Moving to Moodle

Reflections Two Years Later

Adopting an open source learning management system combined benefits and challenges, with lessons for change management

By **Ining Tracy Chao**

Selecting and implementing a learning management system (LMS) is an important task for many higher education institutions, which can consult various resources[1] when embarking on such endeavors. Educational technology practitioners regularly discuss system features, adoption strategies, support services, training, and evaluation.[2] At Royal Roads University (RRU), these issues are very important because the university relies on a robust LMS to deliver its academic and professional programs in a blended, cohort-based mode—short-term on-campus residencies combined with fully online courses.

This article outlines the issues RRU encountered during its transition to Moodle between mid-2006 and mid-2007, including lessons learned, some of the university's ongoing work, and anticipated future directions. Other institutions launching similar initiatives can take advantage of RRU's experience to ease their way.

Background and Rationale

RRU's delivery model aims to provide working professionals with an applied education. Outcome-based and cohort-based learning lie at the heart of the curriculum design. Since its establishment in 1995, the university has grown from two academic programs to today's array of master's and bachelor's degrees and certificates in areas such as leadership, management, peace and conflict studies, environment and sustainability, and applied communication. Of the 4,400 full-time students, 1,300 are international. The teaching staff of 400 includes 45 core faculty who hold continuing appointments and 350 associate faculty on teaching contracts. The associate faculty are practitioners who bring a wealth of field experiences to RRU's academic programs.

Following marked growth in enrollment, RRU needed to upgrade many of its information technology systems. Beginning in 2004, the university invested in a three-year initiative (the Metro project) to modernize its IT infrastructure. One of the subprojects was to replace an outdated in-house LMS with a system that would better meet the needs of the university's educational model. The search for a new LMS focused on three objectives:

1. Improving online teaching and online learning experiences.
2. Fostering productivity and efficiency in development and delivery of online courses.
3. Helping RRU stay at the forefront of distance learning by aligning teaching innovation with learning technology advances.

Given these objectives and the university's in-house experience in developing learning technologies, RRU decided to join the open source movement. The university chose Moodle as its next LMS because the software is based on the constructivist theory of learning and fit RRU's outcome-based learning models. Moodle also has a large community of users and developers. Becoming part of this larger community gave the university an advantage in achieving the third objective.

Moodle Change Agents

The Metro project was set up as a separate operation with its own budget: $7 million over three years for all IT system upgrades, including a student system, finance system, and LMS. To plan and implement the change in LMS, the Metro project staff worked closely with the functional unit in charge of course development—the Centre for Teaching and Educational Technologies (CTET). Figure 1 illustrates the two units' unique roles and joint responsibilities. This close working relationship was further strengthened when a CTET staff member joined the Metro project as a product champion and liaison to spearhead the LMS initiative.

Once the decision to adopt Moodle was made, a series of discussions and planning sessions followed. All CTET members participated: five instructional designers and three web developers who collaborate with faculty to develop online courses, two technical trainers who develop and deliver training on how to use the LMS, and one support staff person who checks all courses and learning materials against a set of quality guidelines. Not only did CTET need to work with the Metro project to prepare for the change, it also had to devise a campaign to bring the key stakeholders on board and ease them into the new Moodle system. In other words, CTET played the role of a change agent to the key stakeholders—faculty and learners. (Everett Rogers defined a change agent as someone who possesses "a high degree of expertise regarding the innovation" and facilitates "the flow of innovation… to an audience of clients."[3])

Success in implementing a new LMS hinged largely on the joint effort by Metro and CTET, as well as CTET's direct support of faculty and students. On one hand, changing to Moodle was not tremendously disruptive because RRU had been using an LMS for years. On the other hand, the change of LMS was mandated, and a total of 400 courses had to be converted as part of the process. Time and effort were needed from everyone involved. CTET staff needed to learn the new system and reach an expert level of understanding to effectively serve as change agents. They also had to acknowledge that no matter how much work CTET did to convert courses, faculty would have to spend time and energy adjusting their courses and teaching in the new system.[4] Learners, as the end users, would also go through a learning curve.

We anticipated and tackled the following change issues:

- When and how do we start?
- Is switching to Moodle simply a conversion to a new LMS, or is it more?
- How do we ensure course quality?
- How do we support learners?

