THE UNIVERSITY LIBRARY
Andrew Abbott
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I Preface

     In April 2005 the Provost appointed a Task Force to think about the future of the University libraries. The Task Force included Andrew Abbott, James Chandler, Martin Feder, Neil Harris, Judith Nadler, Richard Rosengarten, and James Vaughan, with Martha Roth ex officio. The group selected Andrew Abbott as chair.
     The Task Force set itself a busy schedule through the year 2005-6 and met many times and with many people. But important parts of its charge involved work that was essentially individual: designing, administering, and interpreting a survey, reviewing the historical evidence on Regenstein usage, and so on. It was natural for this work to take shape in a report to the Task Force covering the library's administrative history, the contexts of the current decision, and the various data on patron usage and preferences.
     When I undertook to write such a document, it seemed logical to end it with an analysis of future trends. But it was at once clear that one cannot predict those trends without a serious theoretical analysis of library

research and of the relation of technology to that research. Thus the document grew into a complete argument, reaching from context through data and theory to trends and, ultimately, recommendations.

The Task Force deliberations themselves produced a separate set of principles and recommendations. And the Task Force report itself is brief and focused, as a document designed for broad distribution and direct effect should be. But since the deliberations behind that report were influenced by the Task Force's reading of drafts of the document presented here, it is included as an appendix.

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II The Task Force on the University Library

In 2003 Library Director Martin Runkle informed Provost Richard Saller that on current acquisition projections, Regenstein's stacks would be full in 2008. In late 2003, the Provost appointed a faculty committee, chaired by Richard Helmholz of the Law School, to consider options for future library design.

The Helmholz Committee considered two options: browsable compact shelving adjacent to JRL (what would later become known as option A) and offsite robotically-searched storage with paging once or twice per day (Option D). These two possibilities were both felt to be undesirable, the former by administrators because of its formidable cost and the latter by faculty because of its slowing of research.

The ensuing stalemate was broken in the fall of 2004 by considering two intervening options, both on-site: a high-density facility (option C) or a mixed high-density / compact shelving facility (option B). The former proved feasible and acceptable once it was recognized that it could be fully populated by serials, documents, and special collections materials. Many of these materials were already digitized and/or in need of special storage conditions. As for serials, their long runs of uniformly-sized volumes enabled space savings without disorganization, which might have meant paging difficulty. This solution would leave all monographic collections on open (although in many cases compact) shelves. The need for access to continuous runs of stored materials would be met by temporary storage facilities at the access point for the automated storage and retrieval system (ASRS).

The decision to build the ASRS facility led naturally to the possibility of rethinking the library system campus-wide. The library staff's 24 November 2004 report raised the possibility of space savings through the move of most serials to the ASRS facility, although it urged that transfers be made merely when necessary in order to provide empty space for new acquisitions. At the same time, the Law School faculty proposed moving much Law Library material to storage, aiming to acquire redeployable space without new building. Simultaneously, there seemed a large decline in the physical use of Crerar, and Harper lost an important constituency with the removal of the GSB to the Woodlawn site.

In the light of these changes, the Provost decided in April 2005 to appoint a Task Force to "have a larger discussion about the changing use of our library." He felt that such an investigation "will involve questions of shifting patterns of use by faculty and students, space reconfiguration, provision of services, and colocation of closely related programs," a list he

specifically noted "is not meant to be exhaustive."

After its first meeting in late April 2005, the Task Force embarked on a data-gathering program. It fielded an extensive survey to students in the Spring Quarter of 2005 and met with various stakeholders and others in the following Autumn Quarter. It also sponsored a one-day conference on "Space and Knowledge" on 17 November 2005, at which Neil Harris discussed the history of Regenstein, Andrew Abbott discussed the student survey, Carole Wedge from Shepley, Bulfinch, Richardson, and Abbott presented a detailed pictorial analysis of "Architectural Trends in Academic Research Libraries," and James Neal (Vice President for Information Services and University Librarian at Columbia University) spoke on "The Library of the Future." The Task Force also benefited from support by John Kimbrough and others of the library staff, who have provided data on everything from building entries to hits on electronic databases.

The Task Force Report was completed in early June 2006. Task Force members chose to focus on particular recommendations and general principles. The present document should be understood as a background piece written for the Task Force deliberations.

III Trends at Comparable Institutions

A context is provided by the library policies of the other major university research libraries. There is considerable uniformity in these policies. Most of our peer institutions have moved substantial portions of their collections offsite, usually into some kind of high-density storage.

The offsite trend is not a completely new phenomenon. National institutions like the Center for Research Libraries (CRL) and regional ones like the New England Deposit Library have existed for half a century or more. Typically these were used for remote storage of extremely rarely-used materials (e.g., local newspapers), whose preservation could often benefit from climate-controlled storage. At the same time, institutions like CRL also collected on a consortium basis materials that no one library could afford to purchase - foreign dissertations, for example.

More recent offsite moves by major ARL libraries have been fairly drastic. Harvard now has over five million volumes (about a third of its total collection) offsite, thirty miles from Cambridge in Southborough, Massachusetts. Duke has 1.3 million volumes five miles offsite. Columbia has two million volumes fifty miles offsite. Yale has two million volumes four miles offsite. The list could easily be continued. Even more striking, some of our peers are repurposing central library buildings as student study centers by removing most of the books. Minnesota has been the leader in this, removing the entire stack core from its original main library and sending the majority of the books to a new below-ground storage facility across the Mississippi River. The old Walter Library book stack has been replaced with a digital technology center, and the name "library" has been dropped from the resultant building.

Although the Minnesota and many other storage programs have usually been presented as program driven, the offsite trend arises to a considerable extent from practical constraints. Walter Library was a hazardous building that required complete renovation no matter what its the future purpose. It was also hemmed in by campus development. Indeed, virtually none of our peer institutions has space adjacent to its main library, whereas JRL has space to build and a modular structure that seems to invite additional stack pavilions. By contrast, libraries like Harvard's Widener, Yale's Stirling, Columbia's Butler, Princeton's Firestone, and Minnesota's Walter are centrally located in built-up campuses with no room for expansion.

But our peers' offsite moves have also been rooted in programmatic

decisions. Changes in scholarly practices are viewed by many as lessening the need of most library constituencies for physical materials. Given that the more esoteric sections of the collection are used only by a portion of the faculty and their graduate students, and given that overall use of physical materials seems to be declining, the temptation to repurpose these massive central buildings has proved irresistible. In universities dominated by undergraduate concerns and by increasingly numerical concepts of accountability, library buildings promise to become stunning undergraduate study spaces of varying degrees of quiet, sociability, and amenity, providing at last an effective solution to the problem of the noisy dormitory and the overcrowded student union. The price is simply removing the "underutilized" portions of the book collection (i.e., the portions used only by scholars and by them relatively rarely) and paying to reconfigure the buildings. This policy is in many ways simply the logical continuation of an earlier policy in many universities (e.g., Harvard) of having separate undergraduate and research libraries. It combines that policy with the defunding of library research. In effect, it constitutes visual and programmatic relegation of advanced library research to the periphery of campus activity.

The repurposing of libraries away from research and toward the student study function has usually been justified by a belief that placing students in settings made dignified by visible books, high ceilings, and elegant surroundings will by some mechanism improve their scholarship and learning. This belief in the osmotic learning of scholarship leads to what James Neal – in his talk at Regenstein on 17 November - labeled the trompe l'oeil library. There is little evidence for this osmotic learning of scholarship one way or the other, but it seems a frivolous idea. Scholarship is an activity rather than an emotion. A priest might well feel that sitting in a Gothic cathedral induces a sense of the numinous, but he would not expect it to teach a believer the religious practices necessary for salvation. Nor more would a baseball coach expect that sitting in the Wrigley Field bleachers would improve a player's batting skills.

The Trustees' decision to build an ASRS facility adjacent to JRL thus embodies a decision against the general trend of academic libraries. To be sure, there is a backstop rationale for building such a facility in any case. In any foreseeable future, there will always be enough materials unavailable digitally to fill the 3.5 million volume ASRS facility. Even if most of the current main monograph collection became available by other means, esoteric foreign materials, rarely-used undigitized items, and special collections materials would still need to housed. There is thus a need for the ASRS even if the electronic revolution were to become nearly complete. In such a case, the ASRS would become the library and JRL itself would be repurposed.

But that day is far off, and in the meantime building the ASRS embodies a commitment by the University to the library as a crucial campus asset and to library research as a core mission of the University. As other major libraries remove research materials to offsite storage, Regenstein will become one of the only remaining large open-stack facilities in the country. It is thus likely to become a mecca for scholars undertaking those kinds of research that require heavy stack-scanning of relatively unusual materials, a kind of work impossible with offsite storage. In some senses, then, the Trustees have already envisioned the library as a consortium facility, a facility whose research constituency will reach well beyond the University of Chicago. We all should recognize that judgment and applaud it.

IV Regenstein Library: General Background

    A. Library Background

The current configuration of libraries at the University results from former Director Herman Fussler's attempt to centralize the system of departmental libraries that preceded it. Opening in 1969, JRL has been an undoubted scholarly success. A number of smaller libraries remained out of JRL - art and chemistry, for example - but have gradually folded into the central system over the years. Of the original departmental libraries, Eckhart alone remains today. (Yerkes - the astronomy collection - will be closing shortly.)

The professional school libraries generally remained outside the central system. The Law Library moved with the Law School to the new buildings in 1959. SSA has kept a small library in its new building, which opened in 1965. The Divinity School retained its own library space until the early 1970s, when the collections moved to JRL. Medicine also retained a separate and somewhat divided collection - partly in Billings, partly in JRL, partly in Harper storage - a situation that ended with the acquisition of the John Crerar collection; the construction of the Crerar Library in the 1980s amalgamated all scientific holdings. The Law Library's move of much of its collection to central storage in the ASRS thus follows an earlier pattern of amalgamation.

As a result of this prior history, the major planning issues before us involve the deployment of our two centralized facilities. The two differ profoundly. Access numbers underscore the fact that scientists' use of the library is now almost completely via electronic means. By the composite measure of faculty library use that I have developed for the Task Force (a measure based on entries and circulation), only 5 of the top 100 library users are in BSD or PSD. To take another figure, 50% of the humanists in the University Senate entered the libraries 20 times or more in 2003/4, as well as 30% of the social scientists. The equivalent BSD figure is 12%, the PSD figure 9%. That Crerar is no longer used as a physical facility by natural scientists means that its collections should now be mainly conceived as materials for humanistic and social scientific study of science and medicine as human enterprises, rather than as materials supporting scientific research itself.

Regenstein, by contrast, remains an active research library, the central laboratory for a substantial group of faculty and students. But it too has seen rapidly changing patterns of usage, and indeed has drifted away from its original conception. Crucial to the original design of Regenstein was the identification of floors with particular bodies of research: second floor for social science, third floor for general humanities, fourth floor for psychology, philosophy, and religion, fifth floor for East Asia and other specialties, A level for economics and business, and B level for sciences. By consolidating stack holdings on these subject-based floors, moving the subject-relevant reference collections to the floor reading rooms, placing faculty study space and student lockers throughout this subject-organized facility, and locating general bibliography and reference along with the card catalogue on the entry floor, the original design created a physical research structure that few scholars who used it will ever forget: simple, efficient, concentrated.

