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The Library is a Growing Organism: Ranganathan's Fifth Law of Library Science and the Academic Library in the Digital Era

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Introduction

In this era, the academic library traditional position as central mediator is no longer guaranteed. Today, many academic information consumers reject the library's mediation in their search for information; they prefer to do it on their own, using their personal computer. From home, office, bus or the coffee shop they search through Google, Yahoo and likes as their homepage instead of using the academic library facilities, the physical ones and/or on lines. (See, for example, Budd, 2009; Martell, 2008; Nicholas et. al, 2008b). Disintermediation in academic libraries is the proper term for this phenomenon (Housewright, 2009; Lukasiewicz, 2007). It is not the only symptom of the digital era libraries are coping with but with no doubt it is a huge challenge,(not just a threat) for academic libraries. It gives the academic library the opportunity and the duty to research itself and define new roles, more fitted to this changing environment and its users. Academic libraries and its librarian have a lot to offer. Their expertise within the field of information including retrieval skills, metadata, information and knowledge management or even the familiarity of using criteria in order to judge reliability and accuracy (in other words, the quality) of information is an important professional tools. It is rare qualities and valuable ones at the current information environment.

This article seeks to explore some possible creative options all aimed for finding unique ways for the academic library to grow in the digital era. New directions for supporting research and study can be taken using the library and its librarian's experience, skills and knowledge. The paper use terms and ideas derived from Darwin's theory of evolution (1996) but based first and foremost on the philosophical infrastructure phrased by Ranganathan (1931) at his fifth law of library science: The library is a growing organism. Those classical theories can offer a solid philosophical ground for the academic library, empowering it adapting itself to change, encouraging it offering its advances to scholar's communities at the digital era.

The paper will focus on three paths: impart information literacy, digital collection

development and new contributions to the body of knowledge through repositories and/or co-publishing of electronic journals in order to demonstrate the usability of creativity and innovativeness grounded in Ranganathan's fifth law of library science: the library is a growing organism. Implementation of this spirit might assist not only coping better with disintermediation, but with making the academic library organism expand and flourish for the benefit of scholars, science and society.

Extending Ranganathan's Fifth Law

Ranganathan's five laws (1931) cover, theoretically and practically, the activity fields of the library in general and those of the academic library in particular. Following are the laws :

1. Books are for use.
2. Every reader his or her book.
3. Every book its reader
4. Save the time of the reader
5. The library is a growing organism

In the digital era it might be useful to replace the term "book" with the term "sources of information and knowledge" and the term "reader" with the term "user/consumer"

Ranganathan's choice of words offers the opportunity to consider a linkage to Darwin's evolution theory which analyzes organisms. It is a linkage that hasn't been found at any literature reviewed for this paper or exists to the knowledge of the writer but seems to be interesting enough to explore due to its merit to this discussion.

According to Darwin, evolution has no plan or purpose. Primary differences between organisms are accidental, and those who happen to be more adapted to their environment, survive and expand. However, sometimes the environment changes at a quicker pace than the living organism can adapt itself. In those cases the organism becomes extinct. If the library is the organism as Ranganathan put it, it should be careful, for if it does not change fast enough, it will become extinct.

Darwin presented some basic arguments regarding the natural selection process that can be useful if they are adopted and taken into consideration planning the academic library future, in general, and coping with disintermediation, in particular. An argument like, every organism produces more offspring than those that can survive, can relate to the different organizational structure of academic libraries and/or the services they offer. There isn't one best organizational structure for an academic library, or its services. It differs from one place to another, based on wants, needs and capabilities. In keeping with Darwin's way of thinking it can be assumed that organisms differ and these differences are allowed to offspring. Those differences have an impact on the ability of the offspring to survive and reproduce. Therefore, the offspring that are, more environmentally-adapted, are the ones that produce more offspring, and they have the attributes that are best suited to the environment- (Darwin, 1996). The same logic guides Ranganathan's fifth law of libraries: The library is a growing organism.

Ranganathan sees the library as an institution that is active in a constantly changing environment, and according to that, the institute should change and adapt itself with spirit of time so it can serve best those who need it.

