Chinese Scientific Journals: An Analysis of the Need at Cornell

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Marty Schlabach  
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CHINESE SCIENTIFIC JOURNALS: AN ANALYSIS OF THE NEED AT CORNELL

Jinxia Huang  National Science Library, Chinese Academy of Sciences, China; Visiting Scholar at Cornell University Library, 2010

Marty Schlabach, Collection Development, Mann Library, Cornell University Library

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Glossary
1.0 BACKGROUND

1.1 Colleges and Schools in Sciences at Cornell

“There are few universities anywhere in the world with the research scope of Cornell University. That research spans a vast array of subjects, and ranges from the basic and theoretical work to applied research.” (http://www.cornell.edu/academics/scholarship.cfm)

The science subjects at Cornell include Agriculture, Anthropology, Astronomy, Biology and Life Sciences, Chemistry, Computer Science, Earth and Atmospheric Sciences, Engineering, Mathematics, Medicine, Psychology, Physics, Veterinary Science.

In order to know the Sciences development at Cornell, the number of SCI papers whose authors are from Cornell is used as an indicator. Choosing the citation database “SCI-Expanded” in Web of Science, search using the keywords “Cornell” in search box “Address”, “2008-2009” in search box “Years Published”, the search results show that in the years 2008 and 2009 the highest ranking subjects of the articles published by the authors from Cornell were Biochemistry & Molecular Biology, Plant Sciences, Astronomy & Astrophysics, Veterinary Sciences, Neurosciences, Genetics & Heredity, Chemistry, Ecology, Food Science & Technology, Material Science, Cell Biology, Oncology, Applied Physics, Microbiology, Surgery, Immunology, etc.. (See the details in Fig.1 which is the screenshot from Web of Science)

<table>
<thead>
<tr>
<th>Field: Subject Area</th>
<th>Record Count</th>
<th>% of 5151</th>
<th>Bar Chart</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOCHEMISTRY &amp; MOLECULAR BIOLOGY</td>
<td>668</td>
<td>7.2779 %</td>
<td></td>
</tr>
<tr>
<td>PLANT SCIENCES</td>
<td>399</td>
<td>4.3493 %</td>
<td></td>
</tr>
<tr>
<td>ASTRONOMY &amp; ASTROPHYSICS</td>
<td>364</td>
<td>3.9777 %</td>
<td></td>
</tr>
<tr>
<td>VETERINARY SCIENCES</td>
<td>351</td>
<td>3.8356 %</td>
<td></td>
</tr>
<tr>
<td>NEUROSCIENCES</td>
<td>327</td>
<td>3.5734 %</td>
<td></td>
</tr>
<tr>
<td>MULTIDISCIPLINARY SCIENCES</td>
<td>317</td>
<td>3.4641 %</td>
<td></td>
</tr>
<tr>
<td>GENETICS &amp; HEREDITY</td>
<td>287</td>
<td>3.1383 %</td>
<td></td>
</tr>
<tr>
<td>CHEMISTRY, MULTIDISCIPLINARY</td>
<td>283</td>
<td>3.0926 %</td>
<td></td>
</tr>
<tr>
<td>ECOLOGY</td>
<td>282</td>
<td>3.0816 %</td>
<td></td>
</tr>
<tr>
<td>FOOD SCIENCE &amp; TECHNOLOGY</td>
<td>274</td>
<td>2.9942 %</td>
<td></td>
</tr>
<tr>
<td>MATERIALS SCIENCE, MULTIDISCIPLINARY</td>
<td>267</td>
<td>2.9177 %</td>
<td></td>
</tr>
<tr>
<td>CELL BIOLOGY</td>
<td>264</td>
<td>2.8849 %</td>
<td></td>
</tr>
<tr>
<td>ONCOLOGY</td>
<td>259</td>
<td>2.8303 %</td>
<td></td>
</tr>
<tr>
<td>BIOTECHNOLOGY &amp; APPLIED MICROBIOLOGY</td>
<td>258</td>
<td>2.8194 %</td>
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<tr>
<td>PHYSICS, APPLIED</td>
<td>237</td>
<td>2.5899 %</td>
<td></td>
</tr>
<tr>
<td>MICROBIOLOGY</td>
<td>229</td>
<td>2.4687 %</td>
<td></td>
</tr>
<tr>
<td>SURGERY</td>
<td>222</td>
<td>2.4200 %</td>
<td></td>
</tr>
<tr>
<td>IMMUNOLOGY</td>
<td>213</td>
<td>2.3275 %</td>
<td></td>
</tr>
<tr>
<td>PATHOLOGY</td>
<td>197</td>
<td>2.1528 %</td>
<td></td>
</tr>
<tr>
<td>CHEMISTRY, PHYSICAL</td>
<td>195</td>
<td>2.1309 %</td>
<td></td>
</tr>
<tr>
<td>HEMATOLOGY</td>
<td>175</td>
<td>1.9233 %</td>
<td></td>
</tr>
<tr>
<td>ENVIRONMENTAL SCIENCES</td>
<td>173</td>
<td>1.8905 %</td>
<td></td>
</tr>
<tr>
<td>HORTICULTURE</td>
<td>161</td>
<td>1.7594 %</td>
<td></td>
</tr>
<tr>
<td>PHYSICS, CONDENSED MATTER</td>
<td>159</td>
<td>1.7375 %</td>
<td></td>
</tr>
<tr>
<td>UROLOGY &amp; NEPHROLOGY</td>
<td>159</td>
<td>1.7375 %</td>
<td></td>
</tr>
</tbody>
</table>

