



Converting the Card Catalogue of the National Library of South Africa, Cape Town Campus, into a Machine-Readable Format

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ABSTRACT

In 2006 the National Library of South Africa (NLSA), Cape Town Campus, began a project to convert its substantial card catalogue to machine-readable form. The article gives an overview of the Library's collections and catalogue and describes the project methodology. Funding was secured from the Carnegie Corporation of New York, and an in-house team appointed to begin the conversion. In order to meet project deadlines, the work of the in-house team was later supplemented by outsourcing the entry of records into the online catalogue. With the successful completion of the project, NLSA has been able to offer Internet access to many rare publications, whose whereabouts have previously been little known, and a significant contribution has been made to the bibliographic control of South African imprints.

INTRODUCTION

During the 1980s, many libraries changed to online catalogues. Computerization of library catalogues was promoted by the development of the MARC format, the forming of bibliographic networks and the availability of bibliographic records created by vendors. Although many articles have been written about converting card catalogues, they are mainly case studies of specific projects.

Libraries differ from each other in a number of respects and each library planning conversion will have to consider its own characteristics, collections, users, and so on, before embarking on this process. Considering reasons why decisions were made in libraries involved in conversion can, however, provide information about options and methods that can be implemented.

Retrospective conversion can be defined as the process of turning a library's existing paper catalogue records into machine-readable form (Darko-Ampen, 2006, p. 122). It encompasses both the process of acquiring an existing machine-readable record and converting a printed record to machine-readable form (Reed- Scott, 1984, p. 3). The application of generally accepted standards is of the utmost importance, enabling a library to match records from an external database and incorporating such records in existing files.

In this article, an overview will be given of the collections and catalogue of the Cape Town Campus of the National Library of South Africa (NLSA), as well as the project embarked upon in 2006 to convert its quite substantial card catalogue to an online catalogue. It involved a steep learning curve for all concerned and the methodology was developed as the project progressed. Although essential, no real advance planning was done, mainly

due to ignorance of all aspects to be taken into account. However all's well that ends well. A valuable contribution has been made to bibliographic control of South African publications of historical interest and also other rare publications. The NLSA catalogue is available on the Internet and a number of requests have been received from abroad about publications of which the whereabouts have up to now not been known.

HISTORY OF THE NATIONAL LIBRARY OF SOUTH AFRICA (CAPE TOWN CAMPUS)

The Cape Town Campus of the NLSA, formerly known as the South African Library, was established in 1812 and has a unique and valuable collection, consisting of rare Africana, manuscripts, maps, pictures, newspapers, journals, and books. The founding collection was the Dessinian collection. During the nineteenth and twentieth centuries the collection grew as a result of significant donations of printed and manuscript materials. It is also a legal deposit library, receiving a copy of every item published in South Africa. Over the years it has also collected many works about South Africa published abroad as well as many classical works. In 1998 the State Library in Pretoria and the South African Library in Cape Town amalgamated to form the National Library of South Africa, situated on two campuses: Pretoria and Cape Town (Walker, 2006).

COLLECTION OF THE CAPE TOWN CAMPUS LIBRARY

Apart from a considerable general collection, there are a number of special collections. Users are not allowed into any of the stacks, but have to complete request forms. Requested items are then fetched and have to be consulted in the library. Some collections are housed in other buildings, mostly not too far from the main building. Items are not findable when the shelf number is not known. The card catalogue is not very user-friendly and the availability of the online catalogue is much appreciated.

Special Collections: Dessinian collection: Joachim van Dessin accumulated a library of approximately 4,500 volumes, which he bequeathed to the Dutch Reformed Church to form the foundation of a public library for the community in Cape Town. In 1820 the collection was handed over to the newly formed South African Public Library.

Grey collection: Sir George Grey, governor of the Cape from 1854 to 1861, had wide cultural interests and accumulated manuscripts and books, reflecting both Western and African culture. Official publications of South Africa, Southern Africa, foreign countries and international organizations.

Manuscripts, which include personal papers of Jan Hendrik Hofmeyr, John X. Merriman, J.C. Molteno, Olive Schreiner, C.P. Hoogenhout, C. Louis Leipoldt, and so on, literary manuscripts, records of societies, institutions and religious bodies, research notes, sketchbooks and travel accounts (more than 1,000 items, excluding those in the Grey and Dessinian collections).