The two approaches, Darwin's and Ranganathan's, have much in common. Both consider change as an impetus for development. They differ, however, on a crucial point. Darwin speaks of a reality in which change and development are a reaction to the changing environment, whereas Ranganathan speaks of a constant

aspiration for change and evolvement in library services, as a reaction to the changing environment. In the current reality, the practical interpretation of making the aspiration for growth and progress of the library into a reality seems to be an optimal coping with disintermediation in information consumption. This might be carried out on two parallel axes. The first axis includes adapting and fitting into the new environment through proper translation of the classical librarian mediation functions into the changing environment, based on the principles embodied in the first four laws of Ranganathan. Those will not be discussed in this paper. The second axis is the focus of this paper. It refers to an inventive process, practically an act of creation, which is expressed by Ranganathan's fifth law, "the library is a growing organism". As the author understands it, at this point the academic library is required to employ actual creativity and innovativeness to craft unique services and new systems, which make use of the tools, the skills and the talents of the librarians and libraries

The fifth law proposed by Ranganathan, "The library is a growing organism", is the most interesting in terms of the understanding that it contributes to innovativeness and self-recreation as a survival reaction to the changing environment. It gives a place for innovativeness and creativeness, as well as actual freedom to do so.

It opens the options not only for direct mediation between the consumers and the sources of information which is of course necessary, but also mediation which ensures the success of the independent information activities by imparting information literacy. By mediation that has involvement in creation and preservation of quality information and academic knowledge for researchers in the present and future through development of local digital projects. Another direction is the field of publication. All can benefit from the librarian heritage. Librarians have understanding and the experience in development of collections. Librarians have real recognition of metadata importance and practical ways of implanting it. They also have a close familiarity with academic knowledge, needs and personnel. All are advances that can contribute to better retrieval, to expanding and deep the information sources available to the academic communities and all others. These are mere examples, but they accurately reflect the proactive approach necessary for the academic library in the new environment, in general, and its coping with disintermediation, in particular.

Three Paths

Take, for instance, the possibility for innovation in the field of reference. It seems that the digital age allows fewer opportunities for librarians to directly display their professionalism and skills due to disintermediation. Even before the digital age the literature reports that academic researchers, despite being an audience requiring focused, qualitative and current information tended to avoid consulting with librarians (Line, 1973). In recent years, OCLC reports characterizing the behavior of information consumers find that most research students begin their search for information sources using internet search engines (De Rose, et al. 2005). They are aware that the sources and the search are not as reliable as those done at the library, but the ease of using the internet tools makes up for it in their opinion (Lukasiewicz, 2007; Housewright, 2009; Lewis, 2007; Nicholas et al., 2008c). Researches of the British CIBER group, conducted on a variety of communities in the years 2001-2008 (Nicholas et al., 2009), show that most of the searches are horizontal and not vertical. Browsing, skimming and viewing are the norms and there is very little real online reading. Digital activity is characterized by more surfing and navigation and less use with evaluation of the information. Harvest and usage is being based almost solely on popularity, "the wisdom of crowds" (Nicholas et al., 2008d).

Due to the structure of all main search engines offering keyword based search, users get the impression that no professionalism is required in phrasing a search query. Compared with this ease, a descriptor-based search seems archaic and too