Fig.1 Subject areas of the papers with the authors from Cornell when searching in Web of Science, 2008-2009
1.2 Recent Developments in Science in China

In the article titled “The Characteristics and the Trends in the Development of the Chinese Natural Science Field”, Molecular Biology, Chemistry, Physics, Material Science, Medicine, Engineering Technology, Astronomy & Astrophysics and Computer Science were described as the research fields which were making rapid progress. ([http://www.sic.cas.cn/xwzx/kydt/200704/t20070404_2101781.html](http://www.sic.cas.cn/xwzx/kydt/200704/t20070404_2101781.html))

To analyze the development of the sciences in China, the number of SCI papers funded by Chinese organizations is used as an indicator. The assumption is that leading science in China would be published in journals covered by SCI. Choosing the citation database “SCI-Expanded” in Web of Science, using the keywords “China” in search box “Funding Agency”, “2008-2009” in search box “Year Published”, the search results show that in the years 2008 and 2009 the subjects of the articles published by Chinese authors rank from Materials Science, Physical Chemistry, Physics, Chemistry, Biochemistry & Molecular Biology, Electrical & Electronic Engineering, Optics, Condensed Matter Physics, Environmental Sciences, Applied Mathematics, Nanoscience & Nanotechnology, Metallurgy & Metallurgical Engineering, Analytical Chemistry, Polymer Science, Chemical Engineering, Biotechnology & Applied Microbiology, Organic Chemistry, Pharmacology & Pharmacy, Mathematics, Plant Sciences, Crystallography, etc.. (See the details in Fig.2)

![Fig.2 Subject areas of the papers with Chinese funding, 2008-2009](image-url)
1.3 Current Availability of Chinese scientific journals at Cornell

- Print Chinese scientific journals at Cornell

There are 77 Chinese scientific journals in either Chinese or English language included in CU Library Catalog:

- 31 print subscriptions have been recently cancelled, of which 11 can be accessed from some e-collections, such as SpringerLink, Elsevier ScienceDirect;
- 11 have print and electronic copies. (See the details in the file: China_serials_QRST2008_item_PO(1)-0225)

(And, there are 11 journals from Taiwan and HongKong in the 77 journals above. Note that these 11 journals are not collected in the main Chinese Journal Collections, such as CNKI, VIP and Wanfang which are introduced in a later section.)

- Access to Chinese scientific e-journals at Cornell

There are three possible ways for the users to access Chinese scientific e-journals at Cornell.

Some Chinese scientific journals in English language can be accessed from electronic collections, such as SpringerLink, Elsevier ScienceDirect, Wiley & Blackwell, which are subscribed by Cornell University Library (CUL). For example, in the Core Chinese scientific journals in <Guide to Core Journals of China> ¹ and the source journals in <Chinese S&T Journal Citation Report>, there are 33 journals in English language. Among these 33 journals, 15 journals can be downloaded from Springerlink, ScienceDirect, etc., but in most of these electronic collections only the papers published after 2006 are online. The backfiles cannot be accessed. (See the details in the file: 2008-CAJs Rank+Core-0527)

Cornell University library subscribes to several social science packages from CNKI which is a Chinese e-journal collection. Because some articles are collected in both the social science packages and the scientific packages in CNKI, users at Cornell can download these articles from CNKI website. The number of these articles is unclear, but the usage of downloading these articles at Cornell is analyzed in the later section.

