# Implementation of an open source library management system

## Experiences with Koha 3.0 at the Royal London Homoeopathic Hospital

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## Abstract

**Purpose** – The purpose of this paper is to describe the selection process and criteria that led to the implementation of the Koha 3.0 library management system (LMS) at the Complementary and Alternative Medicine Library and Information Service (CAMLIS), Royal London Homoeopathic Hospital.

**Design/methodology/approach** – The paper is a report based on internal documentation.

**Findings** – Koha 3.0 was selected because the GNU licence (open source) was considered more future-proof than proprietary products, and more open to customisation to meet the special needs of the library.

**Research limitations/implications** – The library is still in the early stages of the LMS implementation. How far the Koha LMS implementation has met the library's needs will only become clear after at least one year's use.

**Practical implications** – The conclusions drawn from this report relate to the concept of implementing an open source LMS. The author will report on the completed implementation in a year's time.

**Originality/value** – This is amongst the first implementations of Koha in the UK. Experience and conclusions from this installation might influence decisions at other libraries.

**Keywords** Library management, Libraries, Hospitals, Information systems, Open systems

**Paper type** Case study

## 1. Background

The library management systems (LMS) landscape has changed considerably over the last few years. Some of the biggest vendors have merged or been acquired by other companies (e.g. Sirsi and Dynix; Ex Libris and Endeavor Information Systems) and this has resulted in some of the most popular systems being withdrawn. Systems librarians have been worried about the fall-out from these developments. These new issues with LMS vendors come on top of complaints many systems librarians have had for years, such as poor support, limited flexibility, lack of interest in new developments, as well as the high cost of the initial implementation, annual licence and support charges. With open source software (OSS) products, such as Moodle for Virtual Learning Environments (VLEs) and DSpace and EPrints for institutional repositories, taking off in related areas,

many librarians are beginning to watch out for OSS solutions when replacing their current LMS.

With OSS, the human-readable source code for the programs is made available under a licence which allows the user to use, change and improve the software and to redistribute it in a modified or unmodified form. A community of users of a particular OSS "evolves" and this provides a range of support and advice for new users of a particular OSS. Koha is the first OSS software for LMS, and was developed initially in New Zealand by Katipo Communications Ltd for the Horowhenua Library Trust in New Zealand in 1999 (www.koha.org). It is currently maintained by a worldwide team of people who keep in contact via an active e-mailing list (koha@lists.katipo.co.nz), a wiki (http://wiki.koha.org/doku.php) and community blogs (http://owu.towers.org.uk/planets/koha/). A brief history of Koha is provided on the wiki (http://wiki.koha.org/doku.php?id = enhistory).

In April 2007 I was appointed as librarian at the Royal London Homoeopathic Hospital (RLHH) with the task of setting up the UK's first specialist library for Complementary and Alternative Medicine (CAM). It was necessary to implement a digital system to manage this collection of materials and proprietary and OSS solutions were investigated. In July 2007 the decision was made to implement Koha and use a specialist consultancy firm both for the initial installation and ongoing support. In this paper I would like to outline what led to the decision in favour of Koha, how far the implementation has progressed to date, and what our experience has been.

The decision for Koha has to be seen within the context of this very special library. The RLHH is Europe's largest public sector provider of CAM, as well as a primary research institution in the field. Being part of the University College London Hospital's National Health Service Foundation Trust (UCLH), the staff of RLHH have access to the University College London (UCL) libraries under a service level agreement. However, as UCL does not teach CAM, the UCL libraries do not provide the resources required to support the research and clinical needs at RLHH. The demand for patient information in CAM is also greater than in other hospitals as a large proportion of patients suffer from long-term conditions, which they try to manage through a combination of conventional and complementary treatment, as well as their own knowledge.