complicated. Users usually are not familiar with the high filter quality descriptors add to query. However, those who familiar with the world of information retrieval know that even in a search based on keywords, familiarity with the structure of the information systems and control over a broad terminology is a huge advantage. Understanding and being able to use Boolean strategies is a simple example for more successful information retrieval in a keyword based query and will no doubt provide higher quality results than a random toss of keywords into a search engine. Professional use of the command OR, which allows us to use various synonyms to ensure actual coverage of the field, is not trivial to the lay person. The understanding of Boolean operators is not necessarily common knowledge. Imparting it to users in an attempt to improve information literacy is important and has actual practical value for users. It would therefore seem that a well-planned effort to impart information literacy by professional librarians can fill a void that exists among users. The mediation offered here to users is the service of a body that is capable of providing the theoretical knowledge, tools, techniques, and tips to users who want to do it themselves. In a world characterized by an overload of information and knowledge there is a need for professional tools for better selection. It is therefore important to reach the consumers and convince them that librarian mediation is vital for them, whether in terms of visible mediation to the sources themselves or imparting information literacy (Nicholas and Herman, 2009). Providing an answer to the needs expressed in the field, as a response to the changing environment, is an important reactive action, but is it enough to convince consumers of the importance and benefits of librarian mediation? It might be more powerful to take a proactive action creating a presence that in itself influences the information arena and human behavior in it. Such proactive approach can be taken by using social networks like Facebook for introducing reference services and other library activities creatively, maybe even in a game application something like Farmville. The social net is a great place for popping the urgent questions and needs, a comfortable place for young users to collaborate in an environment they use on a daily basis. At Haifa university library Facebook profile release currently mostly informative information and some curiosities. It consumes time and labor of course but it might be a good place for reaching the users. Another important outcome and maybe it is the more important one, is that by this Facebook activity The Library of Haifa University gets higher rank at search engines. Improving the library visibility in the internet is a proactive action that creating a presence in the information arena. Of course it is not the only place. Services of reference through e-mail, Chat and phone are no longer innovative but even on those; an effort to impart information literacy could be done. Those users who use them are conscious of lacking those skills and might want to get it. Not only online session is recommended. Meeting face to face is old but very effective. At the library of Haifa University a service for 1x1 references meeting with M.A, PhD students and researchers is very popular. Since 2008 more then 1,000 used it. Through the session, the librarian impart information literacy, introduce the students to different systems, give searching tips, citation guides all in purpose to assist the client to mange better by himself later. Those are reactive services, in order to make them proactive the library has to market them strongly. Creativity and innovative, thinking out of the box is needed for that. It is possible that, as Nicholas and Herman (2009) claim, the process of disintermediation faced by the academic libraries today is affected to a certain degree by the growing distance between the librarians, and their clients. Limits of time and budget are certainly an obstacle in the process of creating closer bonds, but the obstacle here might be more related to the human tendency to cling to what is known and familiar. In the library world this could express itself by clinging to role definitions and disciplinary boundaries. Without coping with problems in information systems, in, and outside the library field, such as the digital space, the distancing created between libraries and users will expend. It what leads many consumers claim that library mediation is redundant for them (Budd, 2009; Martell, 2008, Lukasiewicz, 2007). Therefore, library staff should go and meet the clients where they are, in the digital space and face to face. It is not an easy path. Many of the attempts to form collaborations between librarians and faculty, for example, in the field of creating joint courses,

meet as a result with reluctance on the part of the faculty (Biggs 1981). Despite the difficulty, those attempts are important. This kind of collaboration can be valuable for all parties.

Collaboration is a key word for other new roles the academic library can define itself. A digital library, existing in the Internet is independent of physical time or space, offers many opportunities for innovation beyond the technological ones. Digital collection projects for instance, resulting from local initiative, are a kind of enterprise allowing actual contribution on an international level. Such collections, organized in a way that allows information retrieval, contribute to the expansion of the human knowledge-base while preserving its heritage and documenting it for the good of the public in general, and researchers in particular. The role of preservation, in particular, is a classic role of libraries, as is the development of unique local collections; the innovation here is in the organization of the information in a database that allows search and retrieval using rich metadata describes visual items that lack independent verbal information. In terms of user accessibility, the challenge is developing a tool for online browsing that able the user to discover, select and request desired materials (Calhoun, 2007). An example for such realization is the Digital Media Center at the University of Haifa Library, which presents a variety of unique collections using the Ex-Libris' DigiTool system to manage and display digital objects. Browsing collections and retrieval for specific subject through a search box is available. Among the variety of the digital media center collections, this paper will highlight only few, emphasizing its contribution to scientific environment. The collection of Haifa university dissertations, grouped by faculty and the [Institutional Repository](#) both presents local academic literature with an easy web access. A different project is the cultural heritage of the Land of Israel collections. The tree management contains more than 40 different collections. About 10,000 historical images (pictures, postcards and documents), audio and video files received from private collections, photographers, institutes and archives covering the history of the settlement of Israel in the 20th Century. It is a unique material that only a nonprofit organization with knowledge and experience in handling collection records can ensure its preserve for long term. The academic library is such an organization. All images are scanned;, enriched with verbal metadata by professional librarian cataloger with MARC fields, ingested to DigiTool system and published on line through Digital Media Center. All files are open to users that can save, copy or print it for their use. Extra visibility and higher rank in retrieval on search engines like Google can be achieved due to its reach metadata. Its value for researchers in present and especially in the future is precious. The distinctiveness of these enterprises lies in the fact that they exceed the classic world of the library, as they spill into the fields of archiving and museums, and the world of publishing which produces information sources. They represent the possibility for a substantial change in the role and significance of the academic library in a world where the physical boundaries and traditional role division among those in charge of information services are already dissolving and where the existence of multi-disciplinary fields has been a reality for a long while.