When and How?

The first question led to continuous, parallel negotiations with various stakeholders. Program staff wanted a smooth transition with minimal disruption and maximum support.

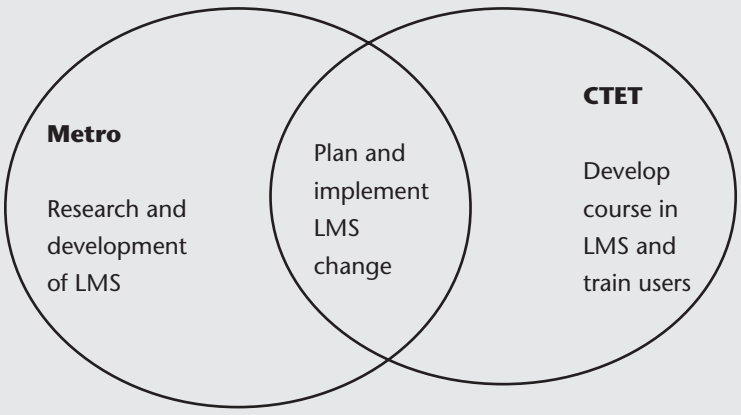
Choosing Moodle meant joining the open source community. The Metro staff started developing customized features and worked with the IT staff to install and test Moodle. These development activities took time. In the middle of all these demands, CTET needed to prepare for new course designs and conversions.

First, consultations with learners, staff, and faculty were held, and it was decided that we would start to deliver courses in Moodle on August 1, 2006. All courses starting before that would remain in the old LMS until they ended. All courses starting after August 1 would be developed and hosted on Moodle. This approach meant that it would take a full year to convert all courses to Moodle, as programs start throughout the year. It also meant that some learners would face the switchover in the middle of their studies. Some instructors would be teaching in the old LMS and in the new one at the same time.

This "hard cut-off" but phased-in transition faced some resistance. From CTET's standpoint, course development

Figure 1

Metro-CTET Relationship



must be done without interruption, and courses already running should not be affected by a sudden change. Learners who had started their studies also did not want to deal with this change. Some people advocated a fully phased-in approach with a cohort-by-cohort switchover. That is, if a cohort had already started in the old LMS, let them continue until they graduated—only new cohorts starting after August 1 would be introduced to the new platform. This approach would have prolonged the transition by up to three years (the time it takes a cohort to complete a program). Such a long period of time would put too much strain on the support staff at CTET and other IT units. It might have been the easiest solution for learners, but it was not feasible from an institutional perspective.

In the end, the time frame unfolded as shown in Table 1.

CTET had only two months to develop courses on a stable installation. This was not intentional; rather, it occurred because of the tremendous challenge of balancing competing demands from all constituencies. In addition, testing was still under way after the June 1 installation because of bug fixes and feature upgrades due to customization of Moodle. Producing course designs in a constantly changing technical environment proved a huge challenge for CTET staff, who hardly had time to prepare themselves as "experts" to champion the change.

Key Lessons Learned

- Consult faculty, staff, and students about when and how to change in order to ensure buy-ins and clear communication.
- Consider the cost and resources to run two learning management systems and decide the best transition strategies.
- Balance time to customize an open source program with time to implement it.

A question related to course design involved converting existing course content and importing it into the new system

More Than Conversion

A question related to course design involved converting existing course content and importing it into the new system. The old system did not comply with SCORM, so we knew from the outset that we would need to copy courses over to the new system, which was a manual and labor-intensive process. In fact, "conversion" really meant redesigning every course. Some courses involved substantial revision to ensure that the content and activities utilized the new tools in Moodle. At a minimum, all courses needed revision in terms of the information structure (texts had to be chunked differently or placed in a different sequence). In other words, all courses had to be reorganized in a way that flowed well in Moodle.

Prior to the August 1 launch, CTET focused on developing templates to speed up the conversion process. It took six months to finalize templates and common approaches to courses in the same or a similar academic discipline. This delay resulted from a necessary trial-and-error phase: only after designing real courses could we modify the design and come up with a template based on best practices.