Because the RLHH could not obtain Trust funding for a library a fund-raising campaign was launched in 2004 which generated some start-up funding. However, the librarian's main task from the beginning has been to develop a financial strategy which would secure the library in the long term, and to do the fund-raising. The library has now been reconfigured as a joint venture between the RLHH and core professional bodies in CAM. These organisations contribute a small amount (£10 per annum) for each subscribed member; in return their members receive library privileges such as borrowing rights and remote access to online resources while non-subscribed readers only have reference access. This set-up is deliberately similar to that of other professional organisations in healthcare, such as the Royal Society of Medicine, the British Medical Association, and the Royal Colleges; the difference being that CAMLIS serves several masters at the same time. It is worth noting that there are about 100 professional bodies in CAM, with member counts between six and 4,000. Take-up of our invitation to join CAMLIS as stakeholders has been very promising. It has been

matched, if not even surpassed, by the generous sponsorship the library has had from CAM businesses and publishers.

So from the start CAMLIS was meant to serve the needs of a much larger and more diverse clientele than an average hospital library. The library serves:

- healthcare professionals at the RLHH and elsewhere in the NHS, both those specialising in CAM and those with an interest in it (e.g. general practitioners who might refer patients for CAM treatment);
- healthcare professionals outside of the NHS, especially the private practitioners who are members of CAMLIS stakeholder organisations;
- researchers in CAM from NHS, academic and other backgrounds; and
- patients, potential patients, members of the public or the media.

Although UK-based users have been targeted primarily during the first year, the lack of a comparable service across Europe forces a pan-European rôle on the library – even before it has opened its doors to readers.

Given that the majority of subscribed readers will be based outside London the service has to be hybrid. CAMLIS will also build up the NHS portal to CAM (www.cam. nhs.uk/) which aims to displace the numerous web sites containing dubious information about alternative therapies.

## 2. LMS specification

The combination of limited funding and above-average demands has been an interesting testbed for an LMS. From the anticipated information needs of the intended clientele the following core specification was derived:

(1) OPAC: maximum integration of resources into a single interface:
- library's own holdings of print and electronic resources;
- federated searching of the catalogues of partner libraries (King's Fund, Royal Society of Medicine, European Committee for Homeopathy libraries, and others);
- federated searching of open access and subscription e-resources, including non-bibliographic (e.g. Database of Homeopathic Plants at the Natural History Museum (www.nhm.ac.uk/research-curation/projects/homeopathy/index.html), local database of training courses);
- simultaneous management of members' log-in to their account and e-subscriptions, and Athens authentication;
- clustering of search results; and
- readers can save searches, set up alerts, create RSS feeds etc. to their profile when logged in.

(2) Cataloguing: compatibility:
- MARC21;
- Z39.50, XML; and
- ability to link to locally and externally hosted online documents in a range of formats.

(3) Circulation:
  · reader data to be bulk-imported from stakeholder organisations;
  · members' data to be exported for card printing;
  · RFID support;
  · support for self-issue machines (Standard Interface Protocol (SIP2) or Niso Circulation Interchange Protocol (NCIP – http://ncip.envisionware.com/)); and
  · administration of fines and courtesy/overdue notices.

(4) Acquisitions and budget management:
  · communication with suppliers' databases for books and journals (Electronic Data Interchange (EDI));
  · management of binding;
  · support for multiple budgets;
  · support for different ownership of collections; and
  · management of library income from fines and sales.

(5) Consortium functionality:
  · LMS installation to support multiple independent libraries (to help partner organisations produce an online catalogue and participate in interlending); and
  · hardware and operating system-independent browser-based solution preferred.

(6) Hosting:
  · both local and remote hosting options would be considered.

(7) Impact on staff:
  · system to be user-friendly and require minimum training and expertise.

## 3. The selection procedure

The selection process had to take place under severe time constraints. Fundraising was top priority, development of the actual library service ranked much lower and had itself to be prioritised depending on the potential of each partial project to attract funding. In a discipline that had never had a library, the representatives of future readers value the collection and the reading room, but have only a limited understanding for anything "behind the scenes" – from staff time for cataloguing and processing to the LMS. It was, therefore, essential to minimise expenditure for the LMS in two ways:

(1) The initial investment should require as little of the general fund as possible. There was no potential to find sponsorship for the purchase of an LMS.

