THE BRAVE NEW WORLD OF OPEN ACCESS & CREATIVE COMMONS: A HUMANISTIC EXPERIMENT IN MATHEMATICAL PUBLISHING

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ABSTRACT. In January 2011 the *Journal of Humanistic Mathematics* (JHM) published its first issue. JHM (http://scholarship.claremont.edu/jhm) is an online-only, peer-reviewed, open-access journal which has passed the all-important ten-thousand-download barrier in its first anniversary. In order to remain faithful to the fundamental principles of open access, JHM uses Creative Commons licensing, where authors retain copyright of their work, but others are free to reuse them (with proper attribution). In this note I share and reflect upon our experience with open access and Creative Commons.

PRELUDE: A QUICK PEEK INTO CREATIVE COMMONS LICENSING . . .

In 2009, on New Year's Eve, Pablo Flores, an Argentinian photographer, took a snapshot of a young person twirling about a fiery stick, using his Sony DSC-H7. Then he posted this image (Figure 1) to Flickr, "almost certainly the best online photo management and sharing application in the world.(http://www.flickr.com/about/, accessed February 7, 2013.) Flores labeled his photo "*Infinito*", and added "*Que el 2010 no te ponga límites*."

Almost one full year after his posting, Allegra Swift, a librarian at the Claremont Colleges Library, dropped Flores a line:

> "Pablo, would it be possible to get a waiver for the no derivatives portion of your license. we'd like to use just the infinity sparkler portion of the image on a non-profit open access journal for mathematics. you'd be given an image credit on the website. please let me know as soon as possible. best regards, Allegra"

FIGURE 1. "*Infinito*" by Pablo Flores, available at `http://www.flickr.com/photos/pablodavidflores/4233136695/`, accessed on February 8, 2013.

Flickr offers all its users the chance to license their images through Creative Commons, and Flores responded immediately to Swift's request and modified his selection to *Attribution-NonCommercial-ShareAlike* (CC BY-NC-SA). This then allowed Swift and her colleagues to extract the fiery infinity loop and create what became the logo for the new *Journal of Humanistic Mathematics*, see Figure 2.

FIGURE 2. The logo of the *Journal of Humanistic Mathematics* is a fiery unending loop of infinity.

1. INTRODUCTION: A BRAVE NEW WORLD

Mathematical publishing is going through a revolution. This is not an overstatement; just look at recent collections on mathematical publishing (cf. [2, 4]), signatures collected by respected mathematicians to boycott well-established journals, back-and-forth essays and letters to the editor in the main outlet of the American Mathematical Society, the stimulating talks and the lively audience participation in the *AMS Special Session on Topics and Issues in Electronic Publishing* at the JMM 2013. Consider also that many academic libraries continue to undergo budget cuts and belt-tightening maneuvers

which lead to shorter lists of academic journals being purchased. At the same time, big providers like *Springer* and *Elsevier* resort to journal bundling policies which allow many libraries to access a wider spectrum of journals all the while increasing the burden on smaller libraries who only need a few select journals.

In fact the whole world of academic publishing is in turmoil. The shrinking budgets of libraries are on one side of the story (see for instance [11]); the other side sees the large number of new opportunities warranted due to diverse burgeoning new technologies. There are continuing discussions about the death of the academic journal, the death of the scholarly book, the death of peer review as we know it, and possibly less violently, a transformation of the whole scholarly ecosphere.

Simultaneously we see the growth of a new industry, that of online journals. A random mathematician receives an email invitation a day to submit her research into the new Journal of Some-kind-of-mathematics that is peer reviewed and has these respectable people on its editorial board. People typically discard these messages just as they discard various ads about medication claiming to heal certain types of reproductive dysfunction. However slowly some are coming to a realization that unlike the medication that we will most likely not need or want to buy from an online vendor, the online journal is becoming more and more settled into its niche; some are even becoming household names.[12]

I, the author of this note, am the founder and editor of one such journal. Thus I am on one side of this discussion and I do not deny that my position might be biased. However I'd like to argue in this note that online journals are here to stay, and that if we look carefully, there is much that the mathematical community might gain from the new status quo.

More specifically in this note I make a case for open access and creative commons licensing. Since these are not yet household terms for all mathematicians I describe what I mean by my terms and provide some background notes and suggestions for further reading. In order to provide the context of the argument, I also mention my own experiences with *Journal of Humanistic Mathematics*. To this effect the next section (§2) introduces the story of *Journal of Humanistic Mathematics*, the case study of this note, if you will. Then I introduce the main tenets of open access (§3) and focus on the open access model we use at *JHM* (§4). Creative Commons licensing is the specific theme of the following section (§5). §6 wraps up the discussion with a look toward the future. For those who

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[1]Many have written about their experiences with online and open access journals. See for instance [1, 3, 5, 19]. There are even books on how to develop an open access journal, see for instance [16].

