Investigation of industrial pharmacists’ views on pharmaceutical industry careers

By Janice Kirby-Smith, Jane Portlock and David Brown

Although a pharmacist’s basic training includes consideration of the various scientific disciplines related to drug discovery, product development and manufacture, together with aspects related to medicines information, supply and use, in accordance with the Royal Pharmaceutical Society’s accreditation system, only 3.8 per cent of the pharmacy workforce is employed in the pharmaceutical industry and related fields. Of 83,000 posts in industry, 1.5 per cent (1,245) are held by pharmacists. There were 2,234 members of the Society’s Industrial Pharmacists’ Group (IPG) in 2004. This figure is higher than the Association of the British Pharmaceutical Industry (ABPI) figures for pharmacists in industry, since the IPG is open to pharmacists in related fields such as regulatory affairs and consultancy, and to any other pharmacists with an interest in the sector (eg, academic pharmacists).

Literature searching has revealed no previous systematic research into industrial pharmacists’ views on their role in the pharmaceutical industry. This research was conducted to test the H₁ hypothesis that pharmacists consider that they have a worthwhile role to play within the pharmaceutical industry, as opposed to the alternative H₀ hypothesis that pharmacists have little to offer the industry.

The purpose was to advance knowledge by investigating the range of occupations undertaken by pharmacists in the industry and to explore their views on levels of job satisfaction in this area of pharmacy practice and on the value pharmacists might bring to the industry. The aims were:

- To obtain the views of industrial pharmacists by means of an electronic questionnaire
- To explore their reasons for choosing to work in industrial pharmacy practice
- To investigate pharmacists’ views on the value of being a pharmacist and roles suited to pharmacists
- To consider whether there is a need to encourage more pharmacists to undertake industrial pharmacy roles

Methods
The questionnaire was designed to capture quantitative data on such aspects as which areas of the industry pharmacists were employed in, together with qualitative data such as industrial pharmacists’ views on their role in the industry. The questionnaire was designed to be clear and unambiguous, and to raise pertinent issues, following Health Technology Assessment recommendations on questionnaire design.

The questionnaire used in this study was piloted by sending a draft electronically to a small group of pharmacists in the lead researcher’s workplace (a contract research organisation). After minor modifications, it was sent electronically to IPG members whose names were included on the IPG electronic mailing list (400 addresses). In addition, hard copies of the questionnaire were distributed at an IPG meeting in an attempt to cover those members whose names were not on the electronic list. In view of practical difficulties relating to access to the database, no additional reminders were sent. Responses were returned to the project supervisor at Portsmouth School of Pharmacy either electronically or by post, and were anonymous. Identification of questionnaire respondents was required to ensure that there was no duplication of responses.

Results
Many industrial pharmacists believe that there is a wide range of opportunities for pharmacists to provide a valuable contribution to the industry, particularly in view of their breadth of knowledge, and that this career option should be promoted to potential recruits more effectively.

Abstract

Aim
To investigate the range of occupations undertaken by pharmacists in the pharmaceutical industry and to explore their views on this area of the profession and its value to the industry.

Design
Theme analysis of responses to a questionnaire comprising structured and open questions.

Subjects and setting
Industrial pharmacists on the Industrial Pharmacists’ Group (IPG) electronic mailing list.

Outcome measures
Roles and views on industrial pharmacy practice.

Results
153 pharmacists from the IPG responded. 107 (70%) worked in research and development, 54 (35%) in regulatory affairs, 49 (32%) in administration and 43 (28%) in quality assurance. Respondents were enthusiastic about their role in the industry, and considered that their pharmacy training was a positive feature in determining the value of the contribution they made to the industry. Key positive themes that emerged included the availability of a wide variety of jobs and ability to perform well due to broad knowledge base. Negative themes included a need for more promotion of this area of practice and better support from the Royal Pharmaceutical Society.

Conclusions
Many industrial pharmacists think there is a wide range of opportunities for pharmacists to provide a valuable contribution to the industry, particularly in view of their breadth of knowledge, and that this career option should be promoted to potential recruits more effectively.
and over half of the respondents had worked in the industry for more than 20 years (Table 1). Respondents were employed in a wide spectrum of jobs which sometimes spanned several areas of work (Table 1).

A total of 135 respondents (88 per cent) considered that being a pharmacist enabled them to do their job better and 106 (69 per cent) considered that some jobs in the industry were better done by a pharmacist than by other members of the profession; 133 respondents (87 per cent) considered that more pharmacists should be encouraged to choose a career in the industrial sector.