This wonderful structure lasted until the mid 1990s, when stack constraints necessitated the creation of the B basement compact shelving. The physical subject-organization of the library consequently broke down. Shortly thereafter, the on-line system outmoded the card catalogue, the electronic and on-line databases outmoded much of the reference structure, and consequently the old model of the first floor broke down as well. The present facility has only a faint trace of its former subject structure.

It should be noted moreover that the physical building is itself almost infinitely reconfigurable. Aside from the four or five peripheral staircase systems and the central staircase/elevator/plumbing block, Regenstein contains no interruptions in its internal flow of space. It is simply an industrial

warehouse with open floors supported by columns. The original designers clearly foresaw the possibility of far-reaching changes in libraries and specified a building that would easily accomdate them. We are very much in their debt for this.

    B. A Brief History of Regenstein and Its Usage

    We do not have accurate historical data on the actual usage of JRL. The major historical documents are the 1975/6 Committee on the Quality of Life in Regenstein (CQLR), chaired by Wayne Booth (and later by Janel Mueller), and the 1995 report of the Stillwater Consulting Group (SCG). Between these two documents, there was a dramatic decline in physical usage of the building.
    The various reports of the CQLR portray a building in very heavy use. In 1974-5, there were 361,539 discrete charges (with renewals the total was over 500,000, about the size of circulation today) and an estimated 2,000 to 3000 users per day. This was in a university of 1,071 Senate faculty and 7,773 students (about half the number of students today). Thus nearly one third of all University students and faculty were in JRL on a given day in quarter. (At the time JRL could seat 2900.)
    The CQLR report dealt largely with issues of overcrowding and of the transformation of JRL into a social center. There were major worries about noise, food and beverage consumption, and smoking in the building. Policy alternatives consisted in improving the canteen in order to centralize consumption (the discussions sound drearily familiar), strengthening Harper as an undergraduate facility (another longstanding hope that never becomes a reality), relocating reserve access points, and increasing maintenance to deal with the mess.
    By 1995 overpopulation was no longer a problem in JRL. Quite the contrary. Average daily peak usage was about 9% of total available seating, hence probably around 240. (Unfortunately, we do not have figures exactly comparable with earlier or later ones; the number of seats in Regenstein was reduced as usage fell.) Indeed the SCG figures portrayed a library so nearly empty that Director Martin Runkle insisted that the study be repeated to verify its figures. Even in absolute peak periods (3-6PM, heavy weekdays of fifth week), only 14% of the facility's seating was filled.
    Since 1995, however, usage of the building is on the rise. JRL peak daily occupancy over a weekly period seems well above 15%. For example, daily peak entry rates to JRL in term run at about 425 patrons per hour (averaged over an entire quarter). If users' average stay is an hour, peak usage is 20% of the building's current seating capacity of 2100, and that is a quarterly average, not, as in 1995, a single peak-week figure. A recent count on the Saturday afternoon before Winter Quarter finals found more than 25% of the seats occupied. Insofar as entries to the building today correspond to the estimated "2,000 to 3,000 users" of thirty years ago, JRL is now very nearly back to its 1975 use level. Winter Quarter 2005 saw an average of about 4,000 entries a day on weekdays. Even controlling for re-entries, these figures still probably represent at least 3,000 different users a day, a quarter of the main user pool of faculty and Hyde-Park-based students. It is also worth noting that total circulation is roughly comparable at present to the earlier period. Total circulation in 2003/4 was about 600,000 including renewals. In raw terms this is roughly one sixth larger, but the total borrower pool is much more than one sixth larger, however, so the rate per potential borrower has undoubtedly declined.
    Understanding this history of decline and recovery is a necessary precondition of planning for the future. The most obvious causes are ruled out by the timing. In particular, the internet comes too late to explain the pattern. Compositional shift of the student body away from graduate students

and the aging of graduate students (who tend to be older and more likely to have family obligations that keep them at home) are both too steady and monotonic to have had such an effect. So also is graduate students' increasing likelihood to live outside Hyde Park, a trend also observed among faculty. (85% of Divisional faculty lived in Hyde Park in 1975 [based on analysis of the 1975 Directory]. The figure was about 75% by the mid 1990s.)

A more likely factor was the invention in the early 1980s of the course pack, which bypassed traditional reserve. Historically, reserve had been one of the busiest departments in JRL. Of the 360,000 charges in 1975, fully 40% were reserve charges. Still more important was the arrival of personal computers, also in the early 1980s. PCs spread rapidly because they enabled enormous savings in writing and editing time, but until the arrival of notebook machines in the early 1990s they were not portable. As a result, researchers took materials to the PC (typically at home or in the office) rather than using them in the library. A few faculty no doubt had machines in their JRL faculty studies, but graduate students - who outnumber faculty four or five to one as users - could not store machines in the library until the arrival (and down-pricing) of portable machines.

Some combination of all these forces, with the last two no doubt the most important, seems to have emptied JRL out by the mid 1990s. The recovery since that time is due to a number of factors, but no doubt the most important are the construction of Palevsky adjacent to JRL and the coming of notebooks and (later) wireless computing, which enable users to access the library's fast servers. That there has been a major return is indubitable. But given that electronic reserve has replaced the coursepack with another non-physical-library tool and that the personal computer's facilitation of work in home and office is irreversible, we cannot expect any major return to the library either for access to teaching materials or for the writing phases of research or, indeed, for some parts of bibliography and other research work. We need rather to develop those aspects of library research and scholarship that require physical presence. This is a fundamental reason behind my later recommendation to turn the library towards a place in which research is presented and discussed as well as produced.

C. Local Views and Issues

The Task Force consulted with a variety of constituencies, most important among them the library's student users, whose survey is reported below. During the summer, members of the Task Force talked to an unsystematic sample of heavy-user faculty colleagues, seeking input about usage, preferences, fears, and the like. In the fall, the Task Force met with John Boyer (Dean of the College), Steve Klass (Vice-President and Dean of Students in the University), Saul Levmore (Dean of the Law School), Blair Archambeau (Associate Provost for Planning), and Alice Schreyer (Director of Special Collections Research Center). I myself spoke to the Library Visiting Committee and to the staff, both at Library Day and at a meeting of the library's Administrative Council. So there has been a broad discussion about the matter in the University community.

A number of themes emerged from these discussions, many of them touching on the balance between the various libraries. The most important theme, however, was the necessity of preserving the dual uses of the libraries, which serve on the one hand as research facilities for faculty and advanced students, and on the other as study halls for the much larger group of less advanced graduate students and undergraduates. Although there are recurrent attempts to build study spaces into the dormitories, libraries will certainly continue to serve the study function for a large number of students.

We can expect some shift in this study function when the New Residence Hall (NRH) is built on 61st St. A study space for 70 students is planned in that facility. Moreover, when the Arts Center is built, a substantial proportion of students may remain on the South Campus in the evenings, reducing evening use of Regenstein. There is also a possibility that NRH students will use the Law Library heavily for evening study, although the current use of the Law Library by undergraduates (from Burton-Judson) is not very high, according to the Dean of the Law School.

A similar imponderability surrounds Harper Library. Harper remains surprisingly well-used during the day, even by non-college students. At night, its usage is lower because of poor lighting, the closing of Harper reserve, and physical isolation (The defunct Woodward Court was its primary student constituency). There is little prospect that the southern end of the main quadrangles will become an active area at night unless the College schedules more extensive evening instruction there. To be sure, the stacks under Harper, Wieboldt, and Classics remain necessary to the research library's functioning. (They will need to be used for storage during the complicated dance leading to the ASRS, because we will run out of space in JRL before the ASRS is completed.) But with respect to the libraries as research facilities, Harper is ancillary. Its beautiful main reading room will probably never again be part of the research mission of the library.

Unlike Harper, the remaining libraries are in effect departmental. Eckhart and SSA are satisfactory "boutique libraries" on a very traditional departmental model. Although Eckhart does house much material unavailable elsewhere in the system, many of SSA's holdings are duplicated in Regenstein. Unique materials in these libraries are needed extremely rarely by those outside their physical constituencies. So their departmental location seems unproblematic.

By contrast, the Law Library is a "departmental" library on a somewhat larger scale. Teaching of research practices and of the use of library materials is carefully built into the Law School's instructional program. The faculty therefore actively manage the library. Given the move to electronic access of the vast majority of materials necessary to current legal research, however, the law faculty intends to remove a large portion of the rarely used materials from the building to central storage. This continues the evolution of the Law Library towards the departmental, instructional model characteristic of SSA. The esoteric research materials indeed make more sense united with the general research collection in the Regenstein-ASRS unit.

In short, the University's main concern must of necessity be with Regenstein and Crerar. Our crucial problem is to retain the buildings' utility as study halls as we seek to maximize their potential as tools for faculty and student scholarship in the coming decades. That said, there is little one can decide at present about Crerar. Its monographic collections are now mainly of interest as objects of humanistic and social scientific analysis. The building itself is mainly used (not very heavily) as a study area. So Crerar developments will largely depend upon changes in Regenstein. There might be staff functions or particular patron services that could be moved out of Regenstein to provide more room for an activist intellectual vision for JRL. But until that vision is planned out in more detail, it is not clear what exactly should be done with Crerar.

V Regenstein Library - Recent Trends and Patterns

I have over the past year gathered and analyzed a large amount of data on the usage of JRL. In the case of the student survey, I had help from the University Survey Lab, which gathered the data, and from Doug Lauen, my

research assistant, who did much of the analysis. Most of the library data came from David Larsen, Jim Mouw, and Jim Vaughan, who have been most helpful. There is a wide variety of data on JRL, some of it collected automatically (e.g., library entry, circulation, authorized borrowers), some of it collected in focused investigations (e.g., of faculty study use, of electronic database use), some of it collected by direct survey. (The last source is the most detailed, for we have data from 3411 Regenstein users as part of the Spring 2005 Library Survey.) I report here a basic summary of what has been found. A more detailed analysis can be found in the Appendix to this document.

Since administrative data are the only data that cover all users, I first report overall administrative data on circulation and entry, looking for recent changes across user groups. I then try to discover what administrative data can tell us about the heavy user community. I then turn to detailed faculty use patterns, detailed student use patterns, and various miscellaneous matters.

A. Overall

Recent trends in JRL usage are partly a function of changing rates of use by differing classes of users and partly a result of the changing composition of the total user pool, primarily via the rapid increase in the number of undergraduates. It is very important to separate these two aspects of change. (All administrative data are comparing changes in the period from 2000/1 to 2003/4.)

I begin with rates. The average undergraduate went in the library about a third more often in 2003/4 than three years before. This undoubtedly results from the opening of the Palevsky dormitory immediately adjacent to JRL. PhD students in general are going in the library about a quarter less often than before, although that decline was largely outside the major JRL users (HD, SSD and Div graduate students. Note that I shall use the standard Divisional and School abbreviations throughout). Masters students seem to be going in JRL somewhat more, although this in part results from reclassifications of students and cannot be interpreted. Finally, faculty entries to JRL declined about 15% overall in this period, but more than that (about 20%) among the core user faculty (HD, SSD, Div, and College faculty).

