

### INTRODUCTION

Nowadays, more and more journals focus on specific areas. But as the world-class sci-tech journals, *Nature* and *Science* are still the most outstanding interdisciplinary ones in the world. The experiences that China's sci-tech journals can learn from them are the main topics in this paper.

In the history of the early stage of the two journals' establishment, *Nature* and *Science* both got support from the specific scientists and academic groups. Such great support ensured the quantity and quality of the thesis. Therefore, the authoritative status of these scientific and technological journals was established. With the development for over 150 years, the two journals not only overcame the difficult period at the beginning, but also survived in the World War I and World War II, becoming the most outstanding world-class scientific and technological academic journals.

The first issue of *Nature* was published on 4 November 1869, while the first one of *Science* was published on 3 July 1880. Many journals which were published earlier than them in science had failed eventually. While the valuable success that *Nature* and *Science* have grown out of the social and scientific conditions under which it was founded — driven by the vision of strong characteristics, forging ahead when the odds seemed against them are precious experience for us. *Nature* and *Science*, above all, become survivors.

With the development of globalization, the world is becoming more and more international. Therefore, the internationalization has become one of the standards to evaluate the excellent sci-tech journals. For *Nature* and *Science*, the number of publishing countries has been increasing a lot since last century, from less than 80 countries in 1975~1979 to more than 150 countries today. We can see the articles published in the two journals cover an increasingly large field from all over the world and that the internationalization is getting better than ever before.

### Main Process

Based on the analysis of the basic situation and development of the world-class scientific and technical journals, *Nature* and *Science*, this paper used bibliometrics to explore the development model and construction path of *Nature* and *Science* from 3 aspects, including the journal data, journal column structure design and journal brand marketing. From the above analysis, this paper brought up three ways to provide references for the development of domestic sci-tech journals, including improving the academic quality of journals, enriching the non-academic columns to be more attractive, and focusing on the brand itself in order to promote its connotative development.

### CONCLUSION

Through the analysis and discussion of the development model of the world-class journals *Nature* and *Science*, we can learn that as comprehensive journals with a nature of full discipline, *Nature* and *Science* closely follow the cutting-edge scientific development. In the two journals, molecular biology and genetics account for the highest proportions. In terms of the design in column structure, the core of scientific and technological journals is to provide readers with the latest scientific research results in various disciplines. Besides, columns like Highlights and *Science's* Compass will give a comment on the future state of scientific research and provide a space for communication between authors and readers. What's more, it is important to focus on the construction of journal branding to attract readers. In this article, the method of bibliometrics is used to analyze and discuss the development of journals. But the loss of collection of journal historical data may lead to incomplete analysis. If there is any opportunity in the future, the writer will have more comprehensive data to explore the development path of first-class journals more detailed.

### Results and Analysis

There is a long way to go for China's sci-tech journals to develop top journals like *Nature* and *Science*. However, we can learn from them by analyzing the successful experience of the two journals.

- 1) It can be seen from the founding history of the two journals that it is important to guarantee the academic quality and authority of sci-tech journals to have great contributions in the early stage. If excellent contributions are not obtained at the beginning to enhance influence in academic fields, it will be much more difficult to attract high-quality manuscript sources with the history of publishing low-quality papers. Especially at present, when a large number of domestic and foreign sci-tech journals are booming with the development of science and technology, there are more and more choices for high-quality academic papers. Normally researchers are more willing to submit their manuscripts to sci-tech journals with higher quality and stronger academic influence if possible. As a result, the editorial board is very important at the beginning of the establishment of a sci-tech journal. Excellent editorial board members who are willing to help the improvement of the journal will be important resources to promote the development of the journal.
- 2) In order to improve the international influence of China's sci-tech journals, it is necessary to establish excellent sci-tech periodicals in English. There are only 500 kinds of English sci-tech journals in China by 2018, accounting for only 6% of the total sci-tech periodicals. However, the proportion of English sci-tech journals in Germany, is more than 50%, Japan, more than 20%. Nowadays, English is still a common language for international academic communications. English sci-tech journals are more conducive to attract contributions from outstanding scientists from all over the world, improve the internationalization of journals, and facilitate international academic communications.
- 3) To reduce the loss of domestic high-quality manuscripts, it is critical to improve the efficiency of peer review of domestic sci-tech journals, and to publish scientific papers with breakthrough research rapidly. The reason why *Nature* and *Science* can keep accumulating academic authority at present, is strongly related to a great deal of breakthrough scientific research achievements published in its history. In the past 20 years China's overall scientific research has been highly developed. In the 1990s, only few Chinese researchers could publish articles on *Nature* and *Science*. When it comes to 2018, the number of papers published by Chinese scholars in the two journals has reached the top five in all countries. To keep such excellent achievements and appeal for Chinese scholars to publish articles in domestic sci-tech journals, different efforts are needed, including the political guidance of the government and the hard work of domestic sci-tech journals themselves to improve their comprehensive quality.
- 4) Enriching the non-academic columns of sci-tech journals is also an important approach to improve the readability and expand the readership. The non-academic column not only achieves the purpose of science popularization, but also facilitates the non-professional scholars and even the public to understand the development of the cutting-edge scientific fields and the professional academic research papers[23]. The academic papers published by the journal, which expands the influence of the journal, can also strengthen the relationship between the journal and readers to establish a reliable connection. However, many sci-tech journals in China only have simple columns where there are only two types of academic research papers and reviews, which leads to the low visibility of journals and lack of audience. The more the number of audiences reduces, the shorter the circulation of periodicals will be, resulting in the influence not being strengthened.
- 5) In the age of internet, there are many effective ways like the websites and social medias to broaden the market of journals. But unfortunately, many domestic sci-tech journals don't take the websites and social media seriously. Actually, sometimes only one picture can speak thousands of words. It is easier to draw attention from readers by using appropriate photos. In a word, great journal websites are also more likely to leave people a good impression of professional and high-quality journals. Therefore, China's sci-tech journals should think highly of the effect of website and social media.