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## Mao Zedong TALK ON SAKATA'S ARTICLE

August 24, 1964

[SOURCE: *Long live Mao Tse-Tung Thought*, a Red Guard Publication. "X's" replace names and other information omitted original. Shoichi Sakata was a Japanese physicist sympathetic to by dialectical materialism. The article mentioned was a Chinese translation of one which appeared in a Soviet philosophy journal.]

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Chairman: I have asked you to come here today because I want to look into the article by Sakata [Shoichi]. Sakata says that basic particles are indivisible while electrons are divisible. In saying this, he is taking the stand of dialectical materialism.

The world is infinite. In both time and space, the world is boundless and inexhaustible. Beyond our solar system are numerous stars which together form the Milky Way. Beyond this galaxy are numerous other galaxies. Regarded broadly the universe is infinite: regarded narrowly, the universe is also infinite. Not only is the atom divisible, but so too is the atomic nucleus and it can be split ad infinitum. Chuang Tzu said: "One can take away half of a hammer measuring one foot long daily, but there will still be no end to it even after ten thousand generations." This is true. Thus, our cognition of the world is also infinite and inexhaustible. Otherwise, the science of physics would not develop any further. If our cognition were finite, we would already have recognized everything, and what would there be left for us to do?

Chairman: Man's cognition of things must undergo a great many repetitions, and there must be a process of accumulation. A large amount of emotional data must be accumulated in order to induce the jump from emotional cognition, to rational cognition. As to the reasons for the leaps from practice to emotion, and from emotion to reasoning, neither Marx nor Engels discussed it very clearly. Nor did Lenin discuss it very clearly. In his *Materialism and Empirio Criticism*, Lenin elaborated only on materialism, without elaborating upon the theory of cognition. Recently, Ai Ssu-ch'i [Ai Siqi] discussed this point at the Higher Party School and he was correct in doing so. Even the men of the ancient past in China, including Lao Tzu and Chuang

Tzu, did not explain it clearly. Mo Tzu did discuss some things concerning the theory of cognition, but not very clearly. Others like Chang Tsai, Li Chuo-wu, Wang Ch'uan-shan and T'an Ssu-t'ung also did not explain it clearly. What is philosophy? Philosophy is the theory of cognition, nothing else. I wrote the first ten articles of the Double Ten Articles [Shuang-shih T'iao], I discussed how substance changes into spirit and spirit into substance. I also said that the time devoted to teaching philosophy must not be too long, one hour at most. The more one talks about it, the more confused one becomes. I also said that philosophy ought to be liberated from classrooms and studies. My words touched the soft spots of some people who thereupon came out with "combining two into one" to oppose me.

Chairman: At present our cognition of many things is still rather unclear. Cognition is always developing. With a large telescope, we will be able to see more stars. In regard to the solar system and the earth, we have not as yet overthrown Kant's nebular hypothesis that both the earth and the sun were formed by the contraction of extremely hot gases. Our earth is most probably still in its youth, and it is growing larger steadily because many things such as meteorites and sunlight, are falling on it every day. The sun has most probably reached its middle age, and it is no longer as hot as before. If the sunshine on the earth's surface is so strong as to reach 100 degrees, how can human beings withstand it? The temperature of the sun's surface is 5,000 or 6,000 degrees, and there is a layer on the surface with a temperature of some 1,000 - 3,000 degrees. If we say that we do not understand the sun too well, it goes without saying that we also are none too clear about the enormous space

between the sun and the earth. Now, with the satellites, our understanding in this field has been considerably enhanced. We are not too clear about climatic changes on the earth, and we must study them. In regard to the glacial problem, scientists are still arguing it out. Li Szukuang maintains that there is a glacial period every one million years. Whenever this happens, drastic changes occur in the biological world. Ancient dinosaurs became extinct because they could not withstand the frigid cold of the glacial age. Man was produced in between the two recent glacial periods. When it comes to a later glacial age, it would become a problem to mankind, and one must be prepared to cope with the advent of the next glacial period.

X X X: The Chairman just mentioned something about telescope which reminds me of a question: Can't we generally categorize such things as telescopes and satellites as being "tools of cognition?"