Atlases and maps, which include a large collection of early and modern maps (1,064 items).

Pictures and art, which include photo albums, photographs and prints, postcards, and so on (25,516 items) (Guide, 2006).

Donated Collections

Fairbridge collection, renowned for its examples of fine printing and bindings (5,262 items).

Hofmeyr collection (private papers and Africana of Jan Hendrik Hofmeyr).

Wessels collection (consisting primarily of literary works and works on foreign languages).

John Armstrong collection of vocal music.

Cookery collection, includes the Leipoldt and Hilda Gerber collections.

Schapera etiquette collection.

W.H.I. Bleek collection, mainly on the San people.

Nourse collection, mainly on the English Civil War.

Springbok Memorial collection, brought together by Ann Lidderdale as a mark of gratitude from the British people for the part played by the South African forces during World War II.

Alain White collection on chess problems.

Heesom cricket collection.

Muir mathematical collection.

Pama collection of heraldry and genealogy.

Churchill collection, collected by Frank Oliver Fleetwood Churchill, a senator of the Union Parliament, covering mainly genealogy (Guide, 2006).

CATALOGUE OF THE NLSA CAPE TOWN CAMPUS

The library has an extensive card catalogue, divided into an author catalogue and a subject catalogue. Limited provision was made for title entries. Series entries are included in the author catalogue. Books in the special collections like the Grey Collection are also reflected in the general catalogue. The card catalogue was closed at the end of 1989. From 1990 access was provided via the OPAC.

When the two libraries amalgamated in November 1998, each had its own in-house system. Cape Town Campus started off with Stylis. When this system no longer met the requirements, the library changed over to Aleph in October 1996 like most libraries in the

region, forming part of the CALICO consortium. Conversion from AMARC to USMARC (now called MARC21) took place at the same time as conversion to Aleph.

In 1999, the State Library in Pretoria was still using DOBIS. When the Gaelic consortium was formed, libraries in the northern regions changed to Millennium as part of a grant by the Mellon Foundation. Because it was envisaged that there would be only one catalogue for the NLSA, Cape Town Campus had to change yet again, this time to Millennium. In 2005 a consortium of legal deposit libraries was formed, consisting of the Pretoria and Cape Town Campuses, Mangaung in Bloemfontein and Msinduzi in Pietermaritzburg. The Library of the Parliament elected not to form part of this consortium. All the member libraries use Millennium and a joint catalogue of their combined holdings came into being. During 2007 the holdings of the Drama Library in Bloemfontein were also added to the database but because their records differ from those already in the catalogue, they were not integrated with existing records.

PLANNING A CONVERSION PROJECT

Matters to be considered when planning a project are:

- type of library;
- size of the collection;
- number of collections;
- closed stack or open access to the public;
- cataloguing system used;
- level of cataloguing required;
- availability of suitable staff;
- timeframe;
- cost.

Different methods can be used when converting a card catalogue to OPAC, such as using catalogue cards to create records manually, or finding records in machine-readable form and downloading them from a large database such as OCLC (WorldCat), or a combination of the two. Downloaded records might not be exactly like the card or might need upgrading (University of North Carolina, 2005). Local information such as shelf numbers, specific collection, loan conditions, and so on, has to be added as well (Darko-Ampen, 2006, p. 122; Reed-Scott, 1984, p. 3). If no record can be found to download, original records will have to be created.

Key issues are that effective access to existing records must be possible in order to acquire quality records, and original cataloguing must also be of good quality and created in accordance with accepted standards. The benefits of conversion to a computerized system are that the database can support other online applications, such as acquisitions, circulation, and so on, and that bibliographic records of the whole collection can be consolidated in a single integrated system. Access to the OPAC is also possible from multiple locations and for multiple purposes. The library can also support resource sharing programmes (Reed-Scott, 1984, p. 4).

