can wield ruthless power in manners never even imagined by the cruellest of tyrants in recorded history. Furthermore, because of the excessively increased means and opportunities for sensual enjoyment, man has been headlong after material wealth and satisfaction of desires. This pursuit naturally has been accompanied by spiritual degradation and emptying of the heart and soul.

Perception is no longer considered valid unless it pertains to sensory experience. People at large have denied and withdrawn from judgment of value. As a result, religious and ethical principles have ceased functioning as mentors of human behavior. This in turn has been perpetually increasing the frequency of social disturbances and crimes.

We know that nature to be orderly needs harmony and balance, with all things in a mutually dependent state. Likewise, stable social order requires mutual dependence of people as well as coordination between spiritual life and material life. Once such harmony and balance are thrown out of order or destroyed, difficulties and dangers arise in quick succession.

Quite undoubtedly science and technology have already reached a stage to rock the balance of nature and the harmony between the spiritual and material aspects of life. We are neither able nor willing to halt or reverse the march of science. This being the case, therefore, we must ask if it is not high time for a reorientation of scientific research activities.

Should scientists be permitted to continue their quest, just for the satisfaction of their desire for knowledge and without shouldering direct responsibility toward human society? Should science go on exploring material phenomena without probing into human factors with matching seriousness?

The objective environment of modern man is in fact filled with artificialized centers. Even in the sphere of science, the object of research is no longer nature itself but man's investigation of nature. Isn't it, then, high time now that scientists start spending more hours for the study of man himself?

Man is not just an animal but also a social being. More importantly, man is the only creature with capacity to conceive and appreciate moral value. This makes us wonder if scientists should, when probing into man himself, confine themselves to physiological, psychological and behavioral aspects, without paying attention to humanity that separates man from beasts. When studying man, shouldn't scientists work hand in hand with philosophers and, through division

of labor, seek a synthesis of science and philosophy to benefit human society? All these issues indeed are worthy of examination and deliberation by all modern scientists.

As a citizen of the Republic of China in the field of science, I now want to call your attention to the fact that the Chinese as a race are not without faculties for scientific and/or technological research. Outstanding accomplishments were made in the fields of science and technology by many Chinese of old times, but what they produced did not necessarily attract due public attention. Those who busied themselves with invention and creation not only were not given proper material and spiritual encouragement; often in stock for them were jeers directed at minor details instead of main purposes and objectives, because the spirit of China's traditional culture was (and still is) that man should study and glorify proper ways of being, conform his conduct to moralistic norms and thoroughly discharge his duties toward his family and nation as well as mankind. This was the fundamental and important requirement. All other aspects of life lagged behind in the order of preference.

From the standpoint of China's traditional culture, therefore, science and technology to merit promotion must fulfill moral purposes and enhance healthy life for all people. Sternly frowned upon were attendance with personal benefit, forms of enjoyment that stimulated organic functions, and research activities merely to gratify curiosity. Scientific and technological efforts toward goals contrary to moral principles or injurious to human welfare naturally met with even more powerful opposition. This is why the Chinese of centuries ago made notable achievements in textile production, medical treatment, bridge-making, architecture, paper manufacturing, printing and large-scale water utilization but did not, after the invention of what later became known as gunpowder, develop firearms as killer weapons.

Because of this view of science and technology, the culture-conscious Chinese turned their scientifically advanced nation into a scientifically

awkward existence. Nevertheless, now that the abuse of science and technology has tragically pushed man to the verge of total self-destruction, we can as we reflect on our conduct learn a great deal from the ancient Chinese.

Chinese philosophers have traditionally kept their eyes on points that differentiate man from other animals. First and foremost, they have affirmed rational faculty and awareness of moral value as the most distinctive of human characteristics. Man has never been treated merely as a natural object but rather as an element of society and a vessel of moral virtue. Exactly because of this attitude, Chinese philosophy in its treatment of life never starts with libido, will to power or desires of individuals but, instead, pays due regard to man's ethical relations with others and to the capacity of man's heart to receive and cherish moral value.