And, some Chinese scientific journals are opened online, but the number is limited. For example, in 27 main journals in Mathematics which is based on the Chinese core journals and the source journals in <Chinese S&T Journal Citation Report> there are 8 journals which fulltext can be read; in 35 main journals in Physics there are 9 journals which are open access. And, most of these open access journals only provide the contents published in some years, not their full contents. (See the details in the file: 2008-CAJs Rank+Core-0527)

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¹ <Guide to Core Journals of China> and <Chinese S&T Journal Citation Report> are two popular Chinese journal evaluation tools.
2.0 ANALYSIS OF THE NEED FOR CHINESE SCIENTIFIC JOURNALS AT CORNELL

In order to know about the need for Chinese scientific journals at Cornell, Chinese/Cornell researchers’ cooperation in the sciences was first analyzed based on the number and the subject area of papers with co-authors from Cornell and from China. The number and the subject of the articles which had an author from Cornell and were indexed by Chinese collections was also analyzed, which may indicate that the researchers at Cornell are familiar with some Chinese scientific journals and have a need for them. And then, the need for Chinese scientific journals was surveyed in two different communities at Cornell: one is in the scientific community at Cornell, and the other is the Chinese visiting scholars. These surveys attempted to assess the need of the users directly. Finally, the usage of Chinese scientific papers in CNKI, one Chinese e-journal collection at Cornell, was analyzed.

2.1 Analysis on Chinese/Cornell co-authorship

- The number of the papers which had authors from Cornell and from China and were indexed by Science Citation Index in last ten years (2000-2009)

<table>
<thead>
<tr>
<th>Field: Publication Year</th>
<th>Record Count</th>
<th>% of 652</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>116</td>
<td>17.7914%</td>
</tr>
<tr>
<td>2008</td>
<td>116</td>
<td>18.0982%</td>
</tr>
<tr>
<td>2007</td>
<td>92</td>
<td>14.1104%</td>
</tr>
<tr>
<td>2006</td>
<td>77</td>
<td>11.8098%</td>
</tr>
<tr>
<td>2005</td>
<td>65</td>
<td>9.9693%</td>
</tr>
<tr>
<td>2004</td>
<td>57</td>
<td>8.7423%</td>
</tr>
<tr>
<td>2003</td>
<td>52</td>
<td>7.9756%</td>
</tr>
<tr>
<td>2002</td>
<td>10</td>
<td>4.5012%</td>
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<tr>
<td>2001</td>
<td>28</td>
<td>4.2945%</td>
</tr>
<tr>
<td>2000</td>
<td>15</td>
<td>2.3006%</td>
</tr>
</tbody>
</table>

Fig.3 The number of the papers with co-authors from Cornell and China from 2000-2009

Choosing the citation database “SCI-Expanded” in Web of Science, using the keywords “Cornell” and “China” in the search box “Address”, “2000-2009” in search box “Years Published”, the number of the papers which had authors from Cornell and from China in last ten years were obtained in the search result as shown above. The trend in these
numbers is increasing year by year, which indicates that in recent years the cooperation between science researchers at Cornell University and in China is increasing (Fig.3).

- The subject areas of the papers which had authors from Cornell and authors from China and were indexed by Science Citation Index in last ten years (2000-2009) and in recent years (2008-2009) are listed in Fig.4 and Fig.5.