(2) Long-term costs should equally be kept to the absolute minimum. There are two aspects to this:
  · the cost of licence fees and technical support for the system should be low and predictable for the foreseeable future; and

• CAMLIS is a new library in a subject field which has never had a library before. Therefore, any forecasts of future requirements are to some extent guesswork. A suitable LMS would need great potential for development. The specification lists several aspects (such as the possibility to configure the installation for use by a consortium of libraries), however, the system vendor would have to be prepared to develop functionality which we currently could not even think of.

## 3.1 Shortlisting of LMS vendors

Three popular proprietary systems were shortlisted, as well as Koha, and guide figures for the cost obtained. However, before the system vendors were even approached for detailed proposals and quotations, two of the three companies were sold to other organisations. A string of previous sales and mergers of LMS vendors had concerned librarians a great deal already, so vendors' representatives were asked directly what security there was for CAMLIS that the systems they were offering would be supported and developed for many years to come. The answers of all representatives showed that they personally were at least as concerned for their own livelihoods, as I was for the investment for CAMLIS. Discussions I had had with professional colleagues at the Library Information Show 2007 encouraged me to investigate the OSS route and resort to proprietary systems only if no suitable OSS could be found (Tennant, 2007). Therefore, the shortlist was narrowed down to "the first full-featured open source integrated library system" (Breeding, 2007), Koha. A UK-based consultancy firm was identified whose staff were involved with the development of the system and who offered implementation as well as ongoing support: Turo Technology (TTLLP – www.ttllp.co.uk/koha). To get a better understanding of the Koha package, I monitored relevant e-mail lists of Koha users and developers (e.g. koha@lists.katipo.co.nz and the Koha wiki at http://wiki.koha.org/doku.php), and contacted existing users as well as libraries preparing to adopt Koha. A meeting with the Manager (Library and Knowledge Services), and IT Manager at the East of England Strategic Health Authority, was very reassuring. They were preparing to roll Koha out to over 30 medical libraries in their organisation, and generously shared their knowledge with me.

## 3.2 Vendor's response to LMS specification

As the CAMLIS specification was rather demanding and even larger systems would have been complemented by ancillary packages, we were not expecting one system to meet all our requirements. For this reason we had prioritised the various functions, and were prepared for a compromise.

However, to our astonishment the proposal from Turo Technology covered every single aspect of our specification. They had opted for Koha 3.0 which had not officially been released at the time, rather than Koha 2.2.9. Koha 3.0 is not just revamped, but is a largely rewritten package and was released in January 2008. Most of our required functionality was designed into Koha 3.0 already; only two large parts of code had to be developed for CAMLIS, building on open source work from elsewhere: the NCIP support for a self-issue machine, and EDI for data exchange with suppliers. This new functionality was to be made available to other Koha users under the GNU licence (www.gnu.org/licenses/licenses.html#GPL).

The overall cost for the implementation of Koha 3.0, including the two new modules, was still substantially lower than an installation of a proprietary package – about half the cost of a typical lower specification product commonly found in hospital or school libraries. In addition to the implementation contract with TTLLP, CAMLIS also took out a support package, the cost of which depends on overall usage over each three-month period, at a very moderate cost. As an additional guarantee, TTLLP backs up its support contract with a second contract with another Koha support firm, which becomes operational should TTLLP be unable to deliver adequate support.

The downside was, of course, that the software was not ready at the time, so we were asked to take the risk that the software would not live up to our expectations, or that the release of a fully working package was not as imminent as the vendor was hoping.

### 3.3 Deciding in favour of Koha 3.0

The special circumstances of CAMLIS made the decision in favour of a product that was not quite ready-to-use easier. The library did not exist at the time of selection (summer 2007) and we were busy designing furniture and installing power and network cables. The question as to whether the LMS would go live six weeks sooner or later, was dwarfed by other questions – such as whether or not funding beyond the first year would be made available.

On the other hand, software releases are often delayed in the world of proprietary products just as well as in the world of OSS. We had three main reasons for selecting Koha:

(1) From all we had found out about Koha, it could be considered a modern but mature system that would fulfil all our anticipated needs.

