Evaluation Report on the Perseus Project Publication Model 1998-1999

Submitted to: the Fund for the Improvement of Post Secondary Education

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This year, the second year of the three-year FIPSE-funded project, the Stoa projects began to emerge as viable public resources in the humanities. Whereas the first year saw the establishment of the Stoa consortium and web site, this year saw significant development in several specific projects and a growing user community. In addition, the Perseus Project continued to add new materials and tools, attract more users, and won significant new funding to insure continued expansion in the years ahead. Overall, these new publication models and scholarly projects continue to lead the way in computing in the humanities.

This report is organized in two parts. First, there is a summary of Stoa progress that includes sections on the different Stoa projects, a summary of Stoa web site usage, and a summary of Stoa dissemination results for 1998-99. Second, there is a brief summary of Perseus progress that includes sections on Perseus usage and sales impact, a section on new directions, and a summary of results from an online survey.

A. The Stoa Consortium

A.1. Stoa Projects

Ross Scaife at Kentucky and Robert Chavez at Tufts worked to coordinate content and develop new tools for the Stoa consortium. Scaife improved the Stoa server by adding a new links engine and a discussion forum. In May 1999 the machine will be upgraded with the addition of a second processor, the most recent version of the Linux OS, and a database package. Chavez has been working with various Stoa members to develop geographic information system (GIS) and database tools for archaeological sites.

There are fourteen projects included on the Stoa web site. The sites and brief summaries follow. We focus on four projects that have made particular progress this year: The New Rhetoric: Classics on the Web, Metis: A QTVR Interface for Ancient Greek Archaeological Sites, Demos: Classical Athenian Democracy, and Olynthus.

The New Rhetoric: Classics on the Web

Thomas R. Martin, the Jeremiah O'Connor Professor of Classics at the College of the Holy Cross, kicked off a Stoa series on the experience and the process of humanities computing with his essay entitled "The New Rhetoric: Classics on the Web." This address was originally presented on December 28, 1997 in Chicago as part of the Presidential Panel Propagating Classics at the annual meeting of the American Philological Association.

This paper has been added to the Stoa web site and was updated on October 1998. It stands as a manifesto for computing in the humanities from a senior leader in the field.

Metis: A QTVR Interface for Ancient Greek Archaeological Sites

Bruce Hartzler is building a collection of QuickTime Virtual Reality (QTVR) movies of Greek Archaeological sites with embedded links to Perseus archaeological materials. This site was used in an undergraduate Greek Archaeology class at the University of Texas at Austin this

spring and has attracted considerable attention in the academic world and beyond. It was cited in the Chronicle of Higher Education and the Scout Report. (see Stoa web site for details www.stoa.org). Hartzler has also provided a tutorial on creating QTVR materials so that other scholars and teachers can create their own materials. Hartzler and his students accounted for 25% of all the traffic on Stoa and 98% of the byte transfers (the QTVR files are quite large).

Demos: Classical Athenian Democracy
(Christopher Blackwell, Tom Martin, Amy Smith, Michael Arnush, et al.): This is a collaborative project with a variety of elements:

- As the foundation, there will be a highly accessible and practical description of how the various institutions of Athenian democracy actually worked, with full hypertextual citation of as many primary sources as possible (many of them available via Perseus).
- We believe there will be wide public interest in this description alone.
- Other key components will be the site at Holy Cross on Democracy in the Politics of Aristotle, and the Perseus Overview of Archaic and Classical Greek History, both by Tom Martin. On this basis, we will initiate a series of scholarly essays of analysis and interpretation.

This project has made considerable progress this year with the addition of Chris Blackwell's "The Assembly" that not only provides a scholarly treatment of this important body in ancient Greece, but also provides and applies a MS Style Sheet that uses different colors and fonts to illustrate references, names, and Greek words. The style sheet is, in fact, an important contribution in its own right as it is transportable to other scholarly entries and stands as one of the defining formats for electronic reference materials.

The following events summarize progress on the larger Encyclopedia project this year:

- organizational meeting at Tufts in March 1999 attended by Ross Scaife of UK, Tom Martin and Neel Smith of Holy Cross, Michael Arnush of Skidmore, Chris Blackwell of Furman;
- since that time composition and site design has begun;
- vetting by Tom Martin and Peter Rhodes;
- specific connections with Perseus, RAGE, and People of Athens have been outlined;
- Backwell has received Mellon support from Furman for Summer 1999 to work on Demos (a stipend and a student research assistant); and
- a plan is underway to apply for a Carnegie Grant later this year.