After applying the templates, we still needed to reconstruct every course site in Moodle. Inevitably, this resulted in a spike in CTET's workload. Estimating the average amount of time spent on converting a course was difficult because some courses had much more content than others. The time staff put into learning and testing the new environment factored into the increased workload as well. Nonetheless, we estimate that it took at least three times as long to convert a course from the old system into the new system compared with developing the same course in the old system.

Each course required twice the previous time and effort to support instructors involved in the redesign and in teaching using the new platform. CTET's course development process incorporates faculty training, in which instructional designers use course conversion to train instructors to use Moodle. This was a labor-intensive process because we could not simply hold workshops for mass training when the majority of associate faculty work off campus.

Our course development process, which involves a collaboration between CTET staff and faculty, is rooted in systematic instructional design and has proven effective in producing quality courses.[5] Constraints of the previous in-house LMS meant faculty did not have editing access to their online courses. The development process was therefore linear. Instructional designers used a Word document as a design template, asking faculty to work through the template and fill in the content. The finished Word document was then passed to web developers to put into

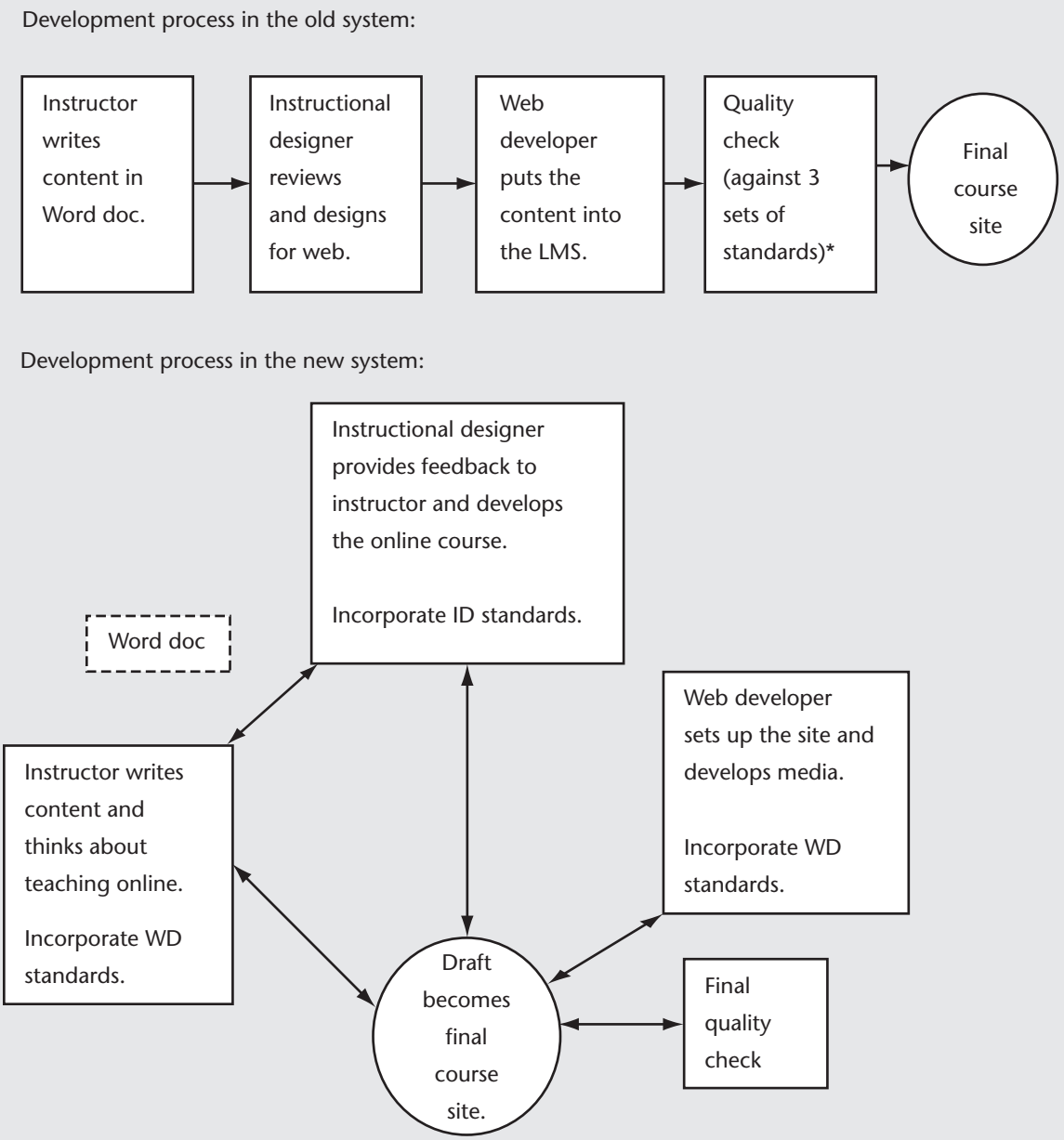
Table 1

Moodle Conversion Schedule

June 1, 2006	Metro team finished customization and installed Moodle on a production server.
June 1 to August 1, 2006	CTET staff learned and tested Moodle, figuring out what courses should look like (design). Staff set up "real" courses to launch August 1 and prepared learner training materials.
August 2006 to June 2007	CTET staff involved faculty and started converting courses. Staff started training learners to use Moodle.

Figure 2

Old Versus New Course Development Model



* The three sets of standards are Instructional Design (ID), Web Design (WD), and Course Presentation (CP).

the old LMS. With Moodle, faculty had editing access, which required CTET to modify the course development model (see Figure 2). The key question was, how could CTET take advantage of a collaborative instructional design model while empowering faculty to develop high-quality courses and teach effectively using Moodle?

Experimenting with the collaboration model took time. Instructional designers needed to adapt to individual faculty's acceptance levels because some faculty were eager to try the new technology and new ways of doing things, while others were reluctant to change. Two years after the move to Moodle, many instructors who enjoy the editing privileges sometimes still rely on the old process, asking CTET staff to modify their courses instead of making adjustments themselves.