Another way of recreating the academic library is to take an active part in the very heart of academic work – creation of knowledge – as a distributor and publisher of new contributions to the body of knowledge, whether through repositories or through co-publishing of electronic journals. Academic libraries have always been part of the academic communication system, but with the move to a digital environment came the opportunity and possibility for even more substantial support – they "merely" have to accept the challenge. The opportunity is formed by the need to develop a computerized network environment, capable of storing and providing access to full-text scientific information to their consumers, a development that is the infrastructure for repositories – those institutional or disciplinary archives of research products (Kennan & Wilson, 2006). The repositories have significant advantages in terms of cost-efficiency, in that they provide access to the materials at a low cost with the significant advantage of maximum currency and preservation of the intellectual property rights of the

researchers and the institute they work out of.

Beyond that, there has been an increase in the number of academic libraries that consider their role today as taking an active part in the formal publication of new scientific information. Universities have supported publishing for decades; many institutes publish and print books and journals in a variety of disciplines. The move to the electronic environment expands this option: the internet allows direct distribution of the research products at a much more reasonable price than that which is charged by the commercial publishers. It is only natural for the library, which specializes in information, to take the role, thus reclaiming the power for the researchers and the universities.

The academic library can become a significant link in the chain of information, a link that is not only mediatory, but also directly assists in the creation and distribution of high quality, current and reliable academic information, and at prices significantly lower than market prices. Costs, repository maintenance, editorial considerations, as well as preservation and storage rights are not simple issues, but proper solutions can be found and they are not enough to write off the opportunity for this valuable innovativeness. There are many examples of opportunities for innovative expression in the field of publishing and this paper will only describe a small number of them, in order to illustrate the possibilities. Publication among academic libraries is gaining momentum in digital space because of the cost-benefit advantages it offers to publishers coming from the academic field in publishing monographs, unique series and journal articles (Rao, 2009). An example for success on a significant scale is the MUSE project^[i] which serves as an example for extensive cooperation between academic libraries, with publication being the common goal. Other projects are born out of a reality in which the publication of various items is not financially profitable for the commercial publisher. Here the library can use its manpower and work hours towards a publication, based on acknowledgement of the quality and importance of the items while conceding profit. Such an example is the Penn State Romance Studies, a project which is the result of cooperation between the library, the University Press and the departments of foreign languages and literature^[ii]. Another interesting experiment of publication by academic libraries focuses on experimentation with innovative technological uses based on digital format - applications that are not applicable for a printed format. For example, possibilities for magnifying and focusing pictures and/or text, or searching within documents using OCR. Such cooperation has taken place between Columbia University Press, the Columbia University Libraries and the American Historical Association^[iii]. Such cooperation is not only an opportunity for the library but is an obligation towards academics, which grants professional, modern service and shares the professional knowledge possessed by the libraries in favor of creating new academic knowledge, while guaranteeing preservation and accessibility of those materials both in the short and the long term (Case, 2008).

Ranganathan's fifth law is simple. It allows the library to not only reclaim the role of mediation, but also to expand its boundaries and define new goals and roles. Creativity and innovativeness will allow it to survive in the same way that the gifted survive the war of existence, as a living growing organism.

That cannot be done without a deeper acquaintance on the part of the library with its consumers

The importance of a re-acquaintance of the library with its consumers, i.e., analysis of information needs and tracking of behavior patterns on the one hand, and presentation of the relative advantages of the library in mediating information for its consumers on the other, is a significant link on the way to the successful coping of the academic library with the phenomenon of disintermediation and its growth.