The relative numbers in these groups changed somewhat, of course, because the total number of undergraduates went up by about 10%, while the number of graduate students and of faculty stayed constant. The combined result of this factor and the rate changes is that undergraduates moved from 31% of entries to 39% of overall entries and became the largest group of entrants. PhD students fell from 38% to 28% and into second place, while masters students moved up from 7% to 11%. Of course these figures tell us nothing about how long these entrants stayed in the library, so they do not truly estimate the population in the building at any given time. But nonetheless, they do show a distinct shift in a three-year period.

The circulation figures tell a quite different story. Circulation per undergraduate has fallen slightly, while circulation for graduate students (we cannot separate PhD and MA graduates easily in the current figures) is slightly up. But the surprise is faculty borrowing, which is up by about 60%. In summary, while individual undergraduates are going to the library considerably more often, they are taking out a little less. Graduate students are going there somewhat less but holding their own in circulation. Faculty are going there considerably less, but taking out much, much more.

B. Heavy Usage

Library use varies greatly by individual. For studying this variability,

circulation figures are more useful than entries, since there are no non-substantive duplicates and the data are painstakingly exact. (I should note, however, that circulation data is system-wide, not limited to Regenstein).

The concentration of circulation is very great. About 13,600 people took a book out in 2003/4 (out of about 33,000 total cardholders.) They caused a total of 435,813 charges (excluding renewals but including reserves.) Among those who actually took something out, the mean number of charges is thus 32; the median is only 14. Loosely speaking, the top 10% of the patrons were responsible for 50% of the circulation while conversely the bottom 50% of the patrons were responsible for only 10% of the circulation. (Recall that all these percents are percents of those who took anything out at all. The median number of books taken out across all cardholders is actually zero.)

If we think of heavy users as people who take out 100 or more books a year, there are roughly speaking 100 faculty, 400 PhD graduate students, 100 MA level graduate students, and a little over 100 undergraduates in this heavy user group. The other 250 of these people (987 of them total) are scattered among various other statuses - alumni, staff, and so on. The faculty and PhD level graduate students in this heavy user group are responsible for about 20% of all circulation.

At the other end of the scale, a substantial portion of the university community never took a book out in 2003/4. The 33,000 cardholders of course include many staff and others whom we wouldn't ever expect to use the library, but it is useful to look at those groups from whom we might reasonably expect charges. About 150 of these total non-users were faculty (150 of 1100 senate faculty), about 600 of them were PhD graduate students (600 of 3373), and about 500 of them were undergraduates (528 of 4226). Rates of non-use are much higher among other groups - GSB students, alumni, staff and others.

The library is thus a true laboratory facility for a core group of about 700 to 1000 heavy users. For many of the rest - perhaps even for the majority of users - the library is in effect a place to study, a place to get very fast access to the internet, or nothing at all. This large group would not suffer if expensive services were cut or if the collection were much smaller. But for a core group dominated by about 100 faculty and their 400 PhD students, the library services and collections are the focus of their work.

C. Faculty - Detailed Usage Patterns

There are no long run data on trends in faculty usage. The turnstile and circulation evidence do tell us that in the short run faculty physical entry to the library is declining even while circulation is rocketing up. The seemingly obvious explanation of this fact - that faculty are using RAs to physically retrieve material that they themselves have identified from office computers - turns out to be wrong.

Usage of the libraries is in effect an HD, SSD, and Div affair. Only 9% of PSD faculty entered a (turnstile) library 20 times or more in 2003/4 and 12% of BSD faculty. By contrast 30% of SSD faculty did so, and 50% of HD faculty. As this balance suggests, faculty are almost invisible in Crerar. Only 11 days in 2003/4 saw more than 15 faculty entries to Crerar. JRL by contrast typically sees 60+ faculty entries weekdays in term and 40+ weekdays in the summer. Nonetheless, entries to the two turnstile libraries fell for nearly all subgroups of faculty over the quadrennium 2000/1 - 2003/4. Only OI and Div School faculty reversed this trend, and both are small units where changes by single individuals might have large effects.

Individual faculty vary their usage considerably from year to year, quarter to quarter, and day to day. Although heavy users tend to remain so, projects change, scholars go on leave, and studies move from data-retrieval and analysis to writing.

In the process of developing an overall indicator of faculty usage, I found wide variations in both entries and circulation between the two years examined. Within a year, examination of individual entry data by quarter shows that faculty tend to concentrate their library work in particular quarters. Usually there are two of these, and usually they are adjacent in the year. However, even though faculty concentrate their usage (typically about two thirds of it in their two highest quarters), they do go into the library - although not as much - in the other quarters.

We have noted earlier a core group of 100 faculty who take out more than 100 books a year (of whom 30 are taking out 200+ books a year). It is also important to note another kind of core use, which we might call reference use. Some faculty take out books and keep them until leaving the university. Such use is shown by the fact that the median age of indefinite circulation charges (a charge type available only to faculty) is a little over three years. Fully a third of existing indefinite charges are 5 or more years old. It is striking, too, that these heavy "reference" users are not necessarily heavy users in terms of circulation, which is a measure of new charges. There are perhaps another 30 faculty heavy users who are primarily reference users in addition to the roughly 100 heavy "circulation" users.

It was my initial hypothesis that faculty are moving towards identifying books for charge over the internet and then sending RAs to actually charge the books on "authorized borrower" (AB) cards. Although this practice is widespread, data show it to be episodic. Faculty apparently use ABs only during certain phases of their work. It is also clear that AB use is strongest as we move away from the core faculty research groups (HD and SSD faculty), becoming higher in the professional schools. Finally, AB charges can by no means account for the huge spike in faculty charges over the past three years. Virtually all faculty with ABs have fewer than half their charges generated by ABs, and the majority of faculty have never had an AB. Faculty must simply be taking out more books themselves, perhaps because new online bibliographical aids enable them to find more things to look at. This is one of many indicators that electronic and physical use of the library are synergistic, not antagonistic.

Finally, in the absence of firm data on the 231 faculty studies in JRL, walk-through studies were conducted in two different weeks (one in Summer Quarter 2005 and one in Autumn Quarter 2005). Staff checked the studies five times during the day (for a week) and used "lights on" as an indicator of use. It is quite evident that most of the faculty studies are not in use most of the time. A small number of them are very heavily used on a routine basis. But many of the studies seem to be held against the possibility - rather than the certainty - of use. Some faculty who hold studies can be shown by entry records to have been in JRL itself less than 10 times in the year.

In summary, faculty use of JRL is high but changing in kind. There are about 100-130 faculty who are absolutely dependent on the library and heavy users of it. They vary in usage patterns - by time of day, time of week (data not shown), time of year. Some are high in circulation, some in entry, some in both, some in reference use, some via ABs. Two-thirds of this core group have faculty studies, and, given the entry data, probably a quarter to a third of them are in JRL on any particular weekday in term. They are mostly HD, SSD, and Div faculty, and they are the advisors of the 400 PhD graduate students who are the dominant group of heavy student users. With those students, they constitute a group of about 500 or so people responsible for a quarter or more of all non-reserve circulation from a library that has 33,000 card-holding borrowers.

D. Students - Detailed Usage Patterns

As I noted earlier, at present about 40% of all entries to Regenstein are by undergraduates, about 28% by PhD graduate students, and about 11% by MA students, typically Divisional students. MA level students in the Divisions have in fact the highest rates of entry, an average of 114 per year. They are followed by PhD level students in Humanities, Social Sciences, and Divinity at about 105 entries per year. Undergraduates average about 86 entries per year.

The general statistics thus show that JRL is becoming more of an undergraduate library, both because of the increasing number of undergraduates and their increasing likelihood of entering the library. At the same time, the vast majority of student research use comes from graduate students; the latter are responsible for three-quarters of all student circulation (system-wide as well as at Regenstein alone). So the picture from the general data is of a library that is at once a graduate research facility and an undergraduate study hall / student union.

We can specify this picture with detailed data from the Survey of 2005 on student use of the libraries in general and of JRL in particular. Since respondents were slightly biased towards library users, as might be expected, our results bear more on comparison between types of students than on absolute numbers. However, as will become clear, there were enough non-users among respondents to give us a clear picture of the entire population.

1. General Data - About 15% of students have no favorite library. JRL is the favorite of 60%, Crerar of 10%, Law and Harper of 6% each, and the rest scattered. Students in professional schools possessing libraries patronize those libraries almost exclusively. By contrast, of HD, SSD and Div graduate students nearly all use JRL. Of the undergraduates about 75% use JRL and 10% each Harper and Crerar. (In what follows, UG stands for undergraduate and Div, HD, and SSD stand for Divinity, Humanities, and Social Sciences graduate students respectively.)

Of those with favorite libraries, however, a substantial group use those libraries little. From 15% to 20% of UG, Div, SSD, and HD students had used their favorite library less than ten hours total in the quarter (which was in its sixth week when the study started). Combined with the complete non-users, this puts 25% of these types of students - the relatively heavy user groups by comparison with GSB, Med, and other students - in the library ten hours or less in six or more weeks of term. Of course, the underuse figures were higher elsewhere: the equivalent for GSB respondents was 87% having no favorite library or being in their favorite library less than ten hours in the quarter.

Only 1167 students (of all types) reported JRL as their primary study space. Expanding this to the whole student population and taking account of biases suggests that the overall figure is not less than 1500 and not more than 2000.

2. Usage of Regenstein - The 2620 students who picked JRL as their favorite library and used it more than ten hours provide a basis for further detailed analysis. We developed several scales to capture the 41 usage variables about which they were asked.

This scale analysis exploded one of the major myths about JRL - the idea that there is a "student union" use of the library embodied in a broad and cohesive set activities that run from taking and receiving cell phone calls to surfing the net to shopping on line and chatting with friends. It turns out that there is a purely social scale, comprising activities related to A-level. (And while it is true that undergraduates are higher on this social scale, this is hardly surprising since A-level contains set-aside space for them.) But if we take all the other things on the "student union" list and lump them together into a scale, it turns out that there is no relation between that

scale and the scale of traditional library research use (checking books out, browsing and so on). Hard core, heavily-traditional student users do everyday electronic things just as much as do undergraduates who have just dropped in for a little studying before class. It therefore seems more appropriate to name the calling/surfing/emailing scale the "electronic everyday life" (EEL) scale. To some extent such activities are physically concentrated on the first floor and A-level. Serious study tends to be done away from A-level. Indeed, one of the most surprising ethnographic facts about the library is the level of quiet, even during very crowded periods, everywhere but on the first floor and A-level.

As expected, undergraduates are much lower on the eight-item traditional library use scale than are HD, SSD, and Div graduate students. Only 10% of the graduates are below the undergraduate median and only 15% of the undergraduates above the graduate median. That undergraduates make much less research use of the library than do graduate students is the inevitable result of a core curriculum oriented to detailed reading of original texts and the drift by many majors away from BA projects with their research demands. As for other scales, undergraduates are more likely than graduate students to use the library's computers for assignments, although students of any type who have wireless laptops use them exclusively. (A complete transition to the latter looks likely.) Finally, undergraduates are much more likely than graduates to bring material of their own into the library to study.

The broad picture, then, is that undergraduates use the library primarily as a study hall, with some secondary usage as a social center. Graduate students use it more as a research center. All students use the various technologies of everyday life, but the degree to which they use these is unrelated to their level of research library use.

A variety of questions were asked about special usages and study habits. (These are discussed in detail in the Appendix.) In general graduates are more serious users of the library in all ways: less likely to listen to music or to eat food while working and more likely to use the various special services (Special Collections, Maps, CDROMs, On-line databases, Archives, microforms and so on).