Reflecting on this situation, CTET must ask, "Why haven't the instructors fully embraced the collaborative model?" and "Will the new collaborative process work for every course?"

Although Moodle was implemented in August 2006, development of the technology continues. Throughout the first two years we made changes to the tools, either fixing bugs or implementing new features. This required constant

communication with instructors and learners, informing them what worked, what didn't, what was changing, and how to deal with everything.

CTET needed to maintain a strong connection with the Metro team while becoming the public face of the LMS transition and playing the role of a change agent. Course design, the course development process, faculty training, and the increased need for communication about changes all became priorities very quickly. Converting courses from one platform to another turned out to be much more than just copying and pasting content—it involved redefining processes and rethinking services. These changes and responsibilities imposed a tremendous strain and increased workload for CTET staff.

Key Lessons Learned

- Confront the "it's just a conversion" mentality and plan for the redesign of all courses.
- Train faculty to use the new system in a just-in-time fashion.
- Reexamine the course development process and make necessary adjustments to keep up with changes.
- Understand the role of a change agent and prepare for it ahead of time.

Ensuring Course Quality

Producing quality courses has always been at the heart of CTET's mandate. Among the uncertainties related to implementing a new LMS, that goal was not going to change. How to achieve that goal, however, came under intense debate.

Prior to the move to Moodle, CTET established a quality review and quality check process[6] including three sets of standards to ensure quality in instructional design, web design, and course presentation (see Figure 2). This process made sense when CTET had more control over the development timeline because we managed course content before it went online. With direct editing involvement by faculty, it became difficult to define those check points or to impose a strict quality-review timeline.

Various tutorials provided consistent and effective instructions on how to use the basic tools: navigation, discussion forum, and assignment drop box

Not surprisingly, faculty's and learners' acceptance of change increased when we made quality the main focus. While converting courses to Moodle, we discovered that the majority of faculty appreciated someone checking things for them, especially finding wrong assignment due dates, dead links, and other small problems that would have a profound effect on learners' perceptions of the course quality. So the good news was that faculty embraced our quality-check policy.