The conversion project can also be conducted in different ways. Conversion can be done in-house, with existing staff. The staff must however have time to devote to conversion. Advantages are that they are familiar with the collection and cataloguing policies. Disadvantages are that it might take a long time and there will inevitably be hidden costs. Records for older items might also not be available for downloading from other databases. Another alternative is the appointment of project staff. Advantages are that the progress will be faster and the workload of the existing staff will not be affected. Disadvantages are the high cost of hiring and training staff. Equipment will have to be bought. It is also difficult to maintain quality of cataloguing. High turnover of staff is also possible. Outsourcing is also a possibility. An outside vendor can be contracted. Advantages are that costs and timeframe are specified. The impact on existing staff is minimal. It can also benefit the library if the vendor is experienced in such projects. Disadvantages are the cost, and quality control is essential.

The conversion process can be done from the items themselves for those not in the catalogue, or from drawers in the card catalogue. The drawers can be done from A to Z, or active stock can be done as it comes back from loan. All new acquisitions should be done in machine-readable form. If not done from A to Z, a number of the non-active stock will remain, which might have to be done later. Only main entry cards should be used to avoid the creation of duplicates (University of North Carolina, 2005). Format of items in the card catalogue can also play a role: languages and scripts, physical format, and so on. The standards applied (AACR2, MARC21, etc.) should also be considered (Developments, 2005, pp. 5-7; Stokaslova, 1996, pp. 1-4). A decision also needs to be taken on the completeness of records. If the library has a stack not accessible to the public, browsing is done in the catalogue. Too short records will not be of much help. The numbers of access points, especially for subjects, also need to provide adequate retrieval (Attar, 2003, p. 142).

Obtaining funding for the appointment of project staff or for outsourcing can also be a factor, ranging from money available immediately to a guaranteed sum which will be made available in the future. There might also be differences in controlling the way in which the money is spent.

PLANNING THE CONVERSION PROJECT ON THE CAPE TOWN CAMPUS

In 1997 a report was compiled by Barbara Kellerman and Margaret Reid on 'Access to national library collections: desiderata and resources', and giving an overview of the state of affairs at that time, collections to be computerized, a list of priorities, methods of computerization, possibility of remote access, implementing USMARC and giving full text accessibility via the Internet (Kellerman and Reid, 1997).

The following projects were identified for computerization:

Card catalogue (books and serials)	550,000 records
Special collections	27,000 records

Total	577,000 records
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Funding of the Project

In December 2004 the 'Concept proposal for the Carnegie Corporation of New York' was prepared by staff of the NLSA. The goals were, among others, to 'ensure that the whole catalogue of the National Library is available online (OPAC)' (National Library of South Africa, 2004, p. 5). Among the proposed activities it is stated that the NLSA will 'liaise with an outside company in providing records for those books not in the OPAC yet' (National Library of South Africa, 2004, p. 5). Among the expected outcomes was envisaged that 'information on AIDS, poverty and indigenous matters will be available for all people to use in all formats, accessible from within in a complete electronic database (OPAC)'.

The vision of the NLSA is stated as: 'becoming the primary resource and custodian of South Africa's documentary heritage, promoting creative, effective and efficient universal access to information.' Carnegie was requested to provide the funding necessary to acquire the technology to achieve these goals. Carnegie duly agreed to fund a variety of projects, among others the computerization of the card catalogue (Guide, 2006).

Preparation for the Project

Staff

A decision was taken to appoint a project leader and five qualified cataloguers for a period of three years. Positions were advertised and interviews conducted. A team was appointed on contract to start at the beginning of March 2006. Although the cataloguers had National Diplomas from the Cape Peninsula University of Technology, they had very limited or no experience of cataloguing. The project leader was well qualified and experienced. After three months it became clear that another staff member would have to be appointed to assist with quality control and in-service training. An experienced retired cataloguer was appointed to work 15 hours per week. In March 2007 another retired cataloguer, previously head of cataloguing on the Cape Town Campus of NLSA, was appointed. There was quite a turnover in the cataloguers themselves as they were eager to find permanent employment. Fortunately other candidates could be found: one had extensive computer and management skills and made an invaluable contribution to the running of the project. Two offices were furnished with new computers, printers and furniture, as part of the Carnegie funding. The NLSA provided the infrastructure and also contributed funds at the end to enable the project to be completed. On 2 March 2006 the project leader started work and was briefed on the project by the head of South African National Bibliography NLSA Pretoria. The rest of the team reported for work on Monday, 6 March 2006. The first week was devoted to instruction in Millennium, with the help of two staff members working in the cataloguing department in Cape Town. None of the cataloguers was familiar with the system.