Even in the 1930s, Ranganathan realized the importance of placing the readers and their needs at the center, making him ahead of his time. This understanding is

not new to academic libraries, but although an effort is being made to satisfy user's information needs, there is still more to be done in this critical field. Three central levels of user-oriented service can be discerned. A passive level, largely characterizing the world of librarianship and libraries in the 20th century, where the library provides sources (books, journals, software) for use based on a specific request by the reader. A second level, which has grown in scope with the development of the field of information as a profession and as a science, is a reactive level, in evolves mostly retrieval information on specific subject requested by the user. Typically we are talking about a client who cannot focus and build a proper search strategy that retrieves satisfactory results. The third level, which is the evolution that is probably what required today, is a proactive one. Assertive level of developing services based on systematic examination and analysis of client needs and wants (Greer et al., 2007). Evaluation activity is important in achieving this goal.

Presenting the relative advantages of the library and the librarians in mediating information for the consumers is the other side of the coin in the process of re-acquaintance discussed here. Discarding the library as mediator takes place to a great extent in a way similar to the changing forces in the free market. Information sources, information distribution and information services are no longer the sole province of the academic library and so the consumers turn to whoever they believe satisfies their needs in the best way (Lewis, 2009). The internet has created a space in which new bodies contend over the role of mediating information for the consumers[iv]. It is important to evoke realization and understanding of the need for assistance by information personnel among the communities of academic consumers, so they will reach the conclusion that librarian mediation and/or imparting of information literacy by the library is the best answer for them (Nicholas and Herman, 2009). This because an academic library which invests in the development of services, collections and user systems, wonderful as they may be, for an audience that is unaware of its existence and the advantages it offers them, does so in vain.

Metadata personnel can also contribute to the process of re-acquaintance by using the expertise of metadata to create a strategy that will encourage cooperation between faculty and other members of the university community, based on the metadata personnel being an important link in the process that turns information into knowledge (Calhoun, 2007). They can give meaning that allows retrieval and translation of information into a structuring of knowledge, enriching the metadata in the process and bringing change in the organizational structuring of the information. A face-to-face meeting between the metadata personnel and the researchers and lecturers will benefit both sides. Personal acquaintance and appreciation of the library's work and its input in the research and teaching process improves the chances that faculty members will use the mediation they are offered and which they share and impart it to the next generation of researchers – their students. Librarians could and should make an effort to turn this process of mutual acquaintance into a continuous work routine.

Conclusion

This paper encourages academic libraries to take a proactive approach by implementing Ranganathan's vision of "the library as a growing organism", with creativity and inventiveness, in addition to updated classical information mediation, as the key for successful coping with disintermediation. Suggesting conceptual approach, based on the classical theories of Ranganathan, *Five Laws of Library Science* (1931) and, to a lesser extent, Darwin's Theory of Evolution as published in *The Origin of the Species* (1859), presented here, might make the difference for the present-day academic library and its customers. It is the author faith in the advantages of the professionalism of librarians which allows the academic library to fight for its position as the optimal mediator for its potential consumers, the diversified academic community. However in order to do that the academic library

must expand its boundaries and position itself as a significant player in the new information environment, as an important aid in the creation and distribution of academic information and knowledge, to create a reality in which the library is indeed a living, growing organism. Innovation and creativity is needed for pro-activism. In this paper examples for such approach given in the fields of reference by imparting literacy, in the field of digital collection and last but not least the opportunity to become involve in publishing arena. Success in such initiative is a road in which the academic library can turn Ranganathan's vision into the evolutionary reality.

[i] Stanford University Library's HighWire Press and Johns Hopkins University Project Muse

[ii] Digital scholarly publishing (ODSP) at Penn State is a joint enterprise between the library and the University Press

[iii] Gutenberg <e>, <http://www.gutenberg-e.org/index.html>

[iv] Applications such as Google Ask and the like.

References

Biggs, M. (1981), "Sources of tension between librarians and faculty", *The Journal of Higher Education*, 52 (2), 182-201.

Budd, J.M. (2009), "Academic Library Data from the United States:

An Examination of Trends", *Library and Information Science Research Electronic Journal*, 19 (2), 1-21

Calhoun K. (2007), "Being A Librarian: Metadata and Metadata specialists in the twenty first century" ,*Library Hi Tech* ,Vol. 25, No. 2, pp.174-187

Case, M. (2008) "Partners in Knowledge Creation: An Expanded Role for Research Libraries in the Digital Future", *Journal of Library Administration*, Vol. 48, No.2, pp.141 — 156

Darwin, C. (1996), *The origin of species* ,Oxford : Oxford University Press

De Rosa, C., Cantrell, J., Cellentani, D., Hawk, J., Jenkins, L.R. and Wilson, A. (2005), *Perceptions of Libraries and Information Resources: A Report to the OCLC Membership*, OCLC, Dublin, OH.

