BEIJING FORUM
北京论坛学术简报
ACADEMIC BULLETIN OF BEIJING FORUM

Beijing Forum 2019
Science and Technology, Health and Society in the Context of Science Culture (IV)

In the afternoon of November 2, 2019, the panel 10 of the Beijing Forum (2019), "Science and Technology, Health and Society in the Context of Science Culture" continues in the Yangguang Hall of the Yingjie Center at Peking University. The session 4 focuses on "Medicine and Humanities" and four professors come from the US, France, South Korea and China respectively present their studies. The session is hosted by Prof. William Hsiao from Harvard University.

Prof. David Magnus from Stanford University shows his study entitled "Ethical Challenges in Precision Health". He argues that Precision Health has been touted as a way to transform the nature of medical care. Two sets of technological developments are the key to Precision Health and they both raise substantial ethical challenges. First, there are technologies that allow the creation of research repositories with large quantities of data on large numbers of patients. Second, there is the development of new quantitative tools to evaluate the large amounts of data, particularly Machine Learning (ML) and prediction analytics. The main ethical challenges with the first set of technologies, revolve around privacy (including control of one's own data) and consent. And the use of AI to analyze the data raises further challenges. For instance, the algorithms that are developed to analyze the data will typically have values and assumptions embedded in them. There are many decisions that need to be made, and the interests of the designers and the purchasers of the algorithm may influence the design. Machine Learning also deconstructs the dyadic patient-physician relationship.

Yvon Le Maho, a member of the French Academy of Sciences, a member of the European Academy of Sciences and a professor at the University of Strasbourg, shares his study entitled "Biodiversity: as Resource of Biomedical Innovation". He pointed out that the observed climate change in the past 150 years is not the main cause of the decline in biodiversity. According to the Red List of the World Conservation Union (IUCN), more than 8,000 species are threatened with extinction, and the main causes of this decline are the overexploitation of species, intensive agriculture, urbanization, introduction of species which become invasive, and so on. Affected by climate changes, the situation of biodiversity is even more severe. Through a biological experiment

on penguins, Prof. Maho demonstrates a way to use biological diversity to stimulate biological innovation research. He argues that the mechanisms that have evolved over millions of years in wild animals to cope with environmental changes is a fantastic source of biomedical innovation and a life- insurance for future generations. But some mechanisms which can only be investigated in free ranging and undisturbed animals require the development of new technology and new field methods.

Prof. Shin Dongwon from the Korean Society for the History of Medicine and Chonbuk National University gives a speech entitled "Dong'eui Bogam [東醫寶鑑, An Exemplar of Eastern Medicine or precious mirror of eastern Medicine](1613) and Heo Jun(許浚)'s Synthesis of Great East Asian Medical Tradition". In the speech, he says, the outstanding contribution of Dong' eui Bogam (An Exemplar of Eastern Medicine or The Precious Mirror of Eastern Medicine, 1613, 25 volumes), which was first published in 1613, to the health of people in East Asia over a long period of time has been widely recognized, and in 2009 it became the first medical textbook to be included in the UNESCO Memory of the World Register. Because of the great influence of Heo Jun, the author of Dong' eui Bogam, the book spread very widely in the East Asian region. And, beginning with the compilation of this book, Joseon medicine reformulated its own tradition and on the basis of a critique of Chinese medicine of that time created a medical tradition that was unique to Joseon. In this way the traditional relationship of China as the dominant central state and Joseon as the subordinate peripheral state was reversed.

Prof. Gao Xi from Fudan University shares her study, "Dialogue: Bewteen the Chinese Medicine and the Experimental Natural Philosophy". She discusses how European scientists such as R. Boyle, the leader of European Scientists and intellectuals viewed and studied Chinese medicine, what kind of knowledge and technology Chinese medicine was from the perspective of European scientists, how they explained Chinese medicine within the framework of their knowledge system. And, after the European scientists and medical physicians experienced the enlightenment and the scientific revolution, did their views towards Chinese change? She concluded the two-way communication and interaction between the eastern and western medical cultures have exerted a particular influence on both of their transformations, which means it is possible to compare and dialogue between eastern and western medicines.

After the four speakers finish their speeches, with the help of Prof. Hsiao, they collectively discuss what they have shared a useful and answer the questions coming from the audiences.