Olynthus
(Nick Cahill, Neel Smith)
This year, the team converted the database of all artifacts, rooms, houses, graves, installations, and activities at the site to PostGres, and it can be queried on the web. A preliminary version is at http://hydra.perseus.tufts.edu/olynthusdb/searchobjects2.htm

We also have digital maps/GIS layers, which will allow users to plot the distribution of artifacts, room types etc. on a map of Olynthus, or to query a map for tabular information (what objects were found in this room; etc.).

A current problem is linking the database to the maps. Commercial software (ArcView Internet Map Server from ESRI - http://www.esri.com) has a couple crucial shortcomings which prevent us from using it to create a web GIS from the existing data we have. A later version may correct this, or another product of theirs - MapObjects - might do the trick; but we're now looking at an open-source alternative called OpenMap (http://openmap.bbn.com).

Olynthus has not yet been used it in teaching as it is still in development, but Cahill plans to use at least the database in a graduate seminar on household art, and would like students to be able to look at the contents of actual houses.

Other projects planned or underway include (see the Stoa web site for additional details www.stoa.org):

Internet Encyclopedia of the Ancient World (provisional title): This project is especially important to the Stoa because hypertextual links into the common core of essential information provided by the encyclopedia can greatly enhance the accessibility of future scholarly articles.

Stoa Reprint Series
Martin Mueller has volunteered his Unwin Critical Library book on the Iliad to start a Stoa reprint series. His book is aimed at "knowledgeable non-academic readers" and that harmonizes perfectly with our overall goals for this consortium. Some authors who wish to use this series might like the opportunity to add a postscript on the occasion of e-publication.

The Ancient City of Athens
Kevin Glowacki plans to work with Stoa to complement his extensive photographic archive of the archaeological and architectural remains of ancient Athens, he intends to write several essays.

Ancient Medicine/Medicina Antiqua
(sponsored by The Episcopal Academy, Merion, Pennsylvania and maintained by Dr. Lee T. Pearcy, in consultation with the AM/MA Advisory Committee. Ancient Medicine/Medicina Antiqua welcomes contributions and collaborations in the preparation of hypertext editions of the fundamental texts of Greco-Roman medicine.

Diotima
A new Series of Hypertextual Essays are planned for Diotima (Suzanne Dixon, Lin Foxhall, Judith Sebesta, et al.).

Retiarium Inspicite!
The first issue of the Latin-only, web-only journal devoted to the study of Latin written from Antiquity to the present, and to publishing new texts in Latin, is now published. The editor of Retiarius, Terry Tunberg of the UK Classics Department, is particularly interested in the problems associated with the electronic publication of full critical editions.

Exploring the Ancient Theater
(John Porter et al.) This project aims to generate first-rate new scholarship of interest to wide

audiences (essays enriched with images, plans, video clips and virtual reconstructions) and it will also make extensive collaborative use of materials already on the web.

Suda-On-Line
(Bill Hutton, Patrick Rourke, Ross Scaife, Elizabeth Vandiver, et al.) The Suda is a 10th century Byzantine historical encyclopedia in five volumes, derived from the scholia to critical editions of canonical works and from compilations by earlier authors.

Critical Editions of Greek and Latin Texts and Commentaries
(Joe Farrell et al.). This project will make available in a standard format all the digitized Greek and Latin texts that exist.

HacImusalar
(Mark Garrison, Pedar Foss, Ilknur Özgen, Jean Öztürk, Gary Reger, Neel Smith, et al.) The HacImusalar excavation project is a multi-faceted international project to reconstruct the history of human activity in the ElmalI Plain in southwestern Turkey (ancient Lycia).

RAGE: Register of Ancient Geographic Entities
(http://perseus.holycross.edu/RAGE/) is intended to serve as a clearinghouse where users can identify geographic features covered in a variety of projects. It does not duplicate the functionality of those projects, nor does it duplicate their data, except for names of features that the projects have registered.