Chairman: What you say about the concept of "tools of cognition" seems very plausible. The tools of cognition should comprise such things as the axe, machinery, etc. Man's cognition stems from practice. We use the axe and machinery to transform the world, and our cognition, is thus deepened. Tools are extensions of human organs. The axe is an extension of our arms while the telescope is an extension of our eyes. The human body and its organs can all be extended. Franklin said that man is the animal that creates tools. The Chinese say that the human being is the wisest of all creatures. Animals have their own pecking order, but the ape does not know how to fashion sticks to knock fruit off the trees. There are no concepts in the brains of animals.

XXX: Philosophical works usually only take the individual as the subject of cognition, but in practical life, the subject of cognition is often not an individual, but a collective. Are we right to regard our party as the subject of cognition?

Chairman: A class is the subject of cognition. In the beginning, the working class was a class in and of itself, and it had no knowledge of capitalism. Later, it developed from a class in and of itself into a class that existed for itself, and by that time, it began to understand

capitalism. This was a case of the development of cognition based on class as the subject.

Chairman: There was no water on the earth in the beginning. In earliest times, the earth's temperature was so high that it was impossible to have water, for it would have exploded to become hydrogen and oxygen. There was an article two days ago in the Kuang-ming Daily which says that it took millions of years for hydrogen and oxygen to combine and form water. Fu Ying said that it would take tens of millions of years. I don't know if the author of that article has discussed it with Fu Ying. Only after there was water was it possible for living things to emerge from the water. Man evolved from fish, and there was a developmental stage in which the human embryo resembled fish.

Chairman: All individual and all specific things have their births, development, and deaths. Every person must die, because he was born. Man must die, and Chang San [i.e., any Tom, Dick or Harry] being a man, Chang San must die. None can see Confucius who lived 2,000 years ago, because he had to die. Mankind is born, and therefore mankind must also die. The earth was born, and so the earth must also die. Nonetheless, when we say that man kind will die and the earth will die, it is different from what Christians say about the end of the world. When we talk about the death of mankind and the death of the earth, we mean that something more advanced than mankind will come to replace it, and this is a higher stage in the development of things. I saw that Marxism also has its birth, its development and its death. This may seem to be absurd. But since Marx said that all things which happen have their death, how can we say that this is not applicable to Marxism itself? To say that it won't die is metaphysics. Naturally, the death of Marxism means that something higher than Marxism will come to replace it.

Chairman: Things are continually in motion. Concerning the theory that the earth revolves around the sun, thus forming a day by self-orbit and a year by complete orbit, there were only three persons in the time of Copernicus in Europe who believed it, namely Copernicus, Galileo and Kepler. There was not a single person in China. However, there was a Hsin Ch'i-chi of the Sung dynasty who said in his

poem that when the moon went down from us here, it would be shining somewhere else [1]. Chang Hua (courtesy name: Chang Mou-hsuan) of the Chin Dynasty wrote in one of his poems: "When T'ai-i [a constellation] moves in its orbit, heaven will return and earth will travel." That poem is found in the Sources of Ancient Poems (Ku-Shih Yuan).

Chairman: All things are both constant and inconstant. The universe was constant, but later, the Chinese scientists Li Ch'eng-tao and Yang Ch'en-ning who live in the United States said it is not constant. Does this also apply to the constancy of mass and energy? There is nothing in the world that absolutely does not change. Changing and unchanging, then changing and unchanging combine to form the universe. Constancy and inconstancy, this is both equilibrium and disequilibrium. There is also the case where the equilibrium is completely disrupted. A generator is a good example to illustrate movement and transformation. What kind of movement is there when the coal is burning?

X X X: It is the energy emitted by the outer layer of electrons of the atoms of the compound when they change their orbit of motion.

Chairman: The transformation of its form in which the water expands and becomes steam is what produces the movement.

X X X: The movement of the molecules produces energy.

Chairman: But this also causes the rotor of the generator to turn. This is mechanical movement which eventually generates electricity which flows into the copper and lead wires.

Everything in the world is changing, physics is changing, Newton's laws of physics are changing. The world has evolved from one in which there was no Newtonian theory to one in which there was, and thereafter, from Newton's theory to the theory of relatively. This is dialectics in itself.