Training of staff

Comprehensive guidelines were drawn up and expanded as required (Guidelines, 2004, pp. 12). A number of general training sessions were scheduled at the beginning. Further

training sessions were held as required, for example on conferences, official publications, series statement, and so on. Cataloguers also attended an online course in MARC21 called TeleMARC, funded by the NLSA. They also attended a LIASA/SABINET course in cataloguing, classification and subject access, also funded by a Carnegie grant. In-service training of staff was an ongoing matter.

RETROCAT PROJECT: PHASE ONE

No real advance planning was done on how the project should be conducted. No one had any experience of this kind of project and it was largely a matter of invention and trial and error. At some time previously, 25,000 records were downloaded from SABINET onto Millennium, but without shelf numbers. About 17,000 were books and 9,000 serials. Because the collection is a closed one, items are shelved according to shelf numbers, which does not reflect the subject of the publication. Browsing is therefore not possible, except in the catalogue. Without shelf numbers these items could still be found through the card catalogue.

An alphabetical list under author was created in Pretoria. Each team member received a list with between 50 and 60 items. On the list the following information appeared: author, title, edition, place of publication, publisher and date of publication, record number. The cataloguers went to the card catalogue to find the cards of the books on the lists.

The next step was to find each record on Millennium, add the shelf number and change information to reflect the particular collection in this library, add 'legal deposit' for items published in South Africa and make corrections where required. Some of the records were not very good and because the quality of cataloguing in the card catalogue was generally good, records were upgraded. The cards often had more information than the records on Millennium and this information was added.

Older records consisted of very short records, cut from a reading list and pasted onto cards. Authority forms for authors, subjects and series had to be checked in the Millennium authority file, maintained in Pretoria, and the necessary changes made. All records done by team members were checked at first, but later cataloguers had to be trusted to provide adequate records. At the beginning, records were returned to the cataloguers for correction. These records were again checked by the project leader, and instructions were prepared and printed out as well as discussed individually with cataloguers or with the group as a whole. Quite a number of items are in other languages than English, which made it difficult for the cataloguers to understand.

This first phase took seven months. Another list was created of books on Millennium still without shelf numbers, representing cards not found by the cataloguers. This list consisted of 2,593 records, which means that 14,297 items were found. A new, very intensive search was launched. Many of these items were in foreign languages. The cataloguers searched again as well as the project leader and the quality controllers. More than 1,000 records were found.

PLANNING A NEW APPROACH

It became clear however that the progress made by the team was much too slow to enable them to meet Carnegie's deadline of 30 June 2008. Up to the end of April 2007, only 35,590 records had been added by the team. In May and June 2007 13,383 records were added, bringing the total done to just under 50,000.

At this stage the present team of a project leader, three full-time and two part-time cataloguers, was working as hard as possible, and it was not possible to employ more, due to a lack of work stations and the availability of suitable applicants. It was ascertained that there was money available - what was needed was more time, which we did not have. Millennium also presented some problems and downtime seriously affected progress.

Because progress made was clearly not enough to enable the team to meet the deadline, a new look was taken at the project. It was decided to look into the possibility of outsourcing the entry of records into the OPAC. The team would still continue adding records and also help with the quality control of records done by the outsourcing agency. Although outsourcing and teleworking are not new concepts, the NLSA had not considered them before.

PLANNING THE OUTSOURCING PROJECT

Many details had to be sorted out to make this possible. The extent of the records still to be done had to be established. A thorough survey was done, counting the cards left in the card catalogue and subtracting added entry cards and references. This reduced the initial estimate of 550,000 records to under 300,000.

The logistics of ensuring the security of drawers full of catalogue cards, keeping statistics, payment, and so forth, also had to be sorted out. A proposal was formulated and signed. The planning of the new model took only a month to put into place, and soon started delivering results.

Suitable software had to be identified, as the NLSA only had limited licences for Millennium. Ways of uploading records created by the teleworkers onto Millennium had to be set up and tested. MarcEdit was identified as a suitable program. It is freely downloadable, and the creator, Terry Reese, was most helpful when approached for more information. This software was created for similar conversion projects in the United States, and could be (and was) easily adapted to suit the NLSA project. The cataloguing template was adapted and tested. The NLSA network team in Pretoria created the necessary links between MarcEdit and Millennium, which solved the problem of uploading records created on MarcEdit onto Millennium. With the help of Sabinet, and extensive technical assistance from staff at the Pretoria Campus of the NLSA, problems were overcome one by one.