A.2. Stoa Web site usage.
In 1998-99, the analog3 software for transaction log analysis was upgraded. The Stoa web site usage gives clear evidence of Stoa consortium activity and its growing impact beyond the founding members. In the discussion that follows, all data were collected in the 262 day period of August 24, 1998 to May 13, 1999. The summary data for the web site is shown in Table 1. See the Stoa web site for a link to the complete set of site usage statistics from which these summaries were abstracted.

Table 1. General Summary

(Figures in parentheses refer to the last 7 days).
Successful requests: 65,147 (3,140)
Average successful requests per day: 248 (448)
Successful requests for pages: 37,254 (1,836)
Average successful requests for pages per day: 141 (262)
Failed requests: 4,032 (153)
Redirected requests: 1,805 (224)
Distinct files requested: 1,137 (234)
Distinct hosts served: 7,510 (496)
Corrupt logfile lines: 35
Unwanted logfile entries: 80,748
Data transferred: 15,057 Mbytes (997,740 kbytes)
Average data transferred per day: 58,769 kbytes (142,534 kbytes)

Perhaps the most interesting number in the general summary is the 7510 different hostnames. These are unique machines and the value stands as a good lower bound on the number of different individuals that accessed the Stoa site over this period (note that a single machine in a lab may be used by many different students). This suggests that Stoa has very broad reach even in its early stages of development.

Table 2 shows access by Internet domain—a gross estimate of coverage across user populations. Not surprisingly, half the accesses come from the .edu domain (educational institutions in the US). The 14% and 13% values for unresolved IP addresses (those machines that do not have a domain name but rather numeric address) and .com (commercial domain) include machines on campuses without specific names and students or faculty connecting through internet service providers from homes. For example, more than 3% of the .com accesses came from America Online accounts. The table lists traffic in decreasing percentage of bytes transferred and includes all those with more than 0.1% of the total byte transfer (this translates into those domains that transferred about one megabyte or more of data from Stoa). Note the significant international traffic.

Table 2. Stoa Traffic by Domain

#reqs:	%bytes:	domain
25044:	49.41%:	.edu (USA Educational)
9435:	14.10%:	[unresolved numerical addresses]
9613:	12.90%:	.com (Commercial)
10202:	9.57%:	.net (Network)
1100:	2.87%:	.us (United States)
621:	2.01%:	.au (Australia)
1300:	1.59%:	.de (Germany)
658:	1.58%:	.org (Non-Profit Making Organizations)
357:	1.09%:	.gov (USA Government)
994:	0.59%:	.ca (Canada)
643:	0.54%:	.uk (United Kingdom)
145:	0.52%:	.no (Norway)
344:	0.44%:	.fr (France)
278:	0.33%:	.nz (New Zealand)
301:	0.31%:	.nl (Netherlands)
104:	0.30%:	.ch (Switzerland)
254:	0.28%:	.se (Sweden)
141:	0.27%:	.pt (Portugal)
6:	0.19%:	[domain not given]
46:	0.15%:	.sg (Singapore)
868:	0.14%:	.jp (Japan)
93:	0.13%:	.mil (USA Military)
202:	0.10%:	.be (Belgium)
116:	0.10%:	.il (Israel)

Within the .edu domain, 310 different institutions accessed the Stoa site. These institutions range from two-year colleges and small liberal arts colleges to the largest public and private research universities. Table 3 lists the heaviest user by byte traffic. Note that those that transfer large files in one access tend to be ranked higher in this listing. There are many educational institutions that show much higher volumes of number of accesses (e.g., Furman shows 283 accesses but only .03% of the byte traffic—suggesting that the rather frequent users are using text rather than images or QTVR that have large byte sizes; likewise, Yale with 160 (.13%) and Temple with 158 (.1%) show high activity rates for accesses but low byte size transfers).