(2) Koha would be the first LMS CAMLIS would implement, but also the last. The GNU licence gives the user full access to the source code. As the library's needs would change, we would adapt Koha, either by installing updates and additions which other libraries would make available to the Koha user community under the GNU licence, or by paying a developer to produce the functionality we required. No systems librarian enjoys migrating systems; the prospect of never having to migrate seems almost too good to be true.

(3) There will always be adequate support for Koha. Our current support contract includes support by Turo Technology as well as back-up by another company. Should our contract with Turo Technology ever be terminated, we would be free to make a new support contract with another provider. In stark contrast to proprietary packages an OSS package cannot be bought by a competitor, it cannot be discontinued, and support can not be withdrawn.

### 4. The implementation

In many other library environments it would have been necessary to obtain approval from the IT department before final selection and implementation of an LMS. The RLHH, as part of the UCLH Trust, relies on an IT contract between the Trust and the software house Logica. Logica had made it very clear from the beginning that it could not provide support for an LMS at CAMLIS, and would not even open the necessary

ports on its network. CAMLIS was, therefore, free to install its own network, purchase its own hardware and make adequate support contracts.

Turo Technology was happy to install Koha on any Linux or Unix type server. For ease of use and compatibility with a wide range of software, but also for its good value, a MacPro was chosen which also hosts numerous other web and intranet services. Staff client machines are standard iMacs; for the reader desks five older eMacs were donated to the library. All Koha needs on a client machine is an installation of Firefox.

The installation took one visit by Turo Technology staff with all further modifications being achieved through remote access to the server. At the time of writing (April 2008) the system has been largely configured, and the occasional bug reported back to Turo Technology. What struck me most when beginning to use Koha was its ease of use: the interface is normally self-explanatory. Context sensitive help is available in nearly all windows and only occasionally have I had to phone TTLLP for enlightenment. Training is covered by our contract, but I have not yet found the need for it.

During the first quarter of 2008 function after function of Koha 3.0 have become available, some of them being improvements paid for by other libraries. First demonstrations of the OPAC to CAMLIS stakeholder organisations have been greeted with much enthusiasm, and we expect that by the autumn 2008 all functionality specified will be up and running. The CAMLIS OPAC can be found at www.cam.nhs.uk.

A series of screenshots provides some further detail of our system. Figure 1 shows the basis staff interface for CAMLIS with Figure 2 showing the Koha system preferences that need to be determined prior to any implementation.
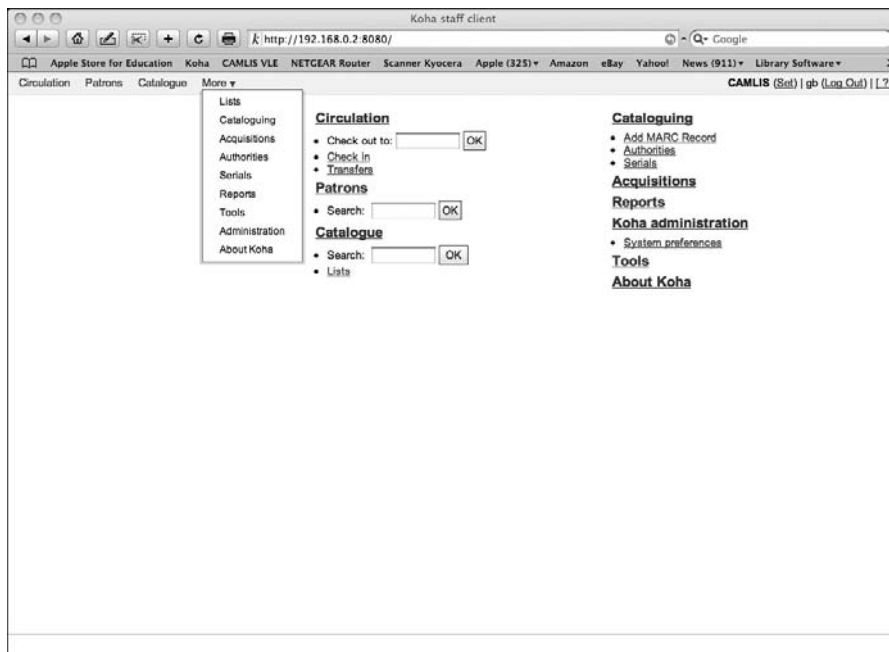