A battery of questions on desiderata showed no big differences between groups in their desire for things like carrels, printers, tables, and windows, although undergraduates were a little more eager for soft chairs and color printing. However, there were immense differences in their views of the desirability of books in the stacks, print reference materials outside them, and library staff to consult with; as expected, these are much more important to graduate students than to undergraduates.

3. Electronic Use - Use of the library's electronic resources is not limited to the library itself. Thus for these resources we can use the full 5700 student sample. Of the seven types of electronic usage we asked about, e-reserve use showed no relation to the other items and was left on its own. The electronic catalogue question was dropped because use of the catalogue is necessarily involved in any charge of a physical book, and thus gives no independent information about electronic resource use. The other five items (use of the RLG catalogue, of Worldcat, of online reference works, of bibliographic search engines and of library subject guides) were combined into an "electronic research" scale.

Graduate students were considerably higher on this electronic scale than were undergraduates; what matters about the electronic research scale is thus the research part, not the electronic part. This difference also questions the idea of simple succession of older "non-electronic" people by young "electronic" ones. More important, there is a very powerful and positive correlation between the electronic use scale and the traditional use scale at

the individual level. High individual users of electronic research tools were high individual users of physical research tools and vice versa. There is no evidence whatever of substitution of electronic for print resources at the individual level. The two seem synergistic.

4. Heavy User Students - By taking the various scales and trichotomizing them into low, medium and heavy use, we can get beyond group identities like "graduate" and "undergraduate." We have looked at five types of heavy use: the traditional research scale, the electronic use scale, circulation, a separate on-line database item, and a scale capturing use of special services.

All of these scales show the same general pattern. On all of them, the percentage of heavy users in the three major grad student groups (HD, SSD, Div) is far higher than that among undergraduates. However, when we look at the heavy user community by itself and ask what portion of it is undergraduate, we find that undergraduates are about a quarter of the heavy user community on each of these scales simply because, although their rates of heavy use are much lower, there are so many of them. Thus, even though undergraduates are very unlikely to be heavy users, the library staff cannot avoid providing a level of advice and services appropriate to them, as well as another level more appropriate to research users.

By looking at multiple heavy use among individuals on these scales, we can get a clearer sense of the student portion of the 700 to 1000 person heavy user community identified earlier via the circulation data. There were 2607 students in our JRL analysis, of whom 1298 were high on one of the five scales used here (typically the on-line database scale). 562 were high on 2 or more, 232 on 3 or more, 69 on 4 or more and 13 on all 5. Again, while at any level the various graduate student groups were far more likely to be heavy users, overall undergraduate numbers make undergraduates visible nonetheless. They are 46% of those high on one scale, 23% of those high on two, 12% of those high on three and 14% of those high on four.

Heavy use figures also show very clearly the effect of the undergraduate curriculum, which is evident in the different responses of undergraduates in different years. Heavy use rises from first year to second, as students leave the core behind, and again from third year to fourth as (some) students undertake BA papers.

E. Miscellaneous - Having concluded our review of detailed faculty and student usage, we can turn to some miscellaneous matters that concern all users. The first of these is on-line database usage. Much of the sense that the library is changing radically comes from the belief that electronic sources are coming to dominate not only the kind of simple-minded information-seeking that used to go to encyclopedias and other first-line reference works, but also parts of the formal research process itself.

The U of C data on electronic resources shows that general replacement of former research usages is happening in only one area - journals. Indeed, one can say that nearly all access to journals is now electronic rather than physical. This is evident in the concentration of licensed database hits on a handful of journal databases. JSTOR, Elsevier Science Direct, Nature Publishing Group, EBSCO Academic Search Premier, Web of Science, Wiley Interscience, EBSCO Business Search Premier, and a few others command the vast majority - probably over 90% - of all hits on databases licensed through the library.

Beyond journal use, however, it is not clear what the use of electronic data-bases means. The library subscribes to dozens of specialized databases that are accessed not tens or hundreds of thousands of times, but from 50 to 5,000 times a year. These appear to be an essential part of current research

practice, but given their relatively esoteric purview, their users are quite likely to be heavy users of print materials. It seems probable that there has been less of a shift to electronic reference works than there has been to electronic access to journals. The only heavily-used non-journal database is Lexis-Nexis - the one electronic database that many of our undergraduates come to Chicago having already used. (Lexis-Nexis sees about half a million downloads in a typical year; last year's figure of 2.5 million is either a data glitch or an attempted mass download.)

A second miscellaneous matter is temporal rhythms. These are very pronounced at all durations and play an essential role in regulating the dual function of the building as research site and a study hall. To a large extent, the research users and the study hall users not only segregate themselves physically in the library (e.g., the faculty goes to its studies and wanders in the stacks, while undergraduates fill the reading rooms). They also segregate themselves temporally.

Over the course of the year, it is clear that JRL is more heavily used in the three main quarters than in the summer, a rhythm obviously driven by student needs. But the breaks and the summer show higher proportions of research use, a fact evident in the distinct rise, in those periods, in the average number of books charged per borrower. The same pattern obtains hebdomadally. Charges peak on Monday, decline slightly to Wednesday, then decline sharply Thursday and Friday before plunging over the weekend. Yet books per borrower follow almost the reverse cycle, Saturday and Sunday being the heaviest days. Again, we see the researchers using the building when non-research use is lower.

The daily pattern also evinces a partial zoning of the library's time into research periods and undergraduate study periods. Nearly a third of faculty entries come before noon, while less than a fifth of undergraduate entries do. By contrast, 90% of faculty entries come before 6PM, while only 67% of undergraduate ones do. (PhD graduate students are fairly close to faculty patterns.) When multiplied by the underlying numbers at risk of entry, these rates give us some idea of numbers in the library. On some simple assumptions, these figures mean that the library is predominantly a faculty/staff/PhD graduate student (58% of the total) building on weekdays until 10AM. From that point on, it is steadily 40% undergraduate, 33% PhD graduate, 10% MA graduate, and about 8% faculty and staff until 6PM. It then rapidly becomes a purely undergraduate building, passing 68% undergraduate by 10PM. On Saturdays, proportions of faculty are slightly higher and of undergraduates are slightly lower, while PhD graduates stay at about a third of the population. On Sundays, undergraduates are strongly dominant (along with MA graduate students), while both faculty and PhD graduate students are considerably fewer.

F. Conclusion - While it is a shibboleth that library usage is changing today, it is important to recall that patterns of library usage have probably been changing at something like the present rate for a very long time. JRL was itself a revolutionary building in 1969 by comparison with the previous system of departmental libraries. But it lasted only a little over a decade in its original configuration before its transformation by the arrival of personal computers and coursepacks. The 1980s JRL that resulted from that encounter itself lasted less than a decade before it too was transformed by the arrival of CDROM databases and, shortly after, the internet. Thus we must remember that current usage of JRL is exactly that - current usage - and that current usage does not predict future usage, even via linear interpolation of current trends.

The basic picture of JRL today is of a dual-purpose building with a good deal of physical and temporal zoning. The research function and the study

function are to a considerable extent going on side by side. There are clearly things we can do to lessen their conflict, particularly by increasing the physical zoning of the building (e.g., getting the physical reference materials out of the first floor space). The temporal zoning is provided by the patrons themselves, and they provide some at least of the spatial zoning as well. (It is plain that there is a gradual increase in "seriousness" with distance from the first floor entry point). More important, the basic division of undergraduate versus graduate does not parallel the division electronic versus physical, and the latter is not, in any case, a division at all. Advanced research goes forward on both media in synergistic fashion. Finally, and most important, there is a core user community of around 100 to 130 faculty and about 500 or so graduates and undergraduates who are the core research constituency of the building. They are the central users of the building, and it is their research success we should be aiming to facilitate.

VI The Future of Regenstein

        Given this background and this analysis of the current building and its users, the next step must be to theorize the nature and mechanics of scholarly work in the twenty-first century. This means seeing through both the technological hype and the traditionalist complaints to develop a concept of what library research actually is and what it is designed to produce.
        This is not an easy or straightforward task, in large part because there is no relevant theoretical literature that is not generated by the professional debates over libraries themselves. While there is a well-developed literature on the sociology of science and knowledge, the vast majority of it concerns natural science in the first case and ideology in the second. There is very little serious social science written about the humanities or humanistic social sciences as research enterprises, and there is almost no serious writing by disciplinary social scientists about the library as a social or organizational form.
        There is a good deal of writing about libraries and library knowledge from an informational science (IS) standpoint, but the theory of knowledge it presupposes is rooted, like IS itself, in engineering-based theories of information that turn out to be largely irrelevant to what it is that humanistic research actually produces. And in any case the information science literature arises basically within the professional debates, which to this writer seem driven more by the familiar dynamics of interprofessional competition than by deep thinking about knowledge.
        I am therefore forced to develop this theory from first principles, drawing on my own reading and writing in the sociology of knowledge, science, and disciplines as well as on my experience as a computationalist, a library researcher, and a journal editor. While this theory is preliminary, it is better to think about the library's future in serious theoretical terms, even if they are preliminary, than it is to plan that future based on simple extrapolation of present trends or on the ideas of library research entertained by people who have seldom or perhaps never done it.

        A. A Theory of Library Research

        I begin from the notion that library research is research with records. Recorded material - print, film, digital - constitutes the raw material on which this research builds. Since most of this material records human activity, library research is in the broadest sense humanistic. But it includes not only the traditional humanistic disciplines, but also those parts

of sociology, history, anthropology, political science, and the other social sciences that involve recorded rather than elicited data (i.e. library materials rather than surveys or ethnographies).

It should be clearly understood that there are large differences between the various disciplines under this broad heading. What unites them is their work with recorded material, not their methods, their canons, or their disciplinary traditions. This disunity of the various disciplines dependent on libraries has been, in my view, an important part of what has made technology so dominate the debate about libraries. Quarrels between disciplines have prevented the articulation of a common vision of what library research is about, with the result that the dominant humanities disciplines - as the biggest single constituencies - tend to be taken as the inevitable spokesmen and theorists of the library among academics. The focal term in the discourse of those disciplines at this point is "culture" as used in the term "cultural studies." But while there is an archipelago of disciplines that might seem broadly "cultural" in this sense and that are sometimes seen as the core of the library research constituency, the "cultural" high-water mark seems to have passed in the social sciences, and history looks to be rejoining sociology and political science in their somewhat more "positivistic" (in the Rankean sense) use of recorded material. All this means that the library research constituency, even within academics, is a fairly diverse one.

Viewed comprehensively, library research as an enterprise comprises primary materials (records), secondary materials (prior writing about the primary materials), the researchers who work with both of these, a publication system, and a body of production practices (usually discipline-based) by which the researchers produce their publications. At this level of generality, library research may be compared to natural science, which likewise comprises researchers, materials, a publication system, and a set of practices.

Where the two differ most is in their mode of research production. Both within laboratories and between them, much of natural science is conducted via division of labor. This is evidenced not only in the complex structure of laboratory and research team organization, but also in the strong attention to conventions of definition and coding, the proliferation of commonly accepted terms, concepts, and measures, the rigorous and often experimental design, and a highly formal system of cumulation, all of which both depend on and facilitate division of labor in research. The ultimate examples of this are the giant high energy physics experiments, with their hundreds of investigators and their federated steering committees.