Table 3. Stoa Traffic for Educational Institutions with more than 0.2% of Byte Transfers

3785: 25.31%: utexas.edu
13517: 5.75%: uky.edu
245: 2.10%: dartmouth.edu
127: 1.77%: uiuc.edu
457: 1.52%: unc.edu
213: 1.15%: wisc.edu
226: 0.74%: missouri.edu
62: 0.54%: ohiou.edu
21: 0.49%: maine.edu
1188: 0.44%: tufts.edu
84: 0.44%: maricopa.edu
86: 0.41%: unl.edu
161: 0.39%: holycross.edu
43: 0.37%: cod.edu
36: 0.36%: bc.edu
26: 0.34%: linfield.edu
19: 0.34%: uoregon.edu
111: 0.32%: skidmore.edu
41: 0.30%: iastate.edu
45: 0.29%: unt.edu
24: 0.28%: umich.edu
64: 0.28%: virginia.edu
34: 0.27%: nodak.edu
65: 0.26%: gatech.edu
8: 0.22%: trinet.edu

This effect is clearly illustrated in Table 4 that lists the traffic by data types. Ninety-seven percent of the traffic is related to QTVR movies. It will be interesting to observe how the balance between byte traffic and accesses evolves over time.

Table 4. Stoa Traffic by Data Type

#reqs: %bytes: extension
-----: ------: ---------
8309: 96.72%: .mov
23124: 0.94%: .html [Hypertext Markup Language]
8615: 0.75%: .shtml [Server side Hypertext Markup Language]

4348: 0.36%: .jpg [JPEG graphics]
14130: 0.26%: [directories]
  114: 0.21%: .wav [WAV sound files]
  144: 0.20%: [no extension]
  357: 0.17%: .pdf [Adobe Portable Document Format]
 2257: 0.12%: .pl

Another indicator of Stoa impact is how people find the Stoa web site. One indicator of this is the referrer logs. Table 5 shows the URLs of sites from which users came to Stoa more than 100 times. Clearly, people are finding the Stoa site from general search engines (altavista, yahoo, netfind) as well as from university sites where Stoa is used in classes. The large number of requests from the homework.com site is interesting and shows that Stoa is used by a community well beyond the scholarly consortium that initiated it.

Table 5. Referring sites with more than 100 requests.

#reqs	URL
473	http://www.altavista.com/cgi-bin/query
445	http://ccwf.cc.utexas.edu/~bruceh/VR/index.html
392	http://chronicle.com/infotech/
254	http://www.homeworkcentral.com/Top8/files.htp
230	http://www.uky.edu/ArtsSciences/Classics/
182	http://www.uky.edu/ArtsSciences/RAE/Japan/jpn_102.html
164	http://dir.yahoo.com/Regional/Countries/Greece/Social_Science/Archaeology/
127	http://sunsite.berkeley.edu/cgi-bin/searchindex
121	http://www.uky.edu/AS/Classics/
120	http://netfind.aol.com/search.gw
118	http://www.uky.edu/ArtsSciences/Classics/retiarius/

A.3. Stoa Dissemination.

Stoa-related travel:

In July 1998, September 1998, and March 1999 Scaife traveled to Tufts to work with Professor Crane, Robert Chavez (the chief programmer for the Stoa), and various other members of the Perseus Project. Scaife also conferred frequently by phone and e-mail with Professor Crane, Stoa programmer Rob Chavez, and other individuals associated with specific components of the project. Chavez traveled to the University of Kentucky in January 1999 to work on a GIS for the Olythus Project. Evaluator, Gary Marchionini traveled to a meeting at Tufts in March and conferred by email and phone with Scaife, Crane, and other team members throughout the year.

Recent presentations on the Stoa and consortial projects:

- A New Consortium for Electronic Publication: Adventures in Stoicism," for a panel on "The Electronic Stoa: The Future Potential (and Problems) of On-line Publishing in Classics" jointly sponsored by the American Philological Association's Committee on Computer Activities and the American Institute for Archaeology's Computer

Applications and Electronic Publication Committee at the annual meeting in Washington, D.C. December 28, 1999 (HTTP://www.apaclassics.org/scripts/APA/ClTech/panel98.html) At the same session Elizabeth Vandiver of Northwestern gave a paper about the Suda On Line.

- The Suda On Line: Collaborative Web-based Translation," 32nd annual Hawaii International Conference on System Sciences (HICSS), January 5-8 1999 (http://www.stoa.org/sol/HICSS/)
- The Suda On Line: Collaborative Web-based Translation," Center for Computational Sciences Brown Bag Seminar series, January 26, 1999 (http://www.uky.edu/~scaife/suda/sol.ppt)
- The Stoa: A Consortium for Electronic Publication in the Humanities" at the annual meeting of the Classical Association for the Canadian West in Calgary, February 20, 1999 (http://www.uky.edu/~scaife/cacw.ppt)

A.4. Summary

In an interview with Ross Scaife, Chris Blackwell, Greg Crane, Jeff Rydberg-Cox, and David Smith at Tufts University on March 7, 1999 participants discussed their ideas about how Stoa will affect teaching, learning, and research. Several key points came out of this interview.