Figure 1.
Staff interface

**Figure 2.**
System preferences within
the Koha administration
system
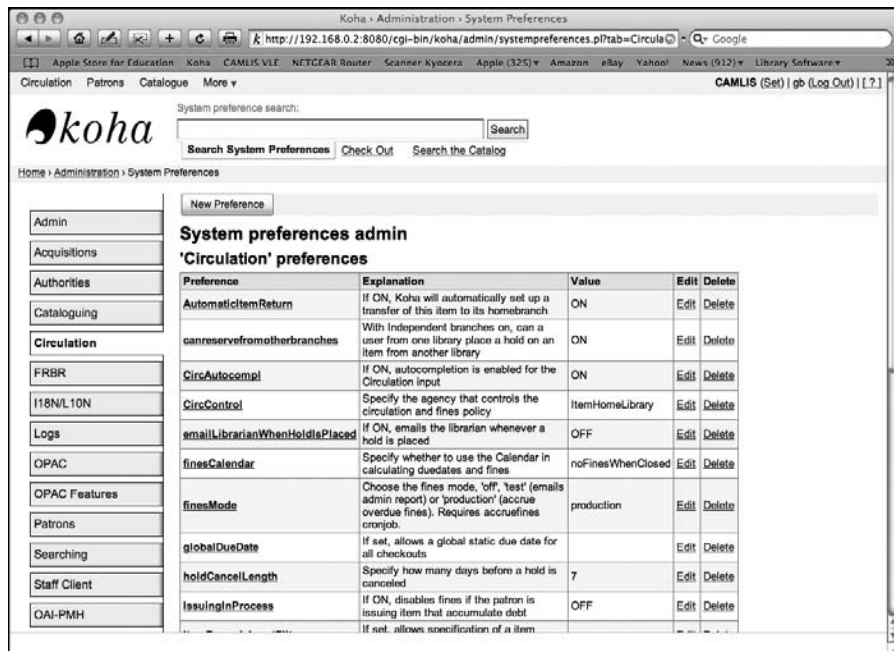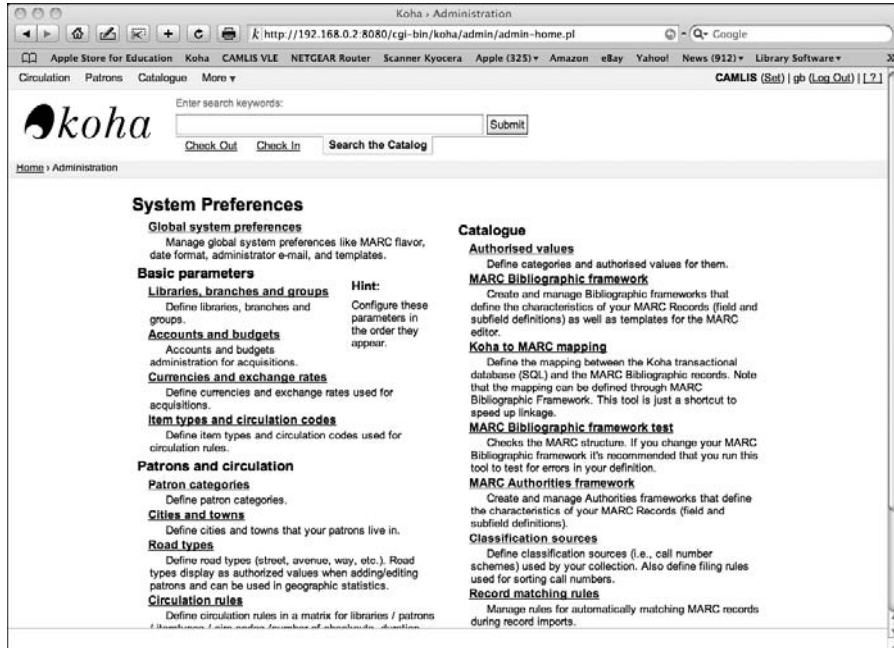


**Figure 3.**
System preferences for the
circulation module

Figure 3 gives more details about some of the system preferences for the circulation module and Figure 4 some of the system preferences that need to be defined for the OPAC module.