By contrast, records-based research is most often artisanal, the product of lone scholars who read a variety of primary records and secondary material, who if they code things at all code them idiosyncratically, and who in due time turn out publications that are seldom if ever exactly comparable with or precisely connected to prior work. There are of course exceptions, but in general the contrast between the natural sciences and records-based library research is quite strong.

From a computational point of view, natural science with its broadly-shared definitions and formal cumulation works rather like a structured program while records-based research - with its lone scholars turning idiosyncratic inputs into new outputs that then become others' new inputs - works like a neural net. The move that underlies this analogy is thinking about the architecture of each system as a whole rather than envisioning each as simply an aggregative sum of researchers' products. That is, I am not talking here about a model of a single investigator's or research team's mode of production, but rather about the entirety of library research or science taken as a whole.

Library research is, then, a fairly simple net computing system. Like most such net systems and indeed like most current optimization routines,

library research relies heavily on browsing, which can be defined somewhat formally as random inspection of a local knowledge vicinity for items with a high probability of payoff, particularly in terms of taking one to productive new localities. It is crucial to recognize that this happens at many different levels in library research, not just at one: within books as one turns pages, on shelves as one searches for a book, in the stacks as one walks by unknown call numbers, in bibliographic indexes and other research tools as one glances through topics, and so on. In all these cases, the power of browsing is great. Note that this means that browsing is a constant concomitant of library research, not an occasional activity within it. Browsing is always going on and gaining knowledge from browsing is not a rare, serendipitous event but rather a constant, routine one.

Browsing has two requirements. First, the materials being browsed must already themselves be highly ordered either by virtue of their internal structure or by their places in an indexing or cataloguing or classification system. Otherwise, adjacency has no meaning and browsing can't work. Second, the browsers must have broad knowledge that primes them to recognize likely connections. This is the rationale for general exams, for example. (Note that by this argument, one can even think of conversation with other scholars as a form of mutual browsing.)

This insight provides us with a first reason why much of library technologization doesn't work very well. The assumption is that give "the right indexing system," you can replace the expert browser, and any college freshman will be able to write good scholarship. But this can't be true because such an indexing system would only work if it encoded the expertise of all the possible expert users. But in that case it would reproduce the confusion (of all the different possible associations to a given item) within itself, giving the novice no more guidance than the old tools. What technology usually offers, in fact, is the expertise of only one user - a hard-coded set of hyperlinks - which is obviously vastly impoverished from a computational point of view unless you can assume that there is one (or a few) right expert(s), which is seldom true in the areas that employ library research.

I emphasize browsing because such random search in pre-organized localities, although important in the natural sciences (it is after all Pasteur who said that chance favors only the prepared mind), is by no means as important as it is in library research. Library research as currently practiced is unthinkable without browsing. It is quite often the case that library researchers do not know exactly what they want ahead of time; indeed one might define skill at library research as the ability to recognize, when we have found something, that it is in fact something that we ought to have wanted to find. To be sure, library researchers are sometimes quite focused in their needs. But even during tasks like coding and focused retrieval, browsing goes on in the background. It is for this reason that artisanal researchers do not often subdivide their work and give brute force tasks to others; they worry about the loss of browsing.

Browsing in this extremely broad sense and at all these many levels is thus one thing that absolutely must be protected in the research libraries of the future. It means keeping materials ordered and in a setting where they can be effectively scanned in the random fashion that browsing demands. Since, as we have noted, browsing involves many levels of organization, all of these levels need to be preserved, not just the order of books on shelves.

The book itself (that is, a physical text) is a good example. There is at present no possibility whatever of rapidly browsing a physical text on-line. In about two minutes with a physical book, a skilled library researcher can tell you a great deal about it. The same command of the source would take an hour with web browsing, although one could generate a caricature of that command with word searches in a somewhat shorter time. The same thing is true

for browsing on the shelf, for looking through research tools like encyclopedias, and even, in many ways, for using bibliographical tools. Concordance indexing (indexing by actual words in text) retrieves so much useless material that true browsing is almost impossible with it, even for skilled users.

Another difference between library research and natural scientific research is that the aim of the former does not appear to be as directional or cumulative as does that of the latter. While some library research is obviously cumulative (constructing an Assyrian dictionary, for example), much of it consists of reinterpretation of earlier work in light of later facts and later interests. The history of disciplines shows clearly that this is not a matter of cumulation but of steady revisiting, revising, and rediscovery.

Much of library research is also more particular than is natural scientific work, looking at particular or unique human events and phenomena in a highly particularistic - if still rigorous - manner. There is no real analogy in natural science for biographies of particular human beings or studies of particular historical events.

For all these reasons, it is not at all clear that success in library research is to be judged by approximation to some kind of truth or ideal - a standard that, if battered, still dominates much of natural science. There is, for example, no ultimate or final representation of "all the things that happened in 1848" in the way in which there could be an exhaustive catalogue of the chlorophyta or a listing of the numbers of permutations in the various conjugate classes of the symmetry group S7 or a definitive concept of alkanes.

But if the aim of library research is not necessarily convergence on truth, it must be some alternate form of optimization. What could these be? One possibility is maximally filling the space of interpretations, for example. Perhaps library research aims to find some version of all the different possible views of something. Or perhaps it aims to reduce the mean recurrence time for any given interpretation of whatever facts are known about some event or artifact, so that not only would we gradually fill the space of interpretations but revisit in finite time any region of that space that we had seen before.

Such a difference in aim will in turn be closely related to the differences in production modes between natural science and library research. The net-like and random artisanality of library research may be a better algorithm for filling an interpretation space than is the division of labor pattern characteristic of natural science. (The computing analogy here is greedy optimization. A randomized system like simulated annealing works better for optimization because you end up trying many more random possibilities.) Note also that since convergence is not necessarily the goal of library research, the usual definition of efficiency - rapidity of convergence - is meaningless in its case. This is a crucial matter in thinking about the impact of technology on library research.

In summary, library research is research with recorded human productions. Its practitioners come from diverse fields and bring diverse methods and canons. Library research is generally done in artisanal mode, which contrasts with the more divided mode characteristic of the natural sciences. Computationally, library research can be thought of as a neural net computing system and natural sciences as a structured program system. Library research is heavily dependent on browsing, defined as random adjacency search in highly organized datasystems by searchers with powerful lexicons of potential hyperlinks. Browsing is a multilevel operation and is taking place continuously in real time during research. There is little theoretical argument showing that browsing can be superceded by most forms of technology and considerable evidence that it is slowed or destroyed by many "efficient"

technologies.

Library research does not seem to be cumulative in the normal sense. It clearly optimizes some criterion in its knowledge world, however. Probably this criterion is some version of a space-filling measure combined with a recurrence time measure; loosely speaking we want to try out most possible interpretations and not lose sight of any one of them for too long. But this notion of library research optimization muts remain speculative. We can only say that library research is not cumulative in the sense characteristic of the natural sciences.

B. Library Research and Technology

Under the theory I am developing here, library research is already a quite technically sophisticated mode of knowledge production, and one computationally well adapted to its task. And as the example of efficiency suggests, it would be a mistake to evaluate the impact of technology on library research except under terms specified within our theory.

The most important pitfall here is that of "declaring victory." We must avoid the common trap of thinking that "knowledge" is whatever the new knowledge technologies of the moment happen to produce. We have to have an independent concept of knowledge and compare library research arrangements for whether they are better or worse when measured by that independent concept. And indeed when we employ the independent definition of library-based knowledge just proposed, it is clear that most of the technologies that today aim to automate or simplify or replace parts of library research do not in fact accomplish what it accomplishes now, but rather do something different to a greater or lesser extent.

This is an extremely important point. That we now can retrieve known sources extremely quickly is important only to the extent that retrieving known sources is an important or essential part of the research process. In fact, while focused retrieval is important, any library researcher knows that it is nowhere near as important as is figuring out what are the things that we want to retrieve in the first place. Or again, that everyone in the world may be able to have access on-line to every book in the University of Michigan Library via Google means nothing whatever unless that universal access helps rather than hinders the general process of library research that I have outlined above. But it is quite possible that the accessibility of huge amounts of hitherto unavailable material to unskilled researchers will in fact flood the scholarly system with so much bad work that its selection systems will break down, with the result that knowledge as a whole will actually be worsened by the new technological accessibilty.

This fact reminds us that, despite the simplistic image of "speeding up scholarship," what matters about library research is how the overall system performs, not whether one researcher finds a particular source faster or slower. We must be concerned with the aggregated system, not its individual bits. At present, we know that our selection systems (refereeing of papers, judgment of books, critical analysis of sources, careful use of citation, rigorous statements of coverage and provenance, and so on) manage to produce the knowledge in the libraries right now. And we know that that knowledge – unlike internet material, for example - is graded in dozens of ways by relatively trustworthy communities of raters. We know how much or how little trust to put in which parts of it.

But under new technological conditions it is no longer clear that that system works. Since we don't have quality information on much of what comes to us via new technologies (we often don't know the coverage of journals in the metacrawlers, for example), we are getting information of a considerably more

mixed quality through them. Since technology (e.g., canned software) enables weaker and badly trained scholars to publish more easily than they could forty years ago, our peer review system is overburdened and, in my own view as editor of the world's most famous sociology journal, very close to breaking down. The insidious demise of peer review is not something that is directly relevant to thinking about the library, but it underscores how broadly we must cast our nets in thinking about the library as a unit of a knowledge producing system. A library system that succeeds in aiding bad work more than good is not going to help the evolution of library-based knowledge as a whole.

In summary, we have to think globally about library technology (and indeed other knowledge technology). And we have to hold the new products up to an independent standard, not to simply assume that they are producing the same "knowledge" as did the old ones. They are only tools. What matters is how they are used and how that use is socially structured, in the library and beyond it.

At the same time, we cannot ignore mere technological developments, for whether they improve library-based knowledge or not, they will be coming steadily over the next quarter century.

The reasons for this continuous change lie in sources exogenous to the academic library research process. Academic library researchers are not a big enough market for anyone to invest much money in trying to serve their particular needs. But the larger "library access" market is driven by forces powerful enough to drive continuous change for decades. On the one hand is the gargantuan market of college students - some sixteen million of them in the US alone. On the other there is the enormous common body of current knowledge embodied in journals and books. The intense competition to make money by privatizing this vast free resource and reselling it to us and our students will drive continuous technological change in all forms of access for the foreseeable future. Most of the change will from the researcher's point of view seem largely arbitrary. Yet if we do not keep track of this arbitrary change, the technological trends will come to determine the shape of scholarship itself.

An obvious example is the change in research production induced by changes in the relative costs of the various factors of academic production. As access to sources has become cheaper in time, money, and effort, retrieval has undoubtedly become a larger part of academic production by comparison with, say, analysis. We are all publishing much longer bibliographies. It is almost certain that we have spent less time reading these sources than did our predecessors, who devoted a greater portion of their time to reading what they did find because finding things took so much more effort. Similarly, because the PC lowered the costs of writing (and more important, the costs of revising), it enabled scholars to start writing very early in the research trajectory, as opposed to the old system of writing only when all the research material was gathered. As a result, research has become more of a just-in-time system, with sources sought only when the writing demands them. Indeed, this probably means that we write more per unit source than did our predecessors; fewer of us have hundreds of unused references than they did. We are all probably devoting more time to writing and less to simple analysis. The consequences for publication are evident to any editor of a scholarly journal. (There are also clear examples of similar changes in the sciences; the effect of canned statistical programs on the average quality of published work in the social sciences is a good example.)