Teaching

- Stoa projects (and others on the web) provide **alternative models for instructors** to see and learn from. Instructors can see syllabi, and assignments for classes in other universities and adapt their own teaching styles and materials based upon these models. This is a pedagogical value added beyond the actual materials themselves.
- Participants highlighted the **large investment of time** that goes into creating electronic course materials and the need for university support for instructors to have the time and resources to adopt technology in courses. One participant noted that his school now provides release time for this purpose.

Learning

- By having access to primary materials, students see firsthand that published interpretations are exactly that, interpretations, and begin to **think more critically** about the authority of the texts they encounter. One participant used the example of students clicking on links to see alternative translations for the same text, which causes them to question why certain interpretations were made.
- This group agreed that **students** in classes are **more technology savvy** than a few years ago and this not only allows instructors to do more on the web (put syllabi, assignments, activities, accept electronic assignments) but also may change the expectations students bring to courses. It was also noted that instructors must include technology in all aspects of the course, not just classroom activities. At one point, one participant noted that instructors must go beyond simply showing things in class to add new kinds of interactive in-class value: "Students will really feel cheated because they know they could be sitting back in their rooms looking at that stuff."

Research

- In addition to comments about Perseus and Stoa becoming integral to their personal research, one participant noted that these resources will allow humanists to make a difference in the scholarly community at large and in the K-12 and life-long learning arenas as well. Another participant built on that notion by suggesting that web-based projects and funding decisions

by government agencies will cause the **humanities to increasingly be more public-oriented** and broad based rather than being closely controlled by a few university scholars who talk only to each other.

- Although it is still a challenge for junior faculty to build their careers on electronic publications, one participant noted that at schools where promotion and tenure decisions are made by interdisciplinary committees, **electronic publications** in the humanities may be better understood by faculty across the board.

This year's progress shows the Stoa projects are moving forward on several fronts: more content was added, additional tools were developed (style sheets, scripts for managing the materials, GIS/database tools for structuring and tagging sites and objects, etc.), and many people beyond the Stoa consortium began to take advantage of the Stoa site and its resources.

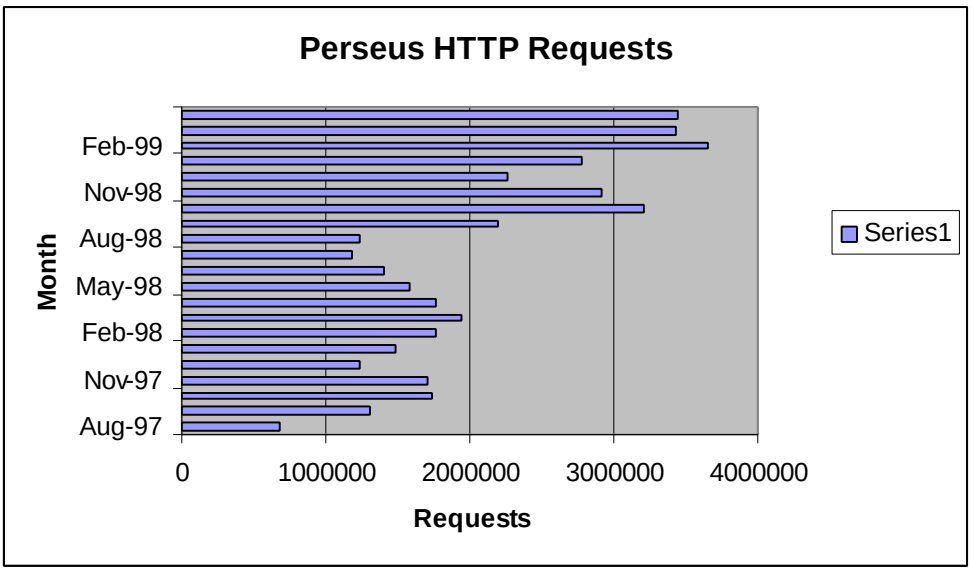
B. Perseus Project

Perseus continues to evolve as a medium of publication and a DL for the humanities. This brief summary illustrates some important developments in the 1998-99 year that relate to the larger educational publishing issues of the FIPSE project.