Analysis of responses to open questions identified five major themes related to reasons for choosing industrial pharmacy, five major themes related to the value of being a pharmacist, seven major roles particularly suited to pharmacists and seven major themes related to the need to encourage industrial roles.

Major themes related to reasons for choosing to work in the pharmaceutical industry or the closely related fields of regulatory affairs or consultancy included scientific basis, variety of work and good career development opportunities (Table 1). The main reasons for considering that being a pharmacist enabled respondents to do their job better than if they had studied a different discipline included breadth of knowledge base and clinical or scientific knowledge (Table 1). However, eight respondents considered that being a pharmacist gave no advantage, commenting that appropriate experience in the pharmaceutical industry was more important, and that this could equally be acquired by people from other disciplines.

The main jobs which respondents thought were better done by a pharmacist included regulatory affairs, pharmaceutical development and Qualified Person (Q.P.) (Table 1). Thirteen respondents (9 per cent) considered that there were no jobs that could be better done by pharmacists, although six of these commented that other professionals might require a longer period of training to acquire the same degree of proficiency.

The main reasons given for believing that more pharmacists should be encouraged to choose industrial pharmacy included good use of knowledge, variety of work and added value to industry and patients (Table 1). However, four respondents thought that pharmacists should not be encouraged to choose an industrial pharmacy career, expressing the view that other disciplines could provide specialist expert contributions which were of greater value to the industry and cost less in terms of salary, as illustrated by the following comment:

"I cannot justify a salary of approx. £30k for a new graduate just because they are a pharmacist when I can get a chemist or biologist for £20k.

Choice of career

Thirty-eight respondents (25 per cent) gave multiple reasons for choosing to work in the pharmaceutical industry in response to open questions concerning their choice, as exemplified by the following comments from two respondents:


The opportunities to diversify into various roles and utilise the broad spectrum of scientific knowledge gained from the pharmacy curriculum is the prospect of international travel with major players in the industry and the opportunity, through membership of industry associations, etc, to influence the drafting of pharmaceutical legislation. It was also rewarding to be involved in regulatory affairs and contribute to the improvement of the nation’s health by obtaining marketing authorisations for key products in several therapeutic areas.

Seventeen respondents (11 per cent) based their reasons for choosing to work in the industry on dislike of other branches of the profession, as illustrated by the following comments:

I could not contemplate spending six days a week within the same four walls, ie, community practice, and there was a poor career path/salary in hospital practice in the 1960s.

Community pharmacy never appealed. When I left the army I was looking for a career change away from hospital pharmacy so the industry was the obvious place to go.

Usefulness of pharmacy background

Seventy-eight respondents (51 per cent) gave multiple reasons for expressing the view that being a pharmacist helped them to do their job better than if they had studied a different discipline, as exemplified by the following typical comments from two respondents:

Being a pharmacist has enabled me to gain wide experience in a variety of roles. I have worked in pharmaceutical formulation, clinical trials manufacture, clinical trials packaging, pharmaceutical analysis, commercial manufacture and research, quality assurance. I undertook additional studies and subsequently registered as a Qualified Person. The breadth of my pharmacy training certainly gave me a head start over other trainees who started with chemistry or biology degrees. The knowledge I gained in hospital/community pharmacy also helps me to consider the practical implications of the products we develop and the needs of the patients, doctors, nurses, etc.

Training plus hospital and community experience put me in the fairly unique position of knowing how our medicines are used and also our competitors’ medicines are used — therefore when it came to designing advertising, labelling, SPCs [Summaries of Product Characteristics] and the clinical (as well as preclinical and formulation) development programmes that support all of this, I was able to make valuable contributions that saved millions and earned millions.

In relation to the regulatory affairs function, comments included the following from two respondents:

Regulatory affairs provides an opportunity to use many skills learnt during my pharmacy degree and I think that many other graduates do not have the broad background in basic science, therapeutics and law that are needed to be effective as a regulatory professional.

