

JPRS: 5531

CSO: 4314-N/b

QUANTUM STUDY SIMPLIFIED IN PEI-CHING UNIVERSITY --
ANOTHER VICTORY FOR THE MAO TSE-TUNG IDEOLOGY

Following is the full translation of an article
appearing in Pei-ching Jih-pao (Peking Daily),
24 May 1960, page 2.

Instructors and students of Peking University's theoretical physics instruction study group, using Mao Tse-tung ideology as a weapon, have uncovered the bourgeois idealism and ontology in "quantum mechanics," and thus have opened up the world struggle between two concepts. These efforts have changed the face of this course and improved the quality of teaching.

Quantum mechanics is an important subject in physics. It is a science devoted to the study of the movements of elementary particles (such as the electron, neutron, etc.). It is the basis for theories of such advanced sciences as nuclear physics and the physics of semiconductors. Quantum mechanics used to be considered a difficult subject for teaching as well as learning. Many students reacted to it as follows: (1) "afraid to learn," (2) "hard to understand," (3) "do not know how to apply," (4) "easy to forget."

Last October, under the leadership of party commissar of the school, the instruction study group launched a teaching reform campaign among teachers and students. In the beginning, the opinions raised by students made it seem that the main problem was the teaching method.

The party commissar believed that in order to raise the quality of teaching, we must use Marxism-Leninism as a weapon to appraise the basic problem in the teaching of this subject. The instruction study group later staged a movement to study Chairman Mao's "theory of practice" and "theory of contradiction."

Equipped with Mao Tse-tung's ideology, the study group finally found the root of the difficulty. It was due to the existence of concepts of bourgeois idealism and ontology in teaching materials, which were contrary to Chairman Mao's theory of practice and to the principles of Marxist-Leninist epistemology. In the past, some teachers thought that the theory of quantum mechanics was built from logical concepts,

while the students' attitude was that the theory "had dropped from heaven." Some teachers even advocated during their lectures the ridiculous idea that science is the product of the brains of a few 'gifted' scientists. They thought that some men are born with talent for dealing with logical concepts and that others are not. This theory created an aura of mystery around science in the minds of students.

Teachers and students have repeatedly studied Chairman Mao's "theory of practice" and "theory of contradiction," and have thus come to understand that "theory comes from practice." Teachers now tend to believe and teach that theory is shaped after experiments and analysis have been conducted, in accordance with the spirit of the "theory of practice." This reformed way of teaching has changed the study of quantum mechanics. Lectures on quantum mechanics are now much more easily absorbed by students. Furthermore, teachers and students both have learned that theory not only comes out of practice but also should be used to direct practice. And at the same time, theory is advanced and proved in the course of practice. They have learned also that only by viewing the outer manifestations to study the inner contradictions can they come to understand the nature of the matter. In other words, only by viewing phenomena due to neutron and electron movements to study their origins can we understand the nature of these particles. Teachers and students began to study these problems by applying dialectical materialism. For example, in the spectroscope we could see different colors due to atomic spectra (the phenomenon). Why is the spectrum of one atom different from that of another? This is determined by the state of movement in the atom itself. Therefore, through viewing the atom's spectrum we can study the movement inside the atom. The bourgeois intellectual's so-called "theory of unknowability," which reasons that because the neutron and electron are not visible and touchable it is impossible to study their nature, was thus shattered.

Thus, under the leadership of the party, teachers and students jointly grasped and studied the main problems, applying dialectical materialism and Mao Tse-tung's ideology in the analysis and appraisal. They not only collected theses and data but also visited production agencies for opinions, so that theory and practice could be consolidated. By doing these things, they finally laid bare the influence of bourgeois idealism on quantum mechanics.

Since the exposure of the idealist viewpoint, this subject has undergone a great change. Before the reform, quantum mechanics was considered a "book of heaven," but now this subject is much more easily understood. Teachers and students have more faith in the subject and on this basis

they have compiled a draft of new instruction material on the quantum mechanics.

For both teachers and students the course of instruction reform led to the reform of their conceptions of the world. All came to realize that the struggle between two conceptions of the world in the teaching of natural science and scientific research is very profound. Previously, some had thought that Mao Tse-tung ideology did not have to be applied to the study and teaching of natural sciences. But now, from their own practical experience, they realize that without the direction of Mao Tse-tung ideology, the natural sciences would sink into a deep, muddy pit. Therefore, all are now earnestly studying Chairman Mao's works and seeking to reform their own conception of the world, and their method of teaching. The reform in the teaching of quantum mechanics has inspired reforms in the teaching of other fields of science. Meanwhile, grasping Mao Tse-tung ideology as their weapon, all sections in the science department of Peiping University have launched an effort to reform their individual fields of teaching.

END