CTET started to raise quality issues at a campus-wide forum to encourage faculty and learners to provide input. We led discussions on topics such as "What does quality mean to (faculty) or (learners)?" and "Exemplary online courses." These public discussions became part of our campaign to raise awareness of the quality standards and to shape the quality guidelines with wider perspectives. This public campaign led to the university's support for a research project on the issue. In 2008 and 2009, CTET is conducting several case studies to incorporate the quality guidelines in the course development process.[7] In short, CTET will engage in formative evaluation throughout the course development process to ensure the highest quality, as illustrated in Figure 2. These case studies will allow us to explore the collaborative development model mentioned earlier.

Once CTET embarked on the public phase of our quality initiative to broaden the scope and discussion, the change agent role took on a new dimension: CTET became an advocate for e-learning quality at the university. This advocacy will fall short if we only serve as a "production" house. Therefore, after two years of hectic course conversion and a new quality focus, CTET is redefining its mandate and services to include new approaches to providing instructional design and web design expertise, offering technical and pedagogical training, and facilitating the scholarship of teaching and learning.[8]

Key Lessons Learned

- Put course quality front and center.
- Ensure that there are quality guidelines and ways to implement them during and after the transition.
- Communicate, communicate, and communicate!

Supporting Learners

At RRU, learners receive technical training during their first residency on campus. CTET's trainers usually spend one hour in a computer lab giving learners a tour of the computing resources on campus, help desk support when they go online, and hands-on practice using the LMS.

Many learners switched to Moodle in the middle of their studies, and CTET developed resources to provide tips for those accustomed to the old system. Various tutorials provided consistent and effective instructions on how to use the basic tools: navigation, discussion forum, and assignment drop box.

These tutorials needed to be offered at a distance, since many of our learners had already completed their residencies. Face-to-face training simply could not reach them even when they were on campus because RRU's residencies are intense. In addition, many learners needed the resources immediately after they left the campus and went online. These tutorials became the backbone of our just-in-time training.

The CTET trainer assigned to coordinate the transition timing worked with all academic programs to arrange the training schedule, created all technical documentation, and liaised with instructional designers and web developers if issues arose. This dedicated role made the learners' transition to Moodle smoother. The trainer

adjusted the change plan as program staff and learners provided feedback. For example, learners experienced very slow response from the system when Moodle was first launched. The trainer coordinated testing sessions involving CTET and the IT units to identify and resolve the issue. The slowness unfortunately resulted in the cancellation of many face-to-face training sessions with learners, so the trainer increased use of the online tutorials and provided up-to-date documentation on a central site. This site became the key resource for CTET staff and help desk staff who assist learners with technical problems.

There were challenges, however, in producing the tutorials and delivering the new training materials. Prior to June 2006, only a beta version of the customized Moodle was available to CTET. Between June and the August launch date, bugs continued to be fixed and various features were added. This constant change made the trainers' job very difficult. Many of the how-to steps for using the tools had to be revised and screen shots re-created. The trainer also soon realized that the training was needed at least three weeks before the August 1 launch date because learners would use the resource during the pre-residency (preparation for residency) that many programs required. The constant changes in the tools and the compressed timeframe made it a mad dash to get the technical training ready.

An additional step was providing a dedicated e-mail address to collect learner's requests and feedback. This responsiveness was an important part of CTET's change management strategy because communicating at the individual client level was so necessary. Instructional designers responded to instructors' requests and feedback, while technical trainers responded to learners' needs. This communication channel also fed crucial information to the Moodle development team at Metro to fix technical glitches.

Key Lessons Learned

- Develop just-in-time training and targeted resources for learners faced with change.
- Have a dedicated staff to coordinate training for learners.
- Provide feedback channels to respond to learners' needs in a timely fashion.

Learning from the Past, Looking into the Future

In late 2007, the Metro team was dissolved and a reorganization of CTET began. CTET continued to keep pace with development of the Moodle LMS, supporting faculty and learners with its new service focus and mandate.

Despite the challenges in moving from our in-house LMS to Moodle, faculty and learners mostly embraced the change. Overall, they felt the new system had enhanced features, better navigation, a better interface, more flexibility in accessing information, and improved communication between classmates and instructors. Instructors also appreciated various tools that make online teaching easier.

Feedback from students and faculty included the following comments:

> The Moodle site is great, and the changes continue to enhance learner interaction and communication.

> [As associate faculty] I find [Moodle] a tremendously well-designed tool.

> The recent improvements to the site are great! Thank you so much for continuing to address learners' needs, making sometimes even slight adjustments.