Regulatory affairs is a brilliant job for a pharmacist — you get to apply all parts of the academic syl-

Table 1: Study findings

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Number</th>
<th>%</th>
</tr>
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<tbody>
<tr>
<td>Other sectors worked in (n=153)</td>
<td>Community</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>Hospital</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>34</td>
</tr>
<tr>
<td>Length of service in industry (n=151)</td>
<td>&lt; 10 years</td>
<td>16</td>
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<td></td>
<td>10–19 years</td>
<td>49</td>
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<td></td>
<td>20–30 years</td>
<td>52</td>
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<tr>
<td></td>
<td>&gt; 30 years</td>
<td>34</td>
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<tr>
<td>Area of work at the time of the survey (n=153)*</td>
<td>Research and development</td>
<td>107</td>
</tr>
<tr>
<td></td>
<td>Regulatory affairs</td>
<td>54</td>
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<tr>
<td></td>
<td>Administration</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Quality assurance</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>Production</td>
<td>38</td>
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<tr>
<td></td>
<td>Information</td>
<td>11</td>
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<tr>
<td>Reasons for choosing industrial pharmacy (n=153)*</td>
<td>Scientific basis</td>
<td>59</td>
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<tr>
<td></td>
<td>Variety of work</td>
<td>38</td>
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<tr>
<td></td>
<td>Good pay/status/career prospects</td>
<td>34</td>
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<td></td>
<td>Good use of pharmacy knowledge</td>
<td>23</td>
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<td></td>
<td>Opportunities for leadership/responsibility</td>
<td>11</td>
</tr>
<tr>
<td>Reasons for believing that being a pharmacist enabled respondents to perform better (n=153)*</td>
<td>Breadth of knowledge base</td>
<td>99</td>
</tr>
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<td></td>
<td>Clinical knowledge</td>
<td>56</td>
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<td></td>
<td>Scientific knowledge</td>
<td>53</td>
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<td></td>
<td>Professional standards and ethics</td>
<td>16</td>
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<td></td>
<td>Effective interface with all other disciplines</td>
<td>15</td>
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<tr>
<td>Jobs respondents thought might be done better by pharmacists than by other professionals (n=151)*</td>
<td>Regulatory affairs</td>
<td>68</td>
</tr>
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<td></td>
<td>Pharmaceutical development</td>
<td>61</td>
</tr>
<tr>
<td></td>
<td>Qualified Person</td>
<td>50</td>
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<tr>
<td></td>
<td>Medical information</td>
<td>41</td>
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<td></td>
<td>Clinical development/supplies</td>
<td>37</td>
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<tr>
<td></td>
<td>Manufacture</td>
<td>23</td>
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<tr>
<td></td>
<td>Sales and marketing</td>
<td>13</td>
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<tr>
<td>Reasons for promoting industrial pharmacy (n=153)*</td>
<td>Good use of pharmacist's knowledge</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>Variety of work</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>Added value to industry and patients</td>
<td>31</td>
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<tr>
<td></td>
<td>Good career opportunities</td>
<td>26</td>
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<tr>
<td></td>
<td>Clinical background gives understanding of patients’ needs</td>
<td>12</td>
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<tr>
<td></td>
<td>Good pay</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Scientific basis</td>
<td>10</td>
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*Respondents were free to give more than one answer.
The value of my contribution to the organisation I work for is through the wealth of experience gained in the industry and the regulatory authorities, organisational abilities and an ability to analyse issues and prioritise accordingly, and not through being a pharmacist.

One of my colleagues are or ever have been pharmacists. What helps me to do my job better is a number of years studying drug discovery, from the synthetic organic chemistry perspective (all my colleagues were chemists), and from working in major Pharma [pharmaceutical companies] for over 15 years (my colleagues have all been chemists, pharmacologists, project managers and IS/IT [information systems information technology] specialists).

Roles for which a pharmacist is better suited than other professions

Some 88 respondents (58 per cent) considered that there were various industry roles for which pharmacists were better suited than other professions, as exemplified by the following comments:


The pharmacy training is a great basis for all areas. It is always possible to do these jobs with other relevant training, but there needs to be a higher proportion of pharmacists to give the broader view and keep patient focus and give reality check for new packaging, reimbursement, promotional materials, etc.

The view that a pharmacist’s training provides an initial advantage in job performance, but that the necessary skills can be acquired by other disciplines was expressed by 18 respondents (12 per cent), with comments such as:

I think pharmacists can pick up some aspects faster but I am not sure the job can be done better.

My opinion is not that pharmacists are better as such, more that any given individual has a better starting point of width of education, eg, the number of pharmacist QPs [qualified Persons] is low as a proportion. The QP education is based on the pharmaceutical course along with suitable experience. QP chemists and biologists can be equally good but have to be taught the aspects of pharmacy that the education requirement prescribes.

Thirteen respondents (9 per cent) considered that there were no roles for which pharmacists were better suited, as illustrated by the following comments:

One in the industry they have to prove themselves alongside the others. One may have thought formulation would be better done by pharmacists but the best formulator I ever had was a chemist.