Figures 5 and 6 show screenshots from the cataloguing module of Koha, with Figure 5 showing details of some records for downloading and Figure 6 part of the template for adding MARC records.

Figure 7 shows the opening page of the CAMLIS web site as of April 2008. We needed to implement an authentication system to enable users to log-in as access to subscribed databases for users is available as well as to the OPAC.

Figure 8 shows the advanced options available for OPAC searching and Figure 9 gives information on the format of records retrieved from a search.
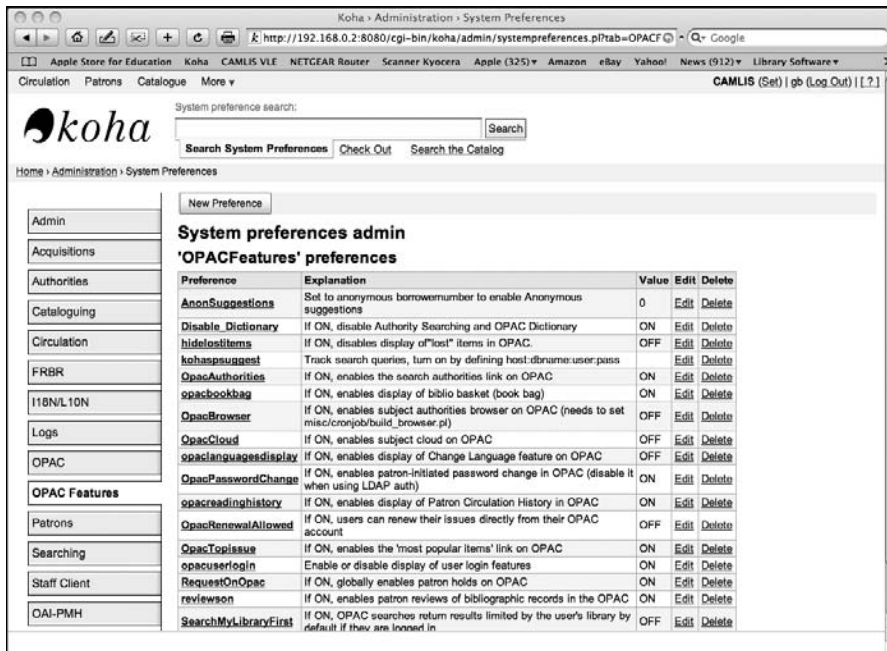
Figure 4.
Some of the system preferences for the OPAC module
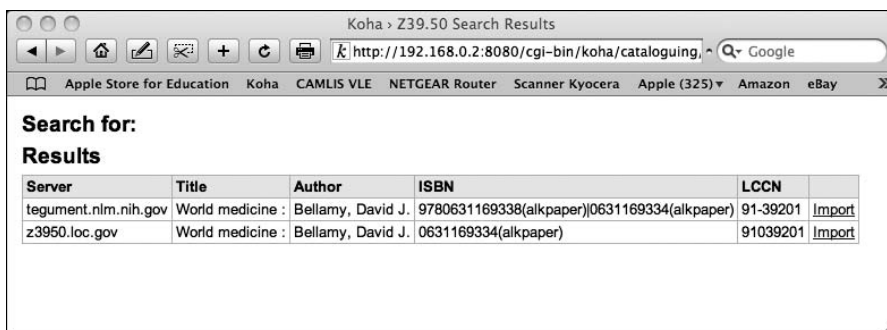