> I really like the Moodle platform and am extremely impressed with how it's been used to set up a classroom feel. So far the distance learning experience at RRU has significantly exceeded my expectations.

> In general, I prefer the new Moodle system to whatever it was I used for the last year and a bit.

Reflecting on CTET's change management practice will help us plan for the future. It also serves as a case study for other institutions in similar situations. So, what are the key lessons we learned?

First of all, allow time for planning and implementation of large-scale change. The lack of time to prepare was the main source of problems and undermined the effectiveness of CTET as a change agent. Careful coordination in drawing up the implementation timeline was needed so that CTET could balance its own and other key stakeholders' demands. Also, professional development and adjustment to a realistic workload, taking into account the extra time needed to solve problems, should have been in place so that CTET staff could have better prepared themselves to lead the change.

Second, those who choose to join the open source movement and customize the program must consider the balance between development and implementation. Concurrent testing and course development was extremely inefficient, costing months of time and human resources and making it difficult to communicate changes to faculty and learners. CTET made it a priority to be responsive to faculty and learner's needs, and it was through CTET that questions (and emotions) surfaced. Despite announcements of the major changes, the volume of course development work and faculty/learner support needed during beta testing was unmanageable.

One important change management strategy should be a strong focus on team problem-solving. CTET held dedicated weekly meetings leading up to the Moodle launch. Those meetings became a forum for sharing problems and coming up with solutions. Unfortunately, the meetings were discontinued because of the spike in workload following the launch as instructors and learners began using the system.

Third, confront and challenge the idea that the process will be "just a conversion" early on. To manage the conversion process, multiply the scheduled projects and normal workload by three to include extra time for course redesign and one-on-one support of faculty and learners. This formula holds for the entire transition. Once the transition concludes,

however, do not expect "business as before." The change in LMS necessitated a change in the course development process, meaning CTET needed a new service model. Defining the new direction involved everyone in the unit, and the lessons learned from the transition inform decisions about CTET's new mandate.

The new course development process is still in progress. Instructor access to editing capability does not replace good instructional design and make for timely development of quality courses. Two years after RRU's Moodle implementation, many instructors use the editing tool to make timely updates and to better manage the online classroom. It is still not clear if the do-it-yourself approach to course development was a realistic expectation, especially in the context of RRU's online programs, which are the classrooms where learning takes place. Imagine the learners' reaction if they log onto a badly designed course or, worse, an incomplete course.

The underlying issue is quality. Given CTET's experience and success with online course quality, we firmly believe in the collaborative course development process. Tight control over a linear course development process is not the answer, however. Instead, the change management strategy should focus on identifying faculty needs and supporting them to make this new development model a reality. The goal is to empower faculty to develop and teach online courses while maintaining the highest quality standards.

As for learner and faculty training to use these new tools, online tutorials were a success story. The more we can structure and provide just-in-time training, the better the results. Of course, it takes time to plan and produce training resources. It is important to incorporate this work into the change management plan and devote resources, such as dedicated staff, to implement it.

Not a Conclusion

So, was it worthwhile moving to Moodle? Yes! Moodle is a better tool than the old, in-house system, and the switch enabled RRU's goal of enhancing online teaching and learning. Hopefully, the lessons learned provide insight and advice for others planning to change their LMS.

The change management strategy should focus on identifying faculty needs and supporting them to make this new development model a reality

It is important to recognize the importance of an effective change agent within an organization, first of all. Adequate thought, planning, and time then must be allocated to all the elements of the project. Change management strategies should be drawn up to deal with the following issues:

- Becoming an effective change agent (as a unit and as a staff member)
- Supporting faculty and learners in adapting to the change in LMS
- Communicating continuously about the changes
- Maintaining quality throughout the drastic changes in technology and processes
- Monitoring progress and assessing success or failure

Two years after our Moodle implementation is a good time to reflect on achievements and challenges and to look forward to the next steps. There are undoubtedly more changes ahead: We will upgrade Moodle, refine the course development process, and develop more just-in-time training materials for faculty and learners. We will also engage in gathering more formal data to inform our practices. This is the only way to ensure sound planning and decisions in the years to come. e

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Endnotes

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