The next step was finding people who could do the work. The security of the cards was ensured by not employing individual teleworkers (although that could easily be done), but by outsourcing the project to a firm which specializes in library support services. Lexinfo's (www.lexinfo.co.za) usual business is doing administrative tasks for small law libraries,

and was perfectly suited for this project. They had never done cataloguing on a large scale before, but were more than willing to do it.

Daphne Burger, who runs Lexinfo, was consulted. She was convinced that the new model could work. An agreement was reached on how much time would be spent on entering one record and how payment would be made. A quotation was submitted, accepted and an agreement signed. Lexinfo undertook to add 50,000 records by the end of the year and a further 50,000 in the next six months. Later a contract was signed for 40,000 more. Some cataloguers worked in the Lexinfo offices while others worked at home. An unexpectedly large number of qualified cataloguers were found, although very few could be regarded as experienced.

The catalogue cards needed to be kept safe when out of the library. The team on the Cape Town Campus also continued adding records to Millennium at about 3,000 per month, thus adding a further 30,000 before the end of the year. Careful record was kept of drawers given to cataloguers.

Comprehensive guidelines on MARC, MarcEdit and local cataloguing procedures were made available to Lexinfo staff and each one came to the Cape Town Campus to be trained. They were given files with all relevant information as well as examples. Contact information was given to enable them to contact staff on the Cape Town Campus by e-mail, telephone and cell phone.

PHASE TWO OF THE CONVERSION PROJECT

Preparation of Project Specifications

These specifications must contain detailed information on the project as well as detailed instructions on how the project should be done (such as: cards to be skipped, records to be flagged, guidelines on creation of records, recording of location, call number and other copy-specific information). Cards were to be marked with a text marker to indicate that they had been done. Cards of records they were unsure of had to be flagged to be checked by NLSA staff when returned.

Conversion Records should be created at a specific rate each month. If it is a vendor experienced in conversion, this can be predicted, but in the case of this conversion, Lexinfo had to recruit staff first. Enough applicants were found, but their lack of proper training and lack of experience resulted in records of dubious quality. The number of records in foreign languages (including Afrikaans) also compounded the problem.

Database Loads

Cataloguers had to send their files of records to the manager of Millennium in Pretoria to be loaded onto the system. The loading happened without a hitch, once all problems were sorted out. It was loaded onto Millennium, as well as into review files where it could be checked by NLSA staff. At the beginning records were added at an unsatisfactory rate, which later improved considerably.

Quality Control and Problem Resolution

The cards given to Lexinfo are generally of good quality, but constructed according to rules no longer used, especially regarding punctuation and completeness. The lack of experienced staff at Lexinfo led to all kinds of discrepancies. The team at NLSA did what they could, but time did not allow them to check every record. Eventually the vendor offered to pay two experienced cataloguers to check records and make corrections.

Within a week the first files in MarcEdit were uploaded onto Millennium and into review files. The loading proceeded without any hitches. Two team members were initially responsible for quality control of these records. At first complete drawers were given to Lexinfo. It was realized quite soon that most of the South African publications were already on Millennium and duplicates were being created by the Lexinfo staff. It was decided to take out the cards for records not on Millennium and give only these to Lexinfo. The cataloguers also tended not to be able to distinguish between main and added entries and catalogued added entries as well, creating more duplicates. This placed an extra burden on the NLSA staff. Checking for mistakes, making corrections and filing all the cards again was also time-consuming.

IMPLEMENTING AN IMPROVED SOFTWARE PROGRAM (pMarc)

One of Lexinfo's cataloguers is also an experienced programmer. Problems were encountered in MarcEdit, especially with spacing in the 008 field and with the indicators. He started creating a Windows-based program for his own use, which would remove this problem. Information on this program is available at www.pmarcpro.com. Encouraged by NLSA staff, Lexinfo was approached to implement this program. An understanding was reached and pMarc was installed on computers used by Lexinfo staff. A morning training session was arranged at the NLSA.