[2]The Directory of Open Access Journals (DOAJ at `http://www.doaj.org/`) on February 8, 2013 listed 231 journals belonging to the subject mathematics.

might be curious to know more about *Journal of Humanistic Mathematics* itself, I include an appendix (§A) which provides a historical context for the notion of humanistic mathematics.

2. A HUMANISTIC EXPERIMENT IN MATHEMATICAL PUBLISHING

In January 2011, *Journal of Humanistic Mathematics* published its inaugural issue on its website (`http://scholarship.claremont.edu/jhm/`), see Figure 3 for a screen shot. Edited by Mark Huber of Claremont McKenna College and myself, *JHM* is an online-only, open-access, peer-reviewed journal. We have just recently (in January 2013) launched our fifth issue (Volume 3 Issue 1). As a new journal we have several matters that need our continuous attention, but in a short period of time we have also accomplished a lot. Here is a quick claim for bragging rights:

We published our first issue in January 2011. In our first anniversary we had already passed the ten thousand (full-text) downloads barrier. On October 15, 2012, we reached 20K downloads. On January 5, 2013: 24,435! On February 8, 2013: 27,739. For the mathematically inclined, these numbers clearly suggest an exponential pattern, and we are optimistic!

It is clear that our publication is gaining some readership. On the other hand, the question of reputation is in everyone's mind when it comes to online academic journals. The good news on this front is that in terms of reputation we are not lagging behind. Our content is now indexed by *Mathematical Reviews / MathSciNet*. Furthermore, we recently signed a licensing agreement with *EBSCO*, an academic database service company, which will allow our content to be included directly within library database searches around the world.

Journal of Humanistic Mathematics is currently supported by two institutional entities. Claremont Center for the Mathematical Sciences (CCMS) is our institutional home, our snail mail address, our main contact point.[3] The Claremont Colleges Library is the library system of the Claremont Colleges and it provides us with the technical expertise and support that we need as we navigate the waters of the world of scholarly publishing and archiving.[4]

We have an impressive set of people on our editorial advisory board:

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[3]CCMS (`http://ccms.claremont.edu`) is an institution founded to promote collaborative research and creative teaching among the institutions of the Claremont Colleges Consortium.

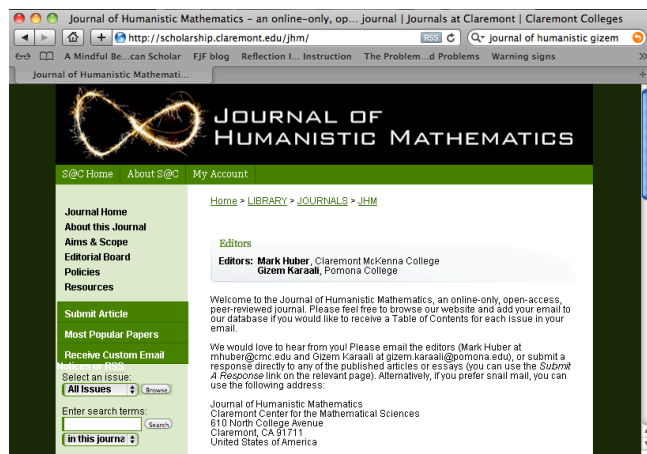[4]`http://libraries.claremont.edu/` accessed February 8, 2013.

FIGURE 3. A screenshot of the front page of *Journal of Humanistic Mathematics*.

Andrea Albrecht	Rochelle Gutierrez
Marcia Ascher	Gila Hanna
Robert Borelli	Jim Henle
Stephen I Brown	Reuben Hersh
Larry Copes	Roger Howe
Carl Cowen	George Gheverghese Joseph
Joe Dauben	Steven Krantz
Chandler Davis	Philip Kutzko
Phil Davis	Paolo Mancosu
David Drew	William McCallum
Ed Dubinsky	Sal Restivo
Paul Ernest	Joan Livingstone Richards
Joseph Gallian	Chris Stevens
Judith Grabiner	Jean Paul van Bendegem
Jeremy Gray	William Velez
Emily R Grosholz	Myra White

Our editorial advisory board consists of mathematicians, mathematics education researchers, philosophers of mathematics, sociologists of mathematics, historians of mathematics. Many of them are themselves writers of expository mathematics, mathematical poets, dedicated workers for equal opportunity, access and representation of diverse populations in mathematics. These are all people who believe in the value of bridging the communication gap between the many scholarly disciplines allied with mathematics.

