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THE GREAT ACHIEVEMENT OF THE COOPERATIVE RESEARCH ON ANCIENT LIMNOLOGY BY CHINA AND U.S.A.

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"The study of plateau lake's ancient limnology in lime stone region of central Yunnan" is a program subsidized by the National Natural Science Foundation of China, practiced by Song Xueliang in Yunnan Institute of Geology. After the program had been authorized, in order to have the program carried out successfully, the National Natural Science Foundation of China subsidized the researchers to cooperate with relative American institutes.

The chief American scientist is Professor Edward S.Deevey, the academician of the American Academy of Sciences, president of American Limnology Society, and there were other five professors from Florida State University, Western Carolina University, Harvard University, University of Minnesota. Chinese and American scientists cooperatively surveyed and studied several plateau lakes in Yunnan. The program's aim was to study the lake's deposit, so as to reconstruct the lake's climate and environmental history in the past ten thousand years, and to infer the control factor of the environmental evolution. The program has the characteristic of high starting point, high precision, and is synthesis of multiple subjects. The International Science Union admits in " International Geosphere–Biosphere Program" (IGBP) that: the study of environmental record is a very important data resource for the research of environmental evolution. So the IGBP shows that it is necessary to enlarge the sampling sphere of reconstruction for past climatic biological distribution, atmospheric chemical substance and particle content, to enhance collection work of lake and gulf deposit, so that we can precisely determine the short change of environment. The central Yunnan lies in low latitude plateau, and is an important region for studying global change. Plateau lake is resource which human being live on. Their protection, development and harnessing should be based on the detailed knowledge of the lake's history.

The deposit in modern lakes and seas is covered with water, it is soft and plastic. So, drawing out the deposit in their original place and layer arrangement, and in certain depth is the key to study the lake core. In the cooperation, the American scientists presented us a Square–Rod Piston Sampler, an unstandard product designed and made by Florida State University. It can collect sample with the piston opening or closing freely in water. With the help of this sampler, we got a sample of 11 metres in Qilu Lake. The age of deposit at the profile bottom is 30,960 yr.B.P. The profile is continuous, and the layer arrangement is complete. Professor Deevey declared that it was the longest core profile they had got in recent years, and one of the most important core profiles in the world ancient lake study. Three important achievements have been obtained in the profile study.

1) Many tested results verify that there was a rainy period 10,000 years ago. The characteristic of climatic change in the past 10,000 years is from rainy to dry. It is an important supplement and revision to the understanding of the characteristic of the climate change from glacial age to post glacial age in the southern China.

2) Through the research on the deposit, the precise record showing the human activities disturbance to the lake environment was found from Qilu Lake core.

3) In the past 30,000 years, there were four huge fluctuation of the lake surface. The researchers have conducted a tentative analysis to the environmental information.

In the cooperation study, Chinese researchers took part in some key works and have learnt many international latest study methods, grasped today's American research method in limnology. As Chinese researchers have mastered the method to use the Square–Rod Piston Sampler, we have used it both in the important Sino–France cooperation program "Integrated Scientific Survey in Karakorum Mountains" which was subsidized by the National Natural Science Fund and the Sino–German cooperation program of the Chinese Academy of Sciences. This made China's lake core sampling technique enter international advanced level and laid foundations for future's independent study and for undertaking more important state tasks, as well as for developing international cooperation program.