These are examples of relatively large-scale drifts occasioned by nothing more than technologically-induced changes in research factor prices. There are also more immediate effects. The traditional research library environment was a relatively static one in which researchers gained skills and tacit knowledge

of reference and other access materials that could serve them for five to ten years at least. The major indexes, sources, and research tools remained constant - in some cases for many decades - in format, design, and use. But now the shape of our main research tools (bibliographies, etc.) is being driven by a non-research market, whose expected client is a neophyte with no skills to lose. So change seems costless, and as a result the formats and functionalities of basic access tools - from catalogues to bibliographic databases to on-line reference works and the now-ubiquitous metacrawlers - change fairly constantly even though there are no major increments in the esoteric functionalities relevant to us (the same process is familiar in "upgrades" to text-processing programs). This process destroys researcher expertise at a constant rate and has also destroyed much of the underlying credibility of the sources involved.

The problem of constant change, and of monitoring quality and maintaining expertise in such an environment, is perhaps the greatest challenge for us as library-based scholars in the internet age. For example, we are already dealing with purported general bibliographical tools which have, built into them, hidden structures steering users to the products of particular companies. Indeed, the selling of these tools from one firm to another can mean that current owners are quite unaware of such prior software peculiarities. It seems probable, indeed, that the research library community will need to spend a good deal of time in the coming decades on the development of consistently credible access tools and that ultimately these will have to be developed and maintained - like JSTOR - in the not-for-profit realm.

In summary, the main lesson that comes from a reflection about technology is that library researchers have to become much more aware of what technologies actually can and cannot do, much more aware of what is actually going on underneath the metacrawlers and ostensible union catalogues, much more involved in training students to see behind the technological front. Library scholarship has a distinguished record at such tasks in the past. Nineteenth century textual critics spent decades unraveling the glossy surfaces of books and manuscripts and indexes from the past. We simply have to teach our students the same kinds of techniques and disciplines today. This is not going to be easy. Indeed, the seductions of technology are very considerable. But the future of serious library scholarship lies in a critically constructive and intense engagement with technology, not a running from it or a welcoming embrace.

C. Trends at Chicago

The theory of library research just discussed, and the relation I have discussed between research and technology, have important implications for my recommendations about Regenstein. In particular, they give rise to the particular trends that we must consider in planning for the immediate future of the building.

Following the argument of section VI-A above, I believe that library research production will remain primarily artisanal or will retain a major artisanal component for at least the twenty-year future. However, I do not envision faculty research production returning to the library on the levels we saw in the 1970s. The personal computer and the internet mean that large parts of individual production of research will remain in the convenient and quiet surroundings of office and home. By contrast, graduate use of the library for research production might increase if we make appropriate changes.

An important part of the overall library research process, however, is scholarly interaction among library researchers - about methods, about intriguing leads, about problems, about draft work, and so on. While much of

this happens already throughout the university, I believe there is much to be gained by concentrating that activity into the library. I believe strongly that congregate working conditions will continue to facilitate and improve library research. I also believe that bringing the library research community together more effectively in the library will itself strengthen the constituency for the building, which is at present scattered across divisions and departments.

As for technology, I have said enough to make my general position clear. About particular technologies it is difficult to say much. But it seems unlikely, given the theoretical argument above, that any of the core tasks of library research will be fully automated by technology in the near term. There is still no widely deployed mass indexing system other than concordance indexing (commonly - but mistakenly - called keyword indexing), although such a system has been promised annually since the advent of the mass concordance indexes in the 1960s. Nor does it seem that there is a short-term replacement for the book as technology; devices for mass storage of novels have existed for a decade at least, but have not spread widely despite some initial success. The physical academic journal, however, has been replaced by the system of electronic distribution coupled with home or office printing. Finally, whatever happens to the majority of books, there will continue to be an enormous amount of material that is not electronically available, because no one has the economic or other incentive to make it so. Much of this will be material in uncommon languages and formats. In short, the technological situation is complex, and our main task is to keep a weather eye to technological change and to train our students to use technology with critical care.

Our changing students embody a final, but absolutely essential trend. It is already the case that the average undergraduate coming to the University has probably never used a library catalogue. The main research tool he or she understands is Lexis/Nexis, a mixed quality, largely commercial-press database. Such a student is for the most part self-trained in research, having been told in high school to write research papers using internet sources but not given any further guidance. Most important, our current students indulged their intellectual curiosity not by reading encyclopedias and browsing libraries, as we did, but rather by surfing the internet. As a result, they do not have the passive socialization by which earlier generations have come to identify the organization of knowledge with the organization of libraries. Quite the contrary, the average new student envisions knowledge to be what the internet is: dynamic, disorganized, networked, varying widely in quality, in interest, and in utility, but uniformly available. Moreover, such a student is convinced that faculty are Luddites (of course not using that word - he doesn't know what a Luddite is) if they think otherwise.

It is essential that faculty recognize this change in our students, which has been extremely swift. The leading edge of the generation that had access to the internet throughout its high school experience is already in graduate school. Concepts of knowledge quality and complexity of access that are second nature to those of us who found our intellectual vocation in school and public libraries are quite understandably absent from these students' minds. The confrontation between these two ways of organizing knowledge should make us much more aware of the strengths, weaknesses, and above all the peculiarities of our own conceptions of knowledge. We have to be much clearer, both with ourselves and with our students, about exactly what it is that constitutes knowledge, eager to defend what is essential but also eager to take up what is genuinely useful.

Given all these considerations, it seems that our Library should aim to maximize research production by taking the largest possible advantage of

technological aids to that production, yet not changing the underlying structure of scholarly production in library research. It is my view that there will remain a sizable constituency, both at the University and beyond it, that values library research done in the artisanal/browsing mode. By designing Regenstein to be maximally friendly to this kind of production, we can sustain a quality of research that will not be sustainable elsewhere, and we can make Chicago a completely unique center of library research. At the same time, we have to welcome the challenge that both technological change and our students bring to this classical mode of production and to evolve from it a new kind of knowledge that retains classical ideals and standards while critically employing new techniques. It will be an adventurous time, but a very important one.

D. Recommendations

I begin with the simplest recommendation. The library needs to continue supporting its core functionalities: evaluating and acquiring materials, housing and preserving them, providing diverse and effective access to both owned and licensed materials, giving research and other support to faculty, students, and other users. It goes without saying that this requires an excellent staff, which the library has already, but which like any resource needs continuous attention and development. My vision for the library does not imagine any retreat from the current basic functionalities, but rather a way of combining them with new programs and spaces to achieve new results. In this transformation, the magnificent collection and the excellent staff that maintain it become the core asset in a larger enterprise, a center for intellectual life more generally.

The changes we need are as much programmatic and intellectual as they are physical. The problem is not so much to make a new physical library, as it is to imagine what such a facility ought to be doing. At the heart of my vision is the idea that the library and its research users must become self-conscious about its role in the process of making knowledge. The library's future is not simply a matter of using advanced technology to do the same old things faster and better and for more people. To envision the library's future is rather to continue the task begun here of conceptualizing what it is to make knowledge out of the recorded materials of all kinds and to put that conception into self-conscious practice.

This means first of all a program of instruction in how to make knowledge from records; we have to teach our students the practices of knowledge-making that we judge best. Second, it means concentrating into the library, both physically and programmatically, the graduate students, research visitors, and library-based faculty who are the heart of the library's research constituency. Third, it means making the library a site where knowledge is presented not only in the books that come in over the loading dock and in the bits that fly in over the servers, but also in workshops and lectures and coffee-house conversation.

In short, Regenstein should become the physical center of the intellectual life of those research groups that seek their data in recorded materials. We are lucky that - as decades of practice show - this use is compatible with the building's other natural use (as a study hall) as long as care is taken with physical and temporal zoning. Because our college is focused on the life of the mind, our research center can double as a study hall for the thousands of users who have little need for its extraordinary research collections and infrastructure.

I underscore, however, the need for faculty effort and commitment in pursuing this program. As the evidence of other universities shows, the time is over when a giant, book-filled library was simply a fact of campus life.

Many of our peers are repurposing their libraries as study halls and general function spaces. My vision is obviously a different one. But the library research faculty for whom Regenstein is a crucial resource must take responsibility for the building and its programs. For such faculty, working at Chicago has always carried with it the privilege of working in what many people consider to be the most functional research library in the country.

But now that other constituencies in the University can more easily make do without that library, it is more than ever evident that the great cost of Regenstein is spent to a large extent on behalf of the building's heavy users. A library of half Regenstein's size would suffice for all but perhaps the seven hundred to one thousand heavy users identified above. If we take the half of the building and its collections that could be "saved" by repurposing, we can see that every faculty member who is a library researcher has a "setup cost" of several million dollars in capital, which is then maintained at considerable annual expense. Regenstein is very literally our laboratory, and we need to supervise it much more effectively.

Specific Recommendations

(1) - Develop and Deploy Instruction in Knowledge Production

Given the rapid changes in the knowledge skills and models that students bring to the University, the faculty - in coordination with the library staff - need to develop a more comprehensive and focused approach to teaching the skills of finding and assembling knowledge. I deliberately call this "knowledge production" to avoid the implicit dualism of "library research and information retrieval" as if these were two different things. As the survey has shown, electronic and physical research are synergistic.

An important problem here is the fact that most writing instruction in secondary schools encourages students to put their thoughts on paper at a very early stage. The traditional trajectory (problem to research to analysis to writing) is for most of our undergraduate students telescoped into a single process that is dominated by the simple need to fill up the pages they have already sketched out in their word processors. So we must be very conscious to teach the importance of separating retrieval, assembly, analysis, and writing. The problems of retrieval, assembly, and analysis seem important enough to require separate instruction on their own, free of the necessity to write.

At the undergraduate level, the most drastic intervention of this type would be a core course on knowledge production. Such a course could teach the various modes of retrieval, evaluation, concatenation, and assembly of sources. Faculty who have taught such research courses to undergraduates know that these courses reveal an extraordinary need. Our undergraduates are completely self-taught, and their skills are rudimentary. Our present curriculum makes very little effort to teach those skills, but then assumes that undergraduates have somehow acquired them by the time they begin a BA paper. At the least, we need to develop for the students who want it a one-quarter core-type course with a fairly standard curriculum that can be rotated between interested faculty.

Even more strongly do we need such a course at the graduate level. Our graduate students come from other colleges, which have not provided this instruction. Many of us are now teaching versions of such a course, usually to our own students on an ad hoc basis. But we often fail to take advantage of the library staff in such teaching, and by our ad hoc approach we fail to develop a cumulated, common experience of how to teach methods for research with records.

At both levels, such courses will need to be taught in classrooms

equipped with computer technologies so that teachers can guide students through various kinds of electronic tools. At the same time, these classrooms need to be near physical sources so that those, too, can be explored in depth. At present the library has only one such permanent classroom (in Special Collections, and there is already a waiting line for it at certain times of the week). There is clear need for at least four more such classrooms. These classrooms should be dedicated to teaching of knowledge production; they should not become assignable for general teaching. As I shall later note, however, these classrooms should be usable later in the day as workshop venues, since moving workshops into the library is an important part of increasing the intellectual density there.