For a list with current affiliations please see `http://scholarship.claremont.edu/jhm/editorialboard.html` (accessed February 8, 2013).

For readers who might be wondering about what humanistic mathematics is, I will provide a brief overview of what we do in the rest of this section. For a more in-depth and historically nuanced exposition, see the appendix §A.

Our first and main goal is to provide an open forum for both academic and informal discussions on the various threads of mathematical inquiry. To this end we publish works focusing on "the aesthetic, cultural, historical, literary, pedagogical, philosophical, psychological, and sociological aspects of doing, learning, and teaching mathematics."[5] We aim to reach a *general mathematical audience*. This for us means "people who are seriously interested in mathematics, but may come from a variety of backgrounds both within and beyond academia."[6] In this (admittedly limited) perspective *humanistic mathematics* means *scholarship or any form of inquiry that studies the human face of mathematics*.[7]

But you might still wonder, given all of the above, what exactly does *JHM* publish? Perusing the table of contents for the issues already published, one will note three distinct types of contributions. First off we publish peer reviewed articles presenting research in education, philosophy, sociology, or history of mathematics, with the intent to reach a broader audience than that of a typical disciplinary journal. Secondarily, we provide a home for reflective essays, opinion pieces, and more informal works, with the intent of sparking discussion about mathematics. These could overlap with the disciplines above, or focus on contemporary issues facing the mathematical professions. Finally we welcome explorations of the interface between mathematics and the wider humanities. Poems, short stories, or other expressive outlets, along with works about the relationship between mathematics and the arts fall in this category.

Why do we do what we do? We think that the world of mathematics is fragmented. That there are many people of mathematics, who care deeply about various dimensions of the field, but that they do not hear or see one another. That there is much to be gained from building a platform to communicate and exchange ideas. Our lofty goal with the

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[5]`http://scholarship.claremont.edu/jhm/aimsandscope.html` accessed February 8, 2013.

[6]`http://scholarship.claremont.edu/jhm/aimsandscope.html` accessed February 8, 2013.

[7]From our website (`http://scholarship.claremont.edu/jhm/about.html`, accessed August 29, 2013): "The *Journal of Humanistic Mathematics* was inspired by the work of Alvin White, a former professor of mathematics at Harvey Mudd College. Dr. White was the founding editor of the *Humanistic Mathematics Network Journal* (HMNJ), a work of love that he almost single-handedly edited and produced for 15 years. Dr. White believed wholeheartedly in the importance of recognizing mathematics as a humanistic discipline and played a significant role in bringing this idea to the forefront of many minds. Though this is an independent enterprise, the *Journal of Humanistic Mathematics* builds on the spirit and tradition of the HMNJ."

Journal is to create a sense of connection and community for the many diverse people of mathematics.

Given all of the above, open access is the right framework for us. We want to reach people and we want people to reach us. *Open access* for us means that our content is freely available to anyone with a working internet connection. Furthermore, we want to be freely accessible to creators of our content as well as the users. Thus we do not require / request / imply author fees. Of course we can only do this with the institutional support we have. In the next two sections I provide some background on the open access movement and our own implementation of its main tenets, respectively.

3. OPEN ACCESS AS A GUIDING PRINCIPLE

> "By open access, we mean . . . immediate, free availability on the public
> internet, permitting any users to read, download, copy, distribute, print,
> search or link to the full text of these articles, crawl them for indexing,
> pass them as data to software or use them for any other lawful purpose
> . . ."
>
> –The Budapest Open Access Initiative

> "The Internet provides a new opportunity to bring information to a
> wider audience at virtually no marginal cost, and allow them to use it in
> new, innovative ways. This has resulted in a call for new framework to
> allow research results to be more easily accessed and used—a call for
> Open Access."
>
> –SPARC (Scholarly Publishing and Academic Resources Coalition)

The idea of open access is not new. It can be traced back into the middle of the twentieth century, along with other similarly motivated movements like the open source movement. John Willinsky, the author of *The Access Principle* [18], in fact claims the underlying principle is even older. Willinsky describes his *access principle* as follows [18, page *xii*]:

> "A commitment to the value and quality of research carries with it a
> responsibility to extend the circulation of such work as far as possible
> and ideally to all who are interested in it and all who might profit by it."