<table>
<thead>
<tr>
<th>Field: Subject Area</th>
<th>Record Count</th>
<th>% of 652</th>
<th>Bar Chart</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOCHEMISTRY &amp; MOLECULAR BIOLOGY</td>
<td>81</td>
<td>12.423%</td>
<td></td>
</tr>
<tr>
<td>PLANT SCIENCES</td>
<td>69</td>
<td>9.6491%</td>
<td></td>
</tr>
<tr>
<td>BIOTECHNOLOGY &amp; APPLIED MICROBIOLOGY</td>
<td>88</td>
<td>8.8065%</td>
<td></td>
</tr>
<tr>
<td>GENETICS &amp; HEREDITY</td>
<td>57</td>
<td>5.4440%</td>
<td></td>
</tr>
<tr>
<td>MULTIDISCIPLINARY SCIENCES</td>
<td>26</td>
<td>1.9823%</td>
<td></td>
</tr>
<tr>
<td>HEMATOLOGY</td>
<td>22</td>
<td>1.7381%</td>
<td></td>
</tr>
<tr>
<td>ONCOLOGY</td>
<td>25</td>
<td>3.8344%</td>
<td></td>
</tr>
<tr>
<td>ENVIRONMENTAL SCIENCES</td>
<td>23</td>
<td>3.5270%</td>
<td></td>
</tr>
<tr>
<td>ENTOMOLOGY</td>
<td>22</td>
<td>3.4742%</td>
<td></td>
</tr>
<tr>
<td>PHYSICS, APPLIED</td>
<td>22</td>
<td>3.3742%</td>
<td></td>
</tr>
<tr>
<td>ENGINEERING, ELECTRICAL &amp; ELECTRONIC</td>
<td>21</td>
<td>3.2209%</td>
<td></td>
</tr>
<tr>
<td>BIOPHYSICS</td>
<td>20</td>
<td>3.0675%</td>
<td></td>
</tr>
<tr>
<td>BIOCHEMICAL RESEARCH METHODS</td>
<td>19</td>
<td>2.7607%</td>
<td></td>
</tr>
<tr>
<td>WATER RESOURCES</td>
<td>18</td>
<td>2.7607%</td>
<td></td>
</tr>
<tr>
<td>HORTICULTURE</td>
<td>17</td>
<td>2.6074%</td>
<td></td>
</tr>
<tr>
<td>CELL BIOLOGY</td>
<td>16</td>
<td>2.4540%</td>
<td></td>
</tr>
<tr>
<td>RADIATION, NUCLEAR MEDICINE &amp; MEDICAL IMAGING</td>
<td>16</td>
<td>2.4540%</td>
<td></td>
</tr>
<tr>
<td>AGRONOMY</td>
<td>15</td>
<td>2.3006%</td>
<td></td>
</tr>
<tr>
<td>ASTRONOMY &amp; ASTROPHYSICS</td>
<td>15</td>
<td>2.3006%</td>
<td></td>
</tr>
<tr>
<td>PATHOLOGY</td>
<td>15</td>
<td>2.3006%</td>
<td></td>
</tr>
<tr>
<td>GASTROENTEROLOGY &amp; HEPATOLOGY</td>
<td>14</td>
<td>2.1472%</td>
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</tr>
<tr>
<td>NEUROSCIENCES</td>
<td>14</td>
<td>2.1472%</td>
<td></td>
</tr>
<tr>
<td>CHEMISTRY, MULTIDISCIPLINARY</td>
<td>13</td>
<td>1.9939%</td>
<td></td>
</tr>
<tr>
<td>CRYSTALLOGRAPHY</td>
<td>13</td>
<td>1.9939%</td>
<td></td>
</tr>
<tr>
<td>FOOD SCIENCE &amp; TECHNOLOGY</td>
<td>13</td>
<td>1.9939%</td>
<td></td>
</tr>
</tbody>
</table>

**Fig.4 Subjects of the co-authored papers published 2000-2009**
Based on the search result above, the subject areas of these papers were also analyzed in Web of Science (Fig.4 and Fig.5). In 2000-2009 the subject areas listed at the top include Biology (Biochemistry, Molecular Biology, Plant Sciences, Biotechnology, etc.), Medicine (Hematology, Oncology, etc.), Environmental Sciences, Physics, Engineering, etc. And, in the recent two years (2008-2009) the rank of subject areas has some changes: Environmental Sciences, Medicine, Engineering, Chemistry and Food Science move up in the ranking. These results indicate that the research cooperation between China and Cornell University extends to more and more subject areas.

2.2 Analysis of the scientific papers with authors from Cornell and published in Chinese scientific journals

- The number of papers

There are some large Chinese academic journal collections, such as CNKI, which can be used to obtain these data. Searching in CNKI, entering the term “Cornell” or “康奈尔” in the field “institution” and choosing the science packages, the number of papers in each year from 2000 to 2009 was obtained and was shown in Fig.6. The trend in this figure indicates that in recent years more papers with an author from Cornell were published in Chinese scientific journals.

Because CNKI can’t provide further analysis of the search result, another search was made in a Chinese citation database whose name is CSCD (Chinese Science Citation Database). The analysis of the results of the author’s rank based on the number of papers and on the subject areas of the papers can be provided in CSCD. When searching, the same terms were
used in CSCD but fewer papers were obtained in each year (Fig.7). A likely explanation is that there are more than 5,000 scientific journals in CNKI while only about 1,000 scientific journals in CSCD. Note that the subject areas in CSCD include some social sciences, but CSCD doesn’t support limiting a search only to the sciences. So, the search results from CSCD include some papers in the social sciences, but we didn’t list them in Table 1 and Table 2.

The data on the next page (Table 1) were cited from the search results of CSCD. The data showed that in 2000-2009 some researchers at Cornell listed in the top 20 authors who published more papers in Chinese academic journals. For example, Hairui Liu whose research is in the field of Food Science at Cornell University, as one of the authors, published 12 papers in Chinese academic journals in the last ten years; and, Xiaodong Jiang whose research is in the field of Engineering published 9 papers in Chinese academic journals in the last ten years. The subject areas of Cornell authors in the top 20 listed in Table 1 include Food Science, Engineering, Applied Mathematics, and Plant Science.