(2) Integrate PhD graduate students in library-based disciplines more effectively into the library as an intellectual center.

1. The departmental library system that Regenstein replaced tended to balkanize graduate students, and so Regenstein attempted to create broader units with its division into "research floors" for social science, humanities, and so on. This system has broken down with the moving of stack materials, and it is not certain that it can be recreated and maintained as we populate the ASRS. So an effort to reconcentrate graduate students seems wise, as is shown by the success of the Classics reference room in Regenstein and of concentrated carrel space in libraries like Princeton's Firestone. I therefore feel that creating some set-aside spaces for major groupings of graduate students in Regenstein is a good idea.
What these groupings should be is not clear. We can probably sustain about five or six of them, among which History, English, and Music seem obvious units. The others may need to pull together transdepartmental groupings of students, something that is better organized by groupings of departments themselves rather than by a central group through fiat. But one could imagine the library-based portions of sociology, anthropology, and political science sharing such a space. On the Firestone model, such spaces might have carrels with storage facilities as well as small reference collections. Ideally, they would be near workshop and classroom spaces, which could be used for congregate work when not otherwise in use.
Graduate student set-aside space is one of the means by which we can create some sense of subject cohesion in the library. We will never again be able to coordinate the stack collections with subject floors because of the dynamic nature of the collection over the next years and because the inevitably increasing importance of on-line materials makes such coordination less important. But we can concentrate graduate student space together with the relevant subject bibliographers and subject-specific reference collections. Integrating the bibliographers and subject reference materials with the scholars related to them is an important and feasible goal.

2. A second possible means of integrating graduate students into the library is to employ advanced graduate students to extend current reference and advice systems. This would take advantage of existing expertise in an area where the library is short-handed. And since such work would take place within the reference and advice system, there would be productive interchange between the library staff with its expertise in broader tools and ever-changing technologies and the graduate students with their concentration on particular research topics. (It is also quite possible that students with questions to ask might be more likely to ask an advanced graduate student about them than a library staff member.)

One particularly important area is statistical and dataset advice for social scientists and humanists. There are enough courses in these areas and enough ongoing student research to provide a steady stream of demand for such an advice center. Centers of this kind have proved quite successful in other libraries, and it is possible that we should envision a larger dataset advice operation, although the existing system at NORC needs to be considered in any planning.

(3) - Increase the density of research-level interaction in the library

   1. As I noted earlier, I do not expect faculty research production to shift back to a primarily library-based system. But the rapid recent increase in circulation as well as conversations with individual faculty persuade me that many faculty do consider the library to be a core element in their intellectual enterprise. And the moves anticipated with the ASRS give us the flexibility to use library space for other parts of the research process than production.
   First, we should aim to use library classrooms and congregate spaces to host as many workshops as possible. Some departments do have set-aside space for workshops, but many do not. In most cases, this space is simple classroom space without any technical amenities, and so workshops often have to shift around to find those amenities. By designing workshop space into the library (as I noted, it will double as classroom space) and placing it near relevant graduate student space, we can create an attractive physical concentration of research life. And since the experience of the Franke Center shows that faculty tend to coordinate use of their studies with attendance at Center events, we can anticipate that providing such a concentration would increase faculty presence as well.
   Thus, the library should be not only a place where individuals work on their research, but also a place where that research is presented and discussed. The library has unique advantages for this, because economies of scale will allow us to provide settings that departments alone lack the space and resources to create. I should note, however, that locating actual research centers in Regenstein seems to me unwise. In part, this is because I fear a Kansas-style land-rush. But more important, research centers are often Potemkin villages that exist more as targets for external funding than as physical realities; research center spaces are often uninhabited much of the time. We already have that problem in the faculty studies. We should not exacerbate it; it would be better to use workshops as a way to attract faculty back to studies they already have.

   2. I have mentioned that as one of the few remaining large-scale open-stack collections Regenstein will inevitably draw an outside constituency of scholars looking for such resources. We should embrace that larger constituency and create facilities that make it easy for them to use the library. A beginning is being made through a pilot visiting program at the Special Collections Research Center. This will bring scholars from outside the University to work on materials in the SCRC, providing a small stipend to cover living expenses for periods of up to a month or more.
   I feel strongly that the library should seek outside funding to undertake such a program on a considerably larger scale. There are large constituencies of scholars who are eager to spend a few weeks buried in such a library. Indeed, many European visitors do little else on their trips to the University. There are also constituencies within the University who want such scholars to come here for brief visits - to give a couple of talks and speak with some students. Departments and centers are often eager for such visitors

and indeed can sometimes defray part of the costs of such a visit.

I envision a fellowship program supporting stays of two to four or six weeks, providing office space, support for living expenses, and a congregate setting where fellows could meet and share work. In some senses, such a program is present in embryo in the Franke Center, which already has a small number of outside visitors and already has some congregate space. The program I imagine would require more space and would also require some way to bring social science and divinity scholars onto an equal footing with humanists, since, as usage analysis shows, social scientists are 30% of the library's core constituency and divinity scholars another 10%. A possible organizational home for such a program is the Council on Advanced Studies. The CAS already has responsibility for the workshops in Humanities, Social Sciences, and the Divinity School, and, as I have noted above, I feel that the workshops should be welcomed into the library. Thus it would make sense to move CAS to the library and see it as nucleus from which to run a visitor program as well as the workshops, both of which come under the heading of advanced study. Alternatively, such a program could come under the jurisdiction of the Library Board, although that would mean giving the Board administrative functions that it lacks at present.

The advantages of a visiting fellowship program seem many. It would provide a new constituency for the library. It would bring exciting scholars from elsewhere to campus. It would breathe excitement into the library itself and would give us a chance to further showcase our superb collections, facility, and staff. Such a program will require serious fundraising, but seems well worth the work.

3. The library has no space within it for substantial lectures and presentations. This has created problems in the past for the Library Society, for exhibition openings, and for the Franke Center. In a vision of the library as a center for research activity and presentation, a substantial space for presentation of knowledge seems essential. Clearly such a space should be technologically well equipped. At the same time, it seems unwise to earmark a large space that would stand idle most of the time. The library's current experience with A-Level as a venue for lectures and conferences suggests that the A-level reading area could be designed as a flexible space configurable for lectures and even for conferences, with their needs for separate small meeting spaces. Such a space could double as late-night study space, as in the current utilization, providing congregate study space as well as a large open area.

4. The present faculty study system has problems. Although studies are an important resource for faculty, the fact is that most of the studies are not used most of the time. Probably twenty to thirty faculty use their studies daily, perhaps fifty to seventy use their studies once a week. These and some other faculty use a study heavily during some extended period of the year, but many faculty don't visit their studies at all for a quarter or more at a time. Others retain studies more or less "on spec," against the possibility of needing one suddenly. The net result is that a considerable amount of library space is held inactive for much of the time. There should be a way to guarantee that faculty can get a study when they need one and that faculty who are heavy, constant users can have permanent studies, without at the same time immobilizing the amount of library space currently given to inactive studies. It is not clear how exactly to work this problem out; it clearly needs careful study and further observation. One could start by raising prices to see about the actual demand.

Some have suggested a purely faculty lounge space in Regenstein. In effect, this would need to be in the Faculty Study Wing somewhere, since no

other space could in practice be defended against other uses at times when faculty were not around. But a separate faculty lounge seems unwise to me. We want more interaction between faculty and research students, not less. And in any case (see below) I think we should create a vastly improved lounge space elsewhere in the library.

It seems symbolically important that there be a space somewhere in the library that is explicitly and purely for reading, allowing no use of electronic devices and enjoining complete silence. Such a silent reading space seems not only an interesting experiment, but also an important symbolic gesture to what is rapidly becoming the past. This could perhaps be tried somewhere in the faculty study wing, since faculty seem the most likely users. Another possibility might be the northeast corner of the first floor.

(4) Zone the building

It is important to get the building more effectively zoned. The entry foyer remains noisy despite the new quiet turnstiles. The physical reference materials on the first floor sources are therefore largely useless. Indeed, much of the building sees mixed research, study, and social use. We need to concentrate the last away from the other two.

We also need to face reality about food and drink in the library. The student survey showed clearly that most patrons consume beverages throughout the library and that a large minority routinely eat throughout the building. My sense is that the food problem - which has endured since the 1970s - is to some extent inevitable, but is also a consequence of the cavelike ambiance of the present coffee shop, Ex Libris. If there were decent eating space in Regenstein, we would stand a better chance of keeping food (and more important, waste) concentrated in one place. (But we should also recognize that this problem is inevitable, and that if vermin or bugs had been going to overcome the building because of food use in it, they should have done so long since.)

A first piece to the solution of these problems is to revamp the public spaces of the first floor in coordination with the building of the ASRS. Since the latter will require a new entry to Regenstein on the west (in the present preservation department, which will move to the ASRS, or through Special Collections) and a substantial "handshake" space, that space could become the new home of the present print reference collections from the old first floor reference area. By placing the main reference site between the two facilities, we could serve both of them at once. Circulation could be returned to its old home by the first floor stack entry. This would concentrate the major patron services of the research library in one place and enable us to treat the general first floor space (the site of the old card catalogue and reference departments) as an internet access space, study space (for people who like to study in relatively noisy places, as many of our students do), and space for small-scale congregate activities (like TAs meeting with students, an activity which now often takes place in Ex Libris). A ready reference desk - with minimal physical materials - could be located either where it is at present or where circulation is at present. The East side of the first floor - current site of the offices of the reference department, some parts of circulation, and the old reference stacks - could become expansion space for the various visitor programs envisioned in earlier sections. The north end of this space, with its windows on three sides, would make a fine seminar room attached to this "research center" space, which would be implicitly continuous with the Franke Center space. Alternatively, it is a possible site for a silent reading room.

Another important piece of this puzzle is the creation of a first-class

coffee shop. This would be a building attraction and would not go beyond what we are in fact already doing in Ex Libris (in terms of food and other contraband). By creating a first-class coffee service (on the Smart Gallery or Classics cafe model) in a beautiful space, we can make the library more attractive at the same time as we try to concentrate consumption in one place. The best place for this, in my view, is on A-level in conjunction with the garden. Food-services in that location would be useful both at normal times and when A-level is employed as conference space. Since I envision A-level as flexible space in any case, such a location would also tend to concentrate noise and disturbance away from dedicated research space. In such a model, for example, the A-level reading area would be another obvious location for TAs to see their students, something I would expect to increase because of our concentration of graduate student activity into the library. It would also be a setting for what I earlier called the electronic everyday life activities of students - cell phone calls, chatting with friends, and so on. With the increase of wireless, it will of course also be a center for the electronic aspects of everyday life - surfing the web, doing email, and so on.

This particular vision of the first floor and A-Level is only one of several possibilities. But the underlying principles seem clear. We need to create a real reference center separate from our general internet space, because researchers should not have to wait to find machines available while students do email and catalog ordering. Nor should scholars have to feel that reference is something that takes on sufferance in the middle of some other activity, scholarly or otherwise. We need to get circulation closer to the stacks themselves. (This is a complicated issue, since there are advantages to having entrance and circulation together. But the inconvenience of circulation probably means an increase in unchecked books in faculty studies, for example.) We also need to have some general space, isolated from the serious section of the floor, for electronic living and first-level internet use. Thus the key issue to resolve re those parts of the first floor open to patrons is how to zone them into a serious part (containing special collections, research reference, and possibly circulation) and a less serious part.