Things are always happening in unexpected ways. Sun Yat-sen originally studied medicine, but he later became involved in politics. Kuo Mo-jo also started out studying medicine, but he later became a historian. Lu Hsun also studied medicine, but he later

became a great writer. I myself have engaged in politics step by step. I studied the Confucian classics for six years, attended seven years of school, became a primary school teacher, and later taught middle school I did not even know then what Marxism was; nor had I heard of Marx or Engels. I knew only about Napoleon and Washington. It was also like this when I found myself involved with military affairs. I served as director of the propaganda department in the Political Department of the National Revolutionary Army, and I also stressed the importance of fighting at the Institute of the Peasant [Movement], but I never thought that I myself would ever undertake military affairs and fight in battle. Later, I led my own men to fight and went to Ching-kang-shan. While at Ching-kang-shan, I had a small victory at first, but this was followed by two disastrous defeats. I then summed up my experiences and summarized them into a set of guerrilla war tactics:

"When the enemy advances we retreat; when the enemy rests we harass; when the enemy is tired we fight; when the enemy retreats we pursue." Thanks to Generalissimo Chiang who gave us these lessons; thanks to some of those in the party who said that I did not even have a modicum of Marxism and that they were 100 percent Bolsheviks.[2] Nonetheless, it was also these 100 percent Bolsheviks who caused the party in the white area to suffer 100 percent losses, and the party in the Soviet area to suffer 90 percent losses.

Chairman: We produce neither food grains nor machinery, but what we produce are lines and policies. Line and policy are not produced from within a vacuum. For instance, we did not invent the "four cleanups" or the "five antis," but it was the common people who told us about them. We must thank a counter-revolutionary in Kwangtung for the emergence of the "four cleanups" and the "five antis." He wrote to X X and X X to get me to abdicate political power and hand over the armed forces.

The scientists should align themselves with the masses; it behooves them to form close links with the young workers and the veteran workers. Our brain is a processing factory. Factory equipment must be renovated, and so our brains must also be renovated. The various cells of our body are being renewed continuously. The cells in our skin are no longer

those with which we were born, but have been changed innumerable times.

There are several types of Chinese intellectuals. Engineering and technical personnel have accepted socialism more satisfactorily. Next come those who study science, while those who study liberal arts are the worst. I can see that this Feng Ting of yours must be a revisionist, because what he wrote in his books is all Khrushchev's stuff.

Chairman: Ts'ao Hsueh-ch'in's Dream of the Red Chamber was intended to patch up the heaven--the heaven of feudalism. Nonetheless, what Ts'ao Hsueh-ch'in wrote was about the decline of feudal families, and this may be regarded as a contradiction between Ts'ao's world outlook and his creation. Ts'ao Hsueh-ch'in's family fortune declined during the reign of Emperor Yung-cheng. Emperor K'ang-hsi had a number of children among whom Yung-cheng was one. Yung-cheng used his secret service operation to oppress his adversaries, and dubbed two other sons of K'ang-hsi, possibly it was the 9th and 10th, as pig and dog.

Chairman: Dissection is rather important. It is like the cook butchering a cow ["Chung Tzu" parable; very skillfully done]. When Engels mentioned medicine, he paid special attention to dissection. Medicine is built upon the foundation of dissection.

We should study the origins of cells. The cell has its nucleus, a mass of protoplasm, and a membrane. The cell is organic, and so there must have been noncellular forms [cytooes] before there was the cell. What was there before the cell was formed? How was the noncellular form changed into the cell? There is a woman scientist in the Soviet Union who has been studying this problem, but no result has been reported.

X X X: After China reported to the International Surgical Conference in Rome about the rejoining of a severed hand, Americans said that they could not assess the ability of China's science and technology, and they were a little scared of us.

Chairman: It is good that they were scared; it would be bad if they were not. We are afraid of America because America is our enemy. When America is afraid of us, it means that we are her

enemy, and also a formidable enemy. In science and technology, we should pay attention to security so that they won't be able to assess our secret capability.

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## NOTES

### 1. [A lyric piece, written to the tune]

"Mu-lan-hua Man:" At a party with the wine drinking close to dawn, some guest stated that among the poems written by men of old, there were some which spoke about waiting for the moon to arise, but none about bidding farewell to the moon. Thus, this poem is about the direction taken by the moon: Pity the moon of tonight, wither does it go, and will it be gone forever? Is there another world which will see it, with its bright shadow in the east? Out beyond the vastness of heaven are there long winds to send off the mid-autumn moon? Who can fasten the rootless mirror flying, and if the Moon Goddess never marries, who can tie her down?

2. A reference to the "leftists" under the leadership to Wang Ming, who claimed themselves to be 100 percent Bolsheviks, and who opposed Comrade Mao's line during the period 1931-35.