Greer, R.C, Grover, R.J., Fowler, S.G. (2007), *Introduction to the Library and Information Professions*. Westport, Connecticut. London: Libraries unlimited

Feliciati, P., Natale, M.T. (2008), *Handbook on Cultural Web User Interaction*, Rome: Minerva EC

Frumkin, J. (2006) "The Wiki and the Digital Library", *OCLC Systems and Services: International Digital Library Perspectives*, Vol. 21, pp.18-22

Fuchs, C. (2008), *Internet and society*, Routledge :New York-London

Housewright, R. (2009), Themes of change in corporate libraries: Considerations for academic *libraries Libraries and the Academy*, Vol.9 , No.2, pp. 253-271

Kennan, M.A & Wilson, C.S. (2006) "Institutional Repositories: review and information systems perspective" *Library Management*, Vol. 27, pp. 236-248

Leiter, R. A. (2003), "Reflections on Ranganathan's 'Five Laws of Library Science'."

Law Library Journal ,Vol.95 , No.3, pp.411-418

Lewis, W.D. (2007), "A strategy for academic libraries in the first quarter of the 21st century", *College and research libraries*, Vol.68, No.5, pp. 418-434

Line, M.B. (1973). "Information Needs of the Social Sciences." *International Journal of Special Libraries*, Vol. 8,No.2, pp. 29-39.

Lukasiewicz, A. (2007), "Exploring the role of digital academic libraries Changing student needs demand innovative service approach", *Library Review*,Vol.56, No.9, pp.821-827

Martell, C. (2008), "The Absent User: Physical Use of Academic Library Collections and Services Continues to Decline 1995 – 2006." *The Journal of Academic Librarianship*", Vol.34, No.5, pp.400-407.

Mcmenemy, D. (2007), "Ranganathan's Relevance In The 21st Century", *Library Review*, Vol. 56 No.2 ,pp.97-101

Nicholas D , Herman, E. (2009), *Assessing information needs in the age of the digital consumer*, London : Routledge

Nicholas, D., Clark, D., Rowlands, I. and Jamali, H.R. (2009), "Online Use and Information Seeking Behaviour: Institutional and Subject Comparisons of UK", *Journal of Information Science*, Vol.35, No.6, pp.660-676

Nicholas, D ., Rowlands, I., Withey, R. and Dobrowolski, T., "The digital consumer: an introduction and philosophy" In: Nicholas, D ., Rowlands, I. (Eds.), (2008a), *Digital consumers*. London: Facet. pp.1-13

Nicholas, D., Huntington, P., and Jamali, H.R. (2008b), "Diversity in the Information Seeking Behaviour of the Virtual Scholar: Institutional Comparisons." *The Journal of Academic Librarianship*, Vol. 33, No. 6, pp.629-638.

Nicholas, D., Huntington, P., and Jamali, H.R. (2008c), "User Diversity: As Demonstrated by Deep Log Analysis." *The Electronic Library*,Vol. 26, No.1, pp.21-38.

Nicholas, D., Clark, D., Rowlands, I. and Jamali, H.R. and Dobrowolski, T., "The information Seeking Behaviour of the Digital Consumer: Case Study - The Virtual Scholar" In: Nicholas, D., Rowlands, I. (Eds.), (2008d) *Digital consumers*, London: Facet .pp.113-158.

Ranganathan, S. R. (1931), *The Five Laws of Library Science*. London: Edward Goldston

Rao, M.K. (2009) "Academic Publishing: Role of University libraries in the scholarly communication system" *Library Vendor/Publisher Interface* , pp. 389-395

Richard Biddiscombe, (2002) "Learning support professionals: the changing role of subject specialists in UK academic libraries", *Program: electronic library and information systems*, Vol. 36 Iss: 4, pp.228 - 235

Sweeney, R. (2005), "Reinventing library buildings and services for the millennial generation", *Library Administration & Management*, Vol.9, pp.165-75

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