There are a number of minor issues to be considered about zoning. A number of colleagues have urged expansion of the Special Collections Research Center, possibly making its space more central, both physically and programmatically. A related proposal is that we make the entry to Regenstein a more dignified space, one that telegraphs the seriousness of the research enterprise within. Both of these concerns seem very desirable in themselves, and very much in keeping with my vision of the building. On the other hand, their implementation seems to me difficult. That the main entry be via turnstiles is dictated by the provision of licensed databases immediately inside, in the general first floor space. To change this would require programming the first-floor computers for password entry and creating a second entry control point at the main stairs (where the library control point originally was). But if creating a massive and dignified entry seems difficult, there are minor changes (especially in terms of noise abatement) that could make the entry both quieter and more symbolically effective. On the other hand, making SCRC more central to the general flow of library traffic would seem to require redoing the entrance entirely. Moreover, I envision the whole of the building as a "special" collection (as opposed to other universities' libraries), and so perhaps emphasizing the specialness of SCRC as a separate space is unwise. SCRC will in any case be made more central because of its physical and programmatic relation to the ASRS.

There is some question about the issue of noise in the library. Some have suggested that parts of the reading rooms could be set off as absolutely silent. It is not clear whether this would increase or decrease the total

level of noise, since the provision of silent space might imply that the rest
was noisy space. In my view, passive zoning by student norms is probably more
effective than by specifically set-aside space. Inspection of the library
during the weekend before exams (Winter Quarter 2006) revealed that other than
the first floor and A-Level, the building is almost silent - despite almost
one third of the main floor seats (515 of 1700) being occupied. Students were
in fact telling noisy talkers to quiet down. The first floor and A-Level are
both fairly noisy spaces, spaces in which a serious scholar could not
concentrate for five minutes. But the rest of the library - both in the
reading rooms and in the stacks - seems relatively quiet. This pattern
supports my own view, which is that the first floor main space is a lost
cause, and that we should give it over to student electronic activity that
will otherwise be scattered into the rest of the library. It is better to
concentrate the noise.

(5) Other libraries and Other Matters

    There are some minor matters to note about Regenstein in passing. First,
it may at last be time to get rid of the card catalogue and install desks
around the periphery of B-level to allow for consultation of materials taken
from the compact stacks. I would argue that we will be losing important
information by throwing the card catalogue away (things like handwritten notes
about which state-level bureaucracies were transformed how and when). But
almost no one ever uses that information now. Because its existence has been
forgotten, people generate it in other (probably far more time-consuming)
ways. No doubt technological replacements will eventually be produced, just as
the handwritten notes were produced in earlier times. In the meantime,
consultation space is more important, since studying students generally occupy
the eleven tables that service this entire floor. We may also need to move the
HRAF files, also on the B-level, to provide consultation space on the south
walls.
    Finally, we also need to improve the facilities for non-text media, not
only for the modern media like film and sound, but also for microforms, where
the technology has gone well beyond our current machines. These are complex
matters, however. It would for example be difficult to create large-scale film
space in Regenstein, and a substantial film studies center already exists
elsewhere (in Cobb). Moreover, such spaces may be planned in the Arts Center,
and any planning for Regenstein would need to coordinate with those other
plans. Non-text media are thus a moving target, one which those who implement
changes in Regenstein will need to watch carefully.

    I noted earlier that changes in Crerar are likely to follow from changes
in Regenstein. A large portion of the Crerar stacks is taken up with serials
that are targeted for storage. At the same time, the building is very lightly
used, having about one-tenth the entries that Regenstein has. It seems then
sensible to concentrate on redeveloping Regenstein and considering Crerar as a
possible location for services and uses which could be moved out of
Regenstein. One cannot specify these ahead of time, although there are a
number of possibilities.
    Finally, there is the question of Harper. This most beautiful space has
no clear future. There are many proposals for it, but these are beyond my
remarks here, which focus on the research library. Although the research
library clearly needs to hold onto the basement stacks below Harper, Wieboldt,
and Classics, the reading rooms themselves are not relevant to the research
purposes of the library.

(6) Organizational Changes

        One factor that has allowed the library to drift has been the ambiguous,
sometimes non-existent, relation of the faculty to the library and its staff.
To rectify this problem, a number of organizational changes are necessary. All
of them take the form of enabling, indeed encouraging, the interested faculty
to take up their responsibilities towards the building.
        One such step is developing a closer relation between subject
bibliographers and the relevant departments. The situation in Classics is an
excellent model: the subject bibliographer is on the itinerary of every job
candidate, attends department social functions such as graduate student
orientation, and is well known throughout the department. While this situation
may not be replicable for all departments (particularly those split between
library and non-library research), closer direct ties between concerned
faculty and bibliographers are a necessity.
        More broadly, however, the programmatic innovations proposed here -
particularly those in research instruction and visiting scholars - clearly
require a closer and probably more organized handshake between staff and
faculty. Library visitors will need to be hosted by departments, and in many
cases may have been found by them. Extensive instruction in research methods
with recorded materials will require not only faculty (as well as staff)
teaching time, but will also require a good deal of coordination since no
faculty member will teach such methods courses year-in, year-out. The crucial
question is who will take responsibility for this coordination.
        In the present design, the Library Board is the venue for faculty/library
coordination. But the Library Board is more a general oversight and policy
committee than it is a working administrative unit that could oversee an
instructional and visiting program. In many ways, the Library Board as
currently constituted is appropriate to a very different period of library
history, one in which a library director and his or her staff needed only
occasional faculty input. In the new era, the constantly changing technical
environment as well as increased administrative activity means that we need
much more constant coordination. Some other solution seems necessary.
        In the medium run, as I noted above, one could envision CAS taking up the
function of overseeing the visiting program, and so perhaps it makes sense for
CAS to take up the task of coordinating library research instruction on the
model of the current core course staffs in the College. That would leave the
Library Board as an independent advisory board. But it would seem in the long
run more sensible to fold these functions together, creating one body that
would be the focus and organizer of faculty relations with the library.
        These are organizational changes in the medium term. In the short run,
the Task Force report with few exceptions recommends setting up ad hoc bodies
to further consider many particular problems. It is not clear who should set
these up, but it looks as if the Library Board and the Director of the Library
will have to do so.

VII Summary of Recommendations

        The Joseph Regenstein Library (JRL) is one of the University's most
important assets. The building itself is large and infinitely flexible. The
University's holdings of 7.5 million volumes constitute one of the great
research collections in the United States. Indeed, taking into account the 5
million volumes eight blocks away at the Center for Research Libraries, Hyde
Park is virtually unsurpassed in its ready access to research materials.
Although the library staff is relatively small by comparison with the staffs
of our few peers, its proactive stance towards technological developments and
faculty research practices has enabled it to equal or better their support of

faculty work. The challenge is to reimagine how best to deploy these existing resources in the new environment.

Specific Recommendations

I give here a summary of recommendations with a short comment on their current status and needed next steps.

1. Develop and Deploy Instruction in Knowledge Production
   a. Design graduate and undergraduate courses in the skills of finding and assembling knowledge.
   b. Build at least four classrooms in which to teach such courses and to use for other library-intensive courses and workshops. These, like all internal library spaces, should be under complete library control, as far as scheduling is concerned.

Note: This involves a piecewise bricks and mortar issue (classrooms) and a scalable pedagogical program that requires gradual faculty mobilization (courses). We should act immediately on the former; these are obvious funding opportunities. The second I am already working at and will seek to build a faculty constituency for over the next two years.

2. Integrate PhD-level graduate students in library-based disciplines more effectively into the Library as an intellectual center.
   a. Create set-aside spaces for carrels and some reference materials for major graduate units: English, History, Music, Divinity, and possibly some combinations of other departments.
   b. Integrate graduate student advisors into Regenstein reference on an areal basis - for example, create a statistical advice desk.

Note: Integration of graduate students must await space. We will also need to check to see if they want this, although I imagine there is little doubt. Involving them in planning will be important. I think space should and can be found for this. By the time we have student input gathered, space could have been identified. This sounding of opinion should begin immediately. As for a statistical advice or data desk, we should explore the possible constituencies before taking action. The College may be doing some of this in Harper.

3. Increase density of research-level interaction in the library
   a. Encourage workshops to meet in the library
   b. Create a large-scale visiting program for scholars from elsewhere to use the library on a short-term basis.
   c. Reconfigure the A-level reading area as a space for small conferences and provide smaller rooms/spaces for small group meetings related to this function.
   d. Explore the demand for and reconfiguration possibilities for the faculty study wing.
   e. Create a small space for reading only.

Note: Encouraging workshops to meet in the library could begin immediately by identifying the rooms that could be used for this and getting the word out. As for a fellowship program, one has already begun on a small basis at Special Collections, and, since that is already an oversubscribed success, we should immediately design and seek money for a larger program. Planning for reconfiguration of A-level is hostage to the coffee-shop decision. Once that is made, we should seek design advice and price the proposals. As for the

faculty study wing, we should raise prices seriously (on this renewal cycle) and see what happens. Once we see that, we can think about whether there are possibilities for reconfiguration. As for a read-only space, that is simply a question of identifying one. There are several possibilities: the northeast corner of the first floor, the periodical and new book area, etc. We should explore this immediately. Like any space decision in Regenstein, this one is easily reversible, so there is little lost in trying it.

4. Zone the building more effectively.
    a. redesign the first floor to separate research reference
        from other uses (and consider other zoning possibilities there)
    b. create a first-class coffee shop either on A-level by the windows,
        in the northeast corner of the first floor, or (pipe dream) in the
        garden behind A-level under a glass canopy.

Note: The coffee shop location issue needs to be decided AT ONCE, within a month or two at most. (We will need some professional advice on this because of the plumbing issue.) Nearly everything about the first floor and A-level configurations is potentially hostage to this decision, including certain aspects of the handshake to the ASRS. Once the coffee shop matter is decided, first floor design work should be carried out in coordination with the planning for the ASRS. When and how we can afford the work inside Regenstein is another matter, but coordinating it with the ASRS is absolutely necessary even if parts of the redesign inside Regenstein have to await funding. As for the coffee shop, that will potentially be quite expensive (because of plumbing). We need a plan; then we can raise money for it.

5. Create an organizational structure to maintain more constant and effective
       faculty involvement with and integration into library planning
    a. In the short run, the Library Board and the Library Director should
        collaborate on the recommendations given here.
    b. In the medium run, evolve CAS towards a larger and more comprehensive
        administrative unit that could handle not only workshops, but also
        the external fellowship program and other routine administration of
        faculty/library linkage. Alternatively, assign this responsibility
        to the Library Board and create an administrative structure for it.

Note: In the near term, we have essentially no alternative other than to have the Library Board take up this agenda of matters. Even under my recommendations here, there is a need to start a number of initiatives and groups; under the Task Force recommendations there are more. The Library Board is the only group that can handle this in the short run. It will need to have some subcommittees next year, which will need to be chaired by members of the Board but will need to include other faculty. We will have to se how things evolve, but I continue to think that CAS makes great sense as an umbrella organization.
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