Staff working for Lexinfo could work at the contractor's office, where a number of computers were available. Some cataloguers acquired laptops, enabling them to work at home. There were up to 28 cataloguers working for Lexinfo during the time spent on the contract. A generous grant was made to Lexinfo by the South African Library and Information Trust (SALI) in support of the preparation, compilation and publication of a loose-leaf Guide to Cataloguing, and this publication will be made freely available at the conclusion of this project.

This software program is created in XML. This provides for a sophisticated, stable program, which is based on AACR2/MARC21 rules. The capture screen appears as a form that is to be filled in. All the essential fields have their own section on the capture screen. The essential fields are the physical description, the publisher information, the language selection, the user's identification, the title and the shelf number. The remainder of the fields are classed as non-essential. The non-essential fields are contained in a separate space where the cataloguer is allowed to select which fields are to be used. By sorting the fields in this way it is ensured that all the essential fields are captured, and that only the necessary non-essential fields are included in the record.

For both the essential and non-essential fields, each subfield has its own text box. The TAB key allows the cataloguer to move easily to the following subfield. As most of the

cataloguing rules are included in the program's design, pMarc inserts the subfield codes and the associated punctuation. Likewise, pMarc creates the 008 field. By taking these issues out of the control of the cataloguer, it is ensured that the spacing of the field codes and the fixed fields is correct, and it saves time. pMarc can also automatically set certain indicators according to the information contained in the subfields.

Each record is saved automatically as soon as it is created. This prevents records becoming lost. In addition, if any record is edited, pMarc creates a backup file of the original file, providing for extra security. Once a record is saved, not all of the sub-field boxes are cleared. This saves time, as often subsequent editions need to be captured, and much of the information can be carried over to the following record.

pMarc allows three different views of the bibliographic record. The first is the view on the capture screen. The second is displayed in the editor. This display shows the record in a series of text boxes, with each subfield in its own line. The third screen shows the record in the more traditional MARC format, with the subfield codes and punctuation included. This is the view that most cataloguers would be most familiar with, although it does list all the essential fields first, and then the non-essential fields in numerical order. By providing three views of the record, pMarc allows the user three different error- checking screens, increasing the chance that errors will be detected.

pMarc has many added features. Most of the language and country codes are included in a convenient drop-down box. The more obscure codes can be looked up in an included Library of Congress approved list. Similarly, Latin place names and the ASCII codes for diacritics can also be looked up. The new version of pMarc will include a function which inserts diacritics by right clicking.

Administration is also aided by pMarc, which displays the number of records captured in each session. It records the time spent in each session, and calculates the average number of records captured per hour. This information is then saved in a text file, and can be used to keep track of performance. pMarc includes a function that allows the user to stop the clock, so that breaks do not affect the average number of records captured per hour.

The pMarc converter allows the user to convert pMarc records (in pmcx format) into MARC (mrc format). Cataloguing programs such as Aleph and Millennium can load .mrc formatted records into their databases. In converting, pMarc counts the number of records that are converted, and changes the field extension to .pmc_. This prevents the same file from being converted, and loaded, twice.

The future of pMarc includes updates that can be downloaded from the Internet, a spellchecker for the most common languages, and the inclusion of more fields. It is hoped that pMarc can be expanded to be used beyond the Retrocat project. The new program was installed and regularly updated for most of the Lexinfo workers. Some preferred to keep on using MarcEdit.

CONCLUSION

Lexinfo created records for fifteen months, adding 140,000 records for which they were contracted. Funding remained a problem. When the grant was initially given a target date was set for 30 June 2008. The team started work eight months late, due to administrative problems, but this was not added after 30 June 2008. Fortunately the NLSA made funds available to continue the project. The administration proved to be cumbersome and difficult. Checking records from Lexinfo and making the corrections was time-consuming, as was reassembling the drawers by integrating cards done by Lexinfo, and cards for items already on Millennium, to which holdings were added by NLSA staff and corrections made.

The extensive and valuable collection of the National Library of South Africa is now available online and on the Internet. A significant contribution has been made to bibliographic control of South African publications. Staff and users of the online catalogue also find it easier to do searches and locate items. The intricate filing rules used in the card catalogue are sidestepped and many more kinds of searches are possible in the online catalogue. There are a number of items of which the only copy in the world is in the NLSA library on the Cape Town Campus. A significant increase in requests, especially from abroad, has been experienced since the start of the conversion project.

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