I think performances in the job are driven by personality and commitment as much as by education background.

Promotion of careers in industrial pharmacy practice

Forty-nine respondents (32 per cent) gave several reasons why they believed that more pharmacists should be encouraged to choose a career in industrial pharmacy, offering comments such as:

An opportunity to use the complete range of skills and expertise one learns and develops as a pharmacist for the benefit of patients. For example, I am involved in discussions and decisions on all aspects of medicines from chemical synthesis to formulation development to clinical studies and pack design. Work with a wide range of people, good career opportunities. Flexible career opportunities.

Industry provides medicines for sick people, and pharmacists have a realisation of the pharmaceutical issues including the clinical aspects surrounding the products in development, in manufacture and in marketing. Other disciplines spend some of their time in industry trying to appreciate the pharmaceutical aspects of their job, which seems like double accounting when pharmacists are already appropriately trained to understand the relevance of these issues.

Negative comments from four respondents can be summarised by the following view:

I would not necessarily encourage A-level students to do pharmacy if they want to work in industry — it depends on what branch of science they are interested in (eg, molecular biology graduates are better qualified to work in pharmacology). At any rate a PhD is important. Most pharmacists don’t have the skills required by industry R&D [research and development] unless they are postdocs. In my opinion, the average hospital or community pharmacist cannot input into the discovery or development of new drugs from a scientific perspective. They may be able to work in drug safety, medical information or regulatory [affairs].

Fifteen respondents (10 per cent) also took the opportunity to comment on the contribution made by schools of pharmacy, the industry and the Royal Pharmaceutical Society to promotion of careers in the pharmaceutical industry, as exemplified by the following comments:

I see a decline in the number of pharmacists looking to come into industry and also the Society seems to do little to encourage them to do so. There are fewer industrial pre-reg placements than in the past. The whole CPD [continuing professional development] initiative seems targeted to isolate and devalue industrial pharmacists vis-à-vis the rest of the profession.

I think that encouragement should start as soon as possible, ie, at undergraduate level. There are still many misconceptions and ignorance about what the industry is like, what is on offer and how to get there (eg you need a first class honours degree, need a PhD — both incorrect). The prereg exam does not help in this respect as the focus is mainly clinical based. Also, there are fewer and fewer prereg places being offered — prereg experience is often a good gateway to the industry. Encouragement should take the form of making efforts to change misconceptions and overcoming ignorance. If more pharmacists/undergraduates really knew what it was like in the industry, we would not need to encourage more to choose a career — they would be doing so anyway.

Respondents were invited to offer other comments and some repeated the concerns expressed above. Comments particularly related to lack of undergraduate knowledge (16, 10 per cent), lack of Society support (16, 10 per cent) and lack of preregistration posts (8, 5 per cent).

Comments concerning undergraduate knowledge included the following:

Students need to be made aware of the benefits and scope of an industrial career. Schools of pharmacy generally neglect this completely.

It is vital that the decline in the number of pharmacists in senior position in the industry is reversed. They must learn more about the opportunities at university. It would also improve the quality of the intake into pharmacy courses.

In relation to lack of professional support, the following comments were typical:

Recognition by the Royal Pharmaceutical Society that pharmacists working within the industry are an important part of the overall supply chain (from research to patient) would help but I think that is a lost cause. Recent changes within the Society probably means we will see a continuing decline in the number of registered pharmacists working within the industry.

Under present iniquitous system it is obvious that the Society is not interested in industry, having scrapped the Industrial Pharmacist newsletter, having imposed a CPD system that is onerous yet prevents one from doing locums (wrong sort of CPD) and the insult of the "non-practising pharmacist" scheme. For these reasons I have recently reluctantly resigned from the Register.

Views of younger and older industrial pharmacists

The ages of respondents ranged from 26 to 73 years at the time of the (Continued on p277)
survey, with a high proportion of older pharmacists. Analysis of responses to questions revealed little difference in the views expressed by younger and older pharmacists, although the views of one of the younger group concerning entry to the pharmaceutical industry sector are of particular note:

I feel there is very little help for students who wish to enter the industry. I received no help from my university, plus nothing from the industry or even the IPG or ABPI (A Society of the British Pharmaceutical Industry), and yet we were bombarded by community and hospital representatives despite trying. I only received two interviews for an industrial prereg and was later informed there were only eight places in the whole of the country. . . . So fed universities need to be showing that industry is a viable option and pharmaceutical companies need to restart their prereg schemes.