B.1. Log usage

Perseus continued to see huge volumes of traffic, almost doubling each year. Figure 1 shows HTTP requests each month for August 1997 to April 1999. Note the academic year fluctuations. In May 1999 Perseus was serving peak loads of 150,000 requests per day. These volumes were facilitated by increased bandwidth and a new server acquired in the spring of 1999.

Figure 1. Perseus HTTP requests



B.2. Online Survey

An online survey of user characteristics and needs was developed this year for Perseus and tested in the spring 1999 period. This survey will serve as a model for the Stoa site and David Smith has developed a set of scripts to give the survey 10% of all Perseus visitors (and keep track of who completed the survey so that people only complete it once). The new sampling technique will provide a broader range of respondents and will be included in next year's report.

Preliminary results of 324 voluntary responses (April 10- May 5, 1999) follow.

Question 1: Please identify yourself:

Other | 80
Graduate | 68
College Professor | 64
Undergraduate | 63
K12 Student | 20

K12 Teacher | 15
Continuing Education| 14

Question 2: Are you a professional classicist or classical archaeologist?
Not Professional| 226
Professional | 96

Question 3: How often do you use Perseus:
----------+-----
More than once a week | 89
Once a week | 87
Once a month | 79
First Time | 37
Less than once a month| 30

Question 4: What areas of the Perseus Digital Library do you use (Check all that apply):
Primary Texts| 275
Searching| 185
Images| 179
Phil Secondary| 162
Morphology| 141
Encyclopedia| 118
Atlas| 113
Site Plans| 87
Catalogs| 84
A&A Secondary| 81
Shakespeare| 27
Hercules| 26
Olympics| 21
Marlowe| 17

Question 5: Are you using Perseus now at:
Home | 173
School | 79
Office | 56
Library| 10
Other | 5

Question 6: Do you usually use Perseus at:
Home | 174
School | 77
Office | 49
Library| 11
Other | 6

Question 7: Are you using Perseus now for:
personal interest| 152
research | 107
homework | 59

Question 8: How did you learn about Perseus:
Search Engine| 79
Teacher | 68
Link | 64
Friend | 58
Other | 34
Publication | 21

The survey results show that the main audience is tertiary education with some K-12 users (about 10%) and continuing education users also taking advantage of Perseus. One-quarter of the respondents were in the other category. This could be an indicator of a general interest in the humanities among WWW population or be partially due to casual browsing behavior on the part of WWW users. That one third of the respondents said they were using Perseus for personal interest suggests the former inference about non-instructional access may be more likely.

The fact that half the respondents accessed Perseus from home shows a powerful trend in WWW usage and highlights of the largest potentials of the WWW for instruction—ubiquitous access outside the school. That more than one-fourth of the respondents used Perseus more than once a week suggests that there is a community of users—a point that can be leveraged in the future through more active discussion and forum features in Perseus.

It is interesting to note that texts are by far the main basis of usage, although images show significant usage as well. It will be interesting to monitor this balance as bandwidth increases in homes. Overall, the broad-based usage of Perseus illustrates that it is more than an educational resource but becoming a cultural artifact.

B.3 Webmaster mail template

To organize and categorize email coming to the webmaster, the team worked with Lisa Cerreto to develop a scheme for managing this community feedback. Figure 6 below shows a sample of the kinds of categories that will be used. Figure 7. Shows the conceptual scheme for data flow. This process will be implemented in the coming year.

B.4. Yale University Press

In a discussion with Mary Coleman of Yale University Press (YUP) on March 1, 1999, several issues were considered. YUP receives 1or 2 calls or emails per day asking about a Windows version of Perseus and 3-4 calls or emails each week beyond that for other questions (e.g., network operations; buying decisions for specific situations such as 9th graders; error conditions). Given that Perseus 1.0 was sold out long ago and there are more than 1300 records in the Perseus 2.0 purchase or inquiry database, this shows continued strong interest in the CD-Rom and LAN versions of Perseus. The YUP web site for all its publications is another venue for Perseus

purchase and multiple sales each month (encrypted credit card sales) are part of 16,000 total hits per week to the YUP web site. Referrer logs show that 207 of the 16000 requests (about 0.5%) come from the Perseus web site itself.