The Subject areas of the papers

The data in Table 2 were cited from the search results of CSCD. The data showed that Biology, Clinical Medicine/Special Medicine, Electrical Technology, Basic Medicine, Preventive Medicine/Hygiene, Environmental Science & Safety Science, Geology, Plant Protection, Physical Geography, and Pharmacology were the top ten subject areas of the papers published by the co-authors from Cornell in the last ten years, which indicates that Cornell researchers in these fields tended to cooperate with Chinese scientists.
<table>
<thead>
<tr>
<th>Author</th>
<th>Number of Papers</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hairui Liu, Cornell University, USA</td>
<td>12</td>
<td>Department of Food Science</td>
</tr>
<tr>
<td>Bingqing Chen, Haerbin Medical University, China</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Xiaoqiang Li, Cornell University, USA</td>
<td>9</td>
<td>College of Engineering</td>
</tr>
<tr>
<td>Jinquan Zhao, Tsinghua University, China</td>
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<td></td>
</tr>
<tr>
<td>Jiaren Liu, Haerbin Medical University, China</td>
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<td></td>
</tr>
<tr>
<td>Boming Zhang, Tsinghua University, China</td>
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</tr>
<tr>
<td>Yumei Xue, Haerbin Medical University, China</td>
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<td>Yanmei Yang, Haerbin Medical University, China</td>
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</tr>
<tr>
<td>Yongmiao Hong, Cornell University, USA</td>
<td>6</td>
<td>Department of Economics</td>
</tr>
<tr>
<td>Philip S. Li, Cornell University, USA</td>
<td>3</td>
<td>Center for Male Reproductive Medicine and Microsurgery, Cornell Institute for Reproductive Medicine, Department of Urology, The New York Presbyterian Hospital, Weill Medical College of Cornell University</td>
</tr>
<tr>
<td>Maria Harrison, Cornell University, USA</td>
<td>3</td>
<td>Boyce Thompson Institute for Plant Research</td>
</tr>
<tr>
<td>Jingsong Yang, Shanghai Jiao Tong University, China</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Siwei Chen, Graduate University of Chinese Academy of Sciences</td>
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<td></td>
</tr>
<tr>
<td>Xianmin He, Second Military Medical University, China</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Dong Feng, Guangzhou Institute of Geochemistry, CAS</td>
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<td></td>
</tr>
<tr>
<td>Junshi Chen, Chinese Center for Disease Control and Prevention</td>
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<td>Jia He, Second Military Medical University, China</td>
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<tr>
<td>Subject Area</td>
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<tr>
<td>-----------------------------------------------------------</td>
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<tr>
<td>Biology</td>
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<tr>
<td>Clinical Medicine / Special Medicine</td>
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<tr>
<td>Electrical Technology</td>
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<tr>
<td>Basic Medicine</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Preventive Medicine, Hygiene</td>
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<td></td>
</tr>
<tr>
<td>Plant Protection</td>
<td>4</td>
<td></td>
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<tr>
<td>Environmental Science &amp; Safety Science</td>
<td>3</td>
<td></td>
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<tr>
<td>Geology</td>
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<td>Physical Geography</td>
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<tr>
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<tr>
<td>Wireless Electronics, Telegraphy</td>
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<tr>
<td>Automation Technology, Computer Technology</td>
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<td>Mechanism, Instrument Industry</td>
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<td>Agriculture</td>
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<td>Physics</td>
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<td>Oceanography</td>
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<tr>
<td>Chinese Traditional Medicine</td>
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<td>Agronomy, Crop</td>
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<td>Aquatic Product, Fisheries</td>
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<td>Forestry</td>
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<td>Oil, Natural Gas Industry</td>
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</table>
2.3 Survey of the need for Chinese science journals at Cornell

Two surveys of the need for Chinese scientific journals were conducted in two different groups at Cornell. One was in the form of a paper survey which was of Chinese visiting fellows, and the other, which was conducted online, was of the Cornell science community in general, including faculty, staff, undergraduate and graduate students at Cornell.

There were 5-6 questions in these surveys, 4 of which were in common. Some additional information was also requested, such as the subject/field of the participants, and suggestions of Chinese scientific journals needed at Cornell.

20 questionnaires were returned from the visiting fellows in one week (March 15-19, 2010), and 32 were returned from the Cornell science community in ten days (May 24-June1, 2010).

The survey results are shown on the following page (Fig.8 and Fig.9).