Views of male and female respondents
A significantly greater proportion of female pharmacists had hospital experience (chi square 0.492, P = 0.027). Fewer female pharmacists considered that there were some roles for which a pharmacist was better suited than other disciplines. This difference was statistically significant (chi-square 6.291, P = 0.009) and this was reflected in a less extensive list of jobs that female pharmacists considered were better done by a pharmacist. In general, most of both male and female pharmacists' views were similarly positive in relation to industrial practice.

Discussion
The aims of this exploratory study were achieved, with a sufficient sample of industrial pharmacists giving comprehensive responses to a range of questions, thus giving an insight into the views of industrial pharmacists on industrial pharmacy roles and an insight into why few pharmacists opt for a career in the industry.

The pharmacists who responded to the questionnaire were generally enthusiastic about the role of the pharmacist in the industry, the value of their profession to the industry, job satisfaction and usefulness of the pharmacist's unique set of skills and training. This is perhaps not surprising, since respondents were those pharmacists who were keen enough to retain their membership of the Royal Pharmaceutical Society and to be members of the specialist IPG.

Respondents considered that their pharmaceutical training was a positive feature in determining the value of the contribution they made to the industry and many thought that more pharmacy graduates should be encouraged to join the industrial sector.

In a survey of student perceptions of the industry, the main reason for being attracted to industry related to having an interest in research and the main reasons for lack of interest in industrial pharmacy (other than the desire for patient contact) were that such roles would be dull, hard and laboratory-based, with approximately one third considering that a higher degree would be necessary.6

In contrast, industrial pharmacists thought that industry made good use of the pharmacist's knowledge, with varied work and added value for the industry and patients. Only 10 pharmacists (7 per cent) offered the view that the scientific base of pharmacy was a particular reason for promoting industrial pharmacy and views were equally divided on whether a higher degree was necessary. It was interesting to note that in response to an open invitation to comment on any aspect, 22 per cent of respondents said that lack of undergraduate awareness of the range of jobs available was a stumbling block in attracting students and that there was a widespread belief that all industrial roles were laboratory-based.

Respondents considered that current undergraduate courses did not prepare the pharmacist as well for industrial pharmacy careers nowadays as in the past, with less emphasis on scientific aspects and more emphasis on clinical aspects of pharmacy. However, comparison of undergraduate learning undertaken by the youngest and oldest pharmacists in the survey does not support this view. However, responses from the older group may be less reliable, in view of the long time since their graduation. There was also little difference between the younger and older groups in relation to their responses to other questions in the survey. Views expressed concerning lack of work placements and preregistration places reinforced the views expressed by undergraduates.

In general, there was little difference in answers to questions from male and female respondents, although a larger proportion of female respondents had prior experience of working in hospital pharmacy. Views of male and female respondents were similar in relation to jobs which might be performed better by a pharmacist, although not expressed so strongly by female pharmacists, with a larger proportion considering that there were no jobs better performed by a pharmacist. In general, analysis by gender confirmed the results obtained for the total sample. Results of a recent survey of female community pharmacists suggest dissatisfaction in relation to the gender pay gap, but no such views emerged in the current survey of industrial pharmacists.6 It is suggested that women tend to be better qualified than men but may face barriers to career progression, although the proportion of women continues to increase. This trend is apparent in the industrial sector too. M any of the younger pharmacists in the survey were female (38 and 22 with less or more than 20 years in the industry respectively, compared with 27 and 64 male pharmacists in these groups, respectively), and it remains to be seen whether their level of job satisfaction remains high if they may be faced with possible barriers to promotion later in their careers.

Since this was an initial exploratory investigation, the overall sample size was considered adequate to give a general indication of industrial pharmacists' views. Nevertheless, results may not be fully representative. It was not possible to identify pharmacists who were not members of the IPG and there is no means of knowing what proportion of pharmacist graduates employed in the industry this group represents. Since this group includes pharmacists who are not members of IPG and pharmacy graduates who are not registered as pharmacists, it is likely that the views of this group may be more negative. Among members of the IPG, it is also likely that those who are more enthusiastic may have responded to the questionnaire.

Conclusion
The results of this survey of industrial pharmacists' views on careers in the pharmaceutical industry indicate that many industrial pharmacists believe that industrial roles offer a wide range of opportunities to pharmacists to provide a valuable contribution to the industry.

Pharmacists work in many different areas and think that being a pharmacist helps them to perform better, particularly because of their breadth of knowledge. They think that industrial roles should be better promoted, and that the Royal Pharmaceutical Society could be more proactive in this area.

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References