Figure 5.
Example of records retrieved for import into CAMLIS cataloguing module

**Figure 6.**
Template for adding a
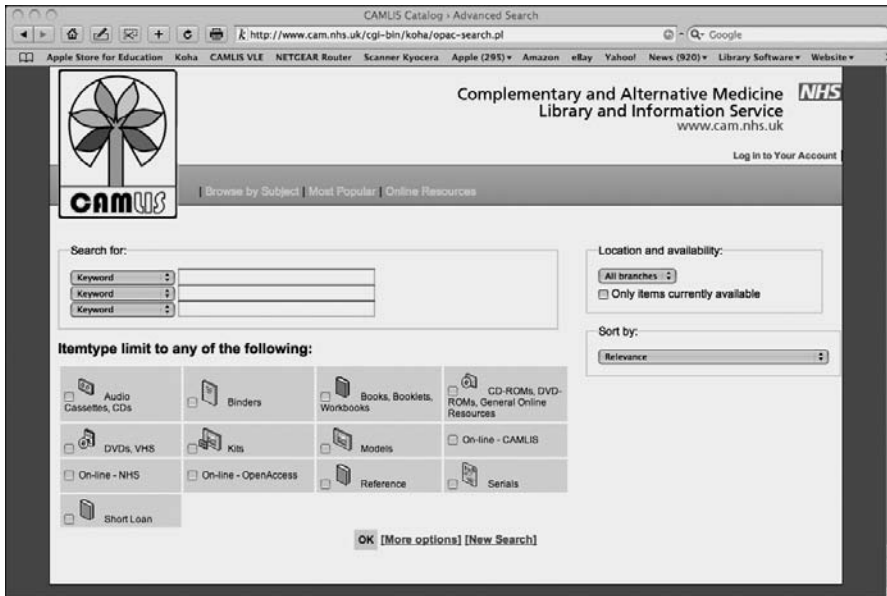MARC record in CAMLIS



**Figure 7.**
Opening page for CAMLIS
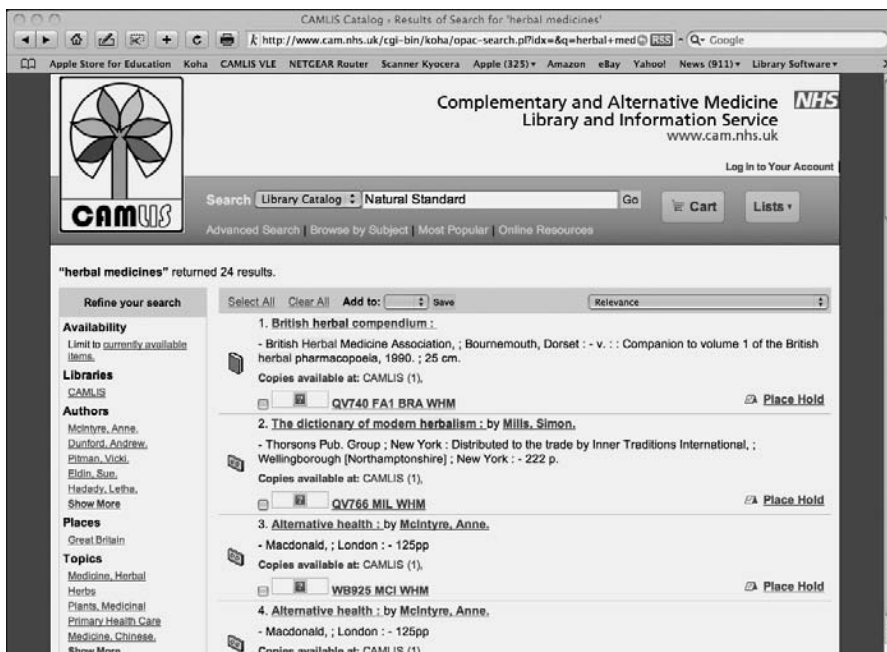
Figure 8.
Advanced search options
for CAMLIS OPAC



Figure 9.
Results of a search on the
CAMLIS OPAC

## 5. Conclusion

Initially, it seemed daring not to go with a mainstream LMS supplier. By now I am confident we have chosen a truly future-proof LMS. In a year's time it might be worth looking back at our experience. Meanwhile, colleagues are very welcome to contact me about Koha, or visit us to see the system in action!

## References

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