In our view, human hearts by nature possess commendable qualities that we collectively call "jen." As the highest form of virtue at its best in man and the universe, jen finds its expression in human beings as a kind of selfless and uniformly offered love of mankind. When manifested in the universe, jen enables propagation and growth in a balanced state of mutual assistance for mutual benefit. Jen stands for growth and therefore discredits destruction. Jen also represents harmony and makes an objection to struggle and violence. Jen as a synonym of "love" has no room for hatred. Jen being meant for all alike does not permit self-interest or selfishness.

Chinese philosophy is neither opposed nor analogous to religion. Because of its non-religious nature, there has been no inclination toward personification or deification of the universe. However, because the spirit manifested in the cosmic order and rule is considered identical with that of jen as evident in man nature, Chinese philosophers have attached moral value to the universe and, at the same time because of this view, taken man as spiritually communicable with the universe. Life can thus be elevated to a realm where heaven and man meet together. Also because of the similarity of cosmic and human spirits,

Chinese philosophy takes jen in man as being a heavenly endowment, an intrinsic quality and an embodiment of cosmic rule in the human heart. In other words, awareness of moral value does not have to come from outside; as long as one is conscious of his state of being, he can find it right in his heart.

From the standpoint of Chinese philosophy, man to be respectable and nobly different from the other animals must by all means give full play to the inborn philanthropic character so that all forms of his thinking and doing will be in conformity with jen-oriented motives. This is to say that one has to help growth, promote harmony, put his loving heart into action and take note of all the people and things at the same time. Furthermore, to meet the requirements of humanity, one has to oppose destruction, struggle, violence, hatred, self-interest and selfishness. This rule naturally also applies to scientists at work.

39 My view is that China's traditional philosophy is distinctly different from Western philosophical concepts in two ways. Firstly, Chinese philosophers talk little of the substance of universe or of issues concerning cognition. Instead, they have always focused their attention on human life. Secondly, Chinese philosophy attaches special importance to practical observance rather than establishment of theoretical systems. The main emphasis has always been on actual everyday-life experience and practice.

This philosophical view of jen has guided the conduct and advancement in life of Chinese philosophers down through the ages and at the same time functioned as part of the spirit of China's traditional culture. In the old days, the Chinese constantly applied this spirit of love and benevolence to their dealings with neighboring peoples and nations. Harmonious togetherness was the goal. Even today, the Republic of China, in its treatment of international and diplomatic affairs and in its attitude toward development of science and technology, continue to act fully in line with this cultural spirit. This is why at the end of World War II, the Republic of China faced the issues of reparation and prisoner release with a very lenient attitude. This is also why we insist today that atomic energy be put only to peaceful uses.

I firmly believe that as long as we handle problems of science and technology development as directed by the spirit of China's traditional culture, we will be acknowledging jen-oriented motives as we successfully advance the people's welfare, satisfy their demands for upright living, and steadily march toward the goal of lasting world peace. This way mankind shall always avoid the road to destruction. And perhaps this way man may derive the most dramatic inspiration and contribution from the culture that has been sustained by the Chinese for 5,000 long years.

Should science reject the final cause? Should science be given significance? value? I am not going to involve myself here in a whirl of argument regarding these questions. But I must say that no scientist can detach himself from society, avoid value judgment or absolve himself from responsibilities toward society and fellow human beings, for after all he must necessarily reflect on the motive and goal of his scientific pursuit.

If all the scientists can gain some inspiration from China's traditional philosophy; if they can make manifest the spirit of jen as found in human nature; if they properly adjust the direction of scientific pursuit; if they make harder efforts for the study and development of society, humanity, heart and soul; and if they concentrate more on medicine, sanitation and other matters that man needs for healthy living and spiritual contentment; it then will not be hard to bring about an era of lasting peace and happiness for human society as a whole. Instead of just being utopian, illusory or forever unreachable, our goal will then be increasingly luminous and nearer.