YUP maintains a sales database for Perseus 1.0 and 2.0. Table 6 summarizes the percentages of requests.

Table 6. Perseus sales and inquiries

User Group	Perseus 1.0 N=2388	Perseus 2.0 N=1334
University departments	37%	21%
Libraries/computing centers	14%	10%
High schools	12%	5%
Individuals	16%	12%
Other (publishers, NGOs)	9%	2%
Not disclosed	12%	50%

B.5. New initiatives

Perseus continued to add new materials and tools in 1998-99. These include a web version of the Princeton Encyclopedia of Classical Sites (PECS: http://www.perseus.tufts.edu/cgi-bin/text?lookup=pecs+gerasa). This standard reference work, edited by Richard Stillwell and originally published by Princeton University Press in 1976, includes articles on over 5,000 Greco-Roman sites, with accompanying bibliography. Princeton Encyclopedia entries are also linked to more than 4,400 new photographs of Roman sites. Individual entries may be accessed through Perseus' new lookup tool (http://www.perseus.tufts.edu/cgi-bin/sor), or PECS may be accessed alternatively through its table of contents (http://www.perseus.tufts.edu/cgi-bin/text?lookup=pecs+toc).

This shows another collaborative publishing effort where Princeton University Press (http://www.pupress.princeton.edu/) gave permission to include this important work among the materials made available to the public through the Perseus Project web site (http://www.perseus.tufts.edu/). A new search tool was also added as well as new material on ancient Roman culture.

Another significant milestone was achieved in 1998-99. Perseus insured at least five more years of ongoing development by securing an NSF Digital Library Iniative-2 award for 1999-2004.

B.6. Summary

Perseus continued to build its collection and develop new electronic publishing forays in the humanities. Established publishers are forming cooperative agreements to provide electronic access to their intellectual property via Perseus and Perseus itself continues to be institutionalized as a source for online encyclopedias (see last year's report) and the growing Stoa consortium projects. Traffic volume at the web site continues to increase and shows a large portion of users is accessing Perseus from their homes. This trend hints at new potentials for learning beyond the classroom.

Figure 2. Email categories

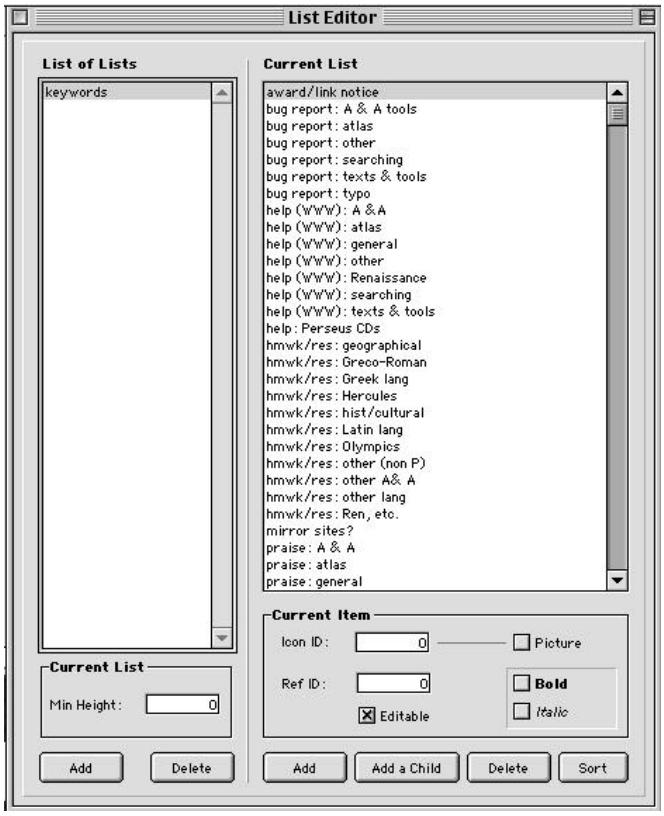


Figure 3. Conceptual scheme