Early on in his book (see page 5, for instance) he argues that this principle about who has (and should have) access to knowledge is an age old concern that evokes the images of the libraries of old (Alexandria in the third century B.C., Cairo in the sixteenth century, small towns of north America in the nineteenth century).

For a historical approach to the ideas of open access Willinsky's first chapter (together with his thirteenth) is a good reference. Another alternative is found in Peter Suber's website at `http://legacy.earlham.edu/~peters/fos/timeline.htm` (accessed February 22, 2013). Suber, a major player in the philosophical and pragmatic discussions around open access, starts his historical account in 1966 with the launch of ERIC, the United States Department of Education's *Educational Resources Information Center*. For an audience of mathematicians, the particular dates that might speak to us are August 30, 1969, where Advanced Research Projects Agency Network (ARPANET) was launched by the U.S. Department of Defense, and August 16, 1991, when arXiv was launched by Paul Ginsparg. Some might question how these connect with the upheaval that we are seeing in the world of academic publishing, but since both Willinsky and Suber do a masterful job of articulating this coherently, I will not include too many specific details of the historical narrative here. I will simply add that perhaps a later date included in Suber's timeline, 2001, when a handful of editors of the highly respected journal *Topology and Its Applications* resigned in order to launch *Algebraic and Geometric Topology*, will bring us closer to the discussion at hand.

In January 2006, The European Research Consortium for Informatics and Mathematics (ERCIM) published its *Statement on Open Access*.[8] This statement sets the stage first by "[r]ecognising the inability of research libraries to meet the costs of sustaining their collections, and participating actively in the development of appropriate technology," and then lists a set of principles that ERCIM supports, namely:

- "research that is funded by the public via government agencies or charities should be available freely, electronically at the point of use"
- "other research should be made equally available subject only to confidentiality required by commercial, military, security or personal medical constraints"
- "quality assurance of research publications must be continued through rigorous peer review associated with research publications, research datasets and software should be equally openly available"
- "the provision of open access should be made as cost-effective as possible"
- "the provision of open access carries also the responsibility for curation of the digital material including cataloguing, archiving, reproducing, safekeeping and media migration."

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[8]The statement is available online at `http://www.ercim.eu/publication/Ercim_News/enw64/ercim-oa.html`, accessed February 22, 2013.

Since then a variety of national entities and professional societies have released state-
ments on open access. Most recently the American Mathematical Society (AMS) joined
in the conversation. As can be gleaned from a recent news release published in the March
2013 issue of the Notices of the Society [12], the Society has a rather nuanced position.
In particular McClure, the executive director of the AMS, argues that the main question
about who pays for the publication and dissemination of research should be considered
within a framework that takes into this policy statement, agreed upon in 2012:

> **"The American Mathematical Society strongly endorses and adheres to
> the principle that a paper in the mathematical sciences should have an
> opportunity to be evaluated and possibly published without regard to the
> financial circumstances of its authors."**

This of course brings up a common concern about a particular open access model,
where the authors are required to pay the publisher to have their work accessible; that
authors who do good work but are not able to pay will not have their work appear and
will not be able to participate in the scholarly conversation. In order to convince the
reader that this is not the sole model of open access to consider, we once again refer to
[18], more specifically the first appendix therein (entitled *Ten Flavors of Open Access*),
and include here a replica of the relevant table from page 212, see below for Table 1.[9] In
this classification, the concern raised about author funding applies only to the third case,
or one out of ten.

In other words *open access* is not synonymous with *author subsidized publishing*. On
the contrary there are a variety of sustainable and realizable models out there; Willinsky
provides examples for all ten of his flavors. In this note, I will talk about the fourth
model, what Willinsky labels as *Subsidized Open Access*, as that is the one *Journal of
Humanistic Mathematics* exercises.

4. OUR OPEN ACCESS MODEL

Willinsky in his appendix describes a selection of models for open access. He calls
his fourth model *Subsidized Open Access* and points out that this model makes possible
"immediate and unqualified access". This is only doable if the front-end costs are subsi-
dized, or covered by a dedicated entity, such as a scholarly society, university department
or library, a government agency, or a foundation [18, pages 214–215]. Willinsky adds
that

> "Journals that offer this type of open access charge neither author nor
> reader and typically publish only online. Of all the forms of open access,

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[9]A similar list of open access journal business models with several examples can be found at `http://oad.simmons.edu/oadwiki/OA_journal_business_models`, accessed February 23, 2013.

TABLE 1. Ten flavors of open access, Table A.1 [18, pages 212–213].

Type of open access	Economic models
Home page	University department maintains home pages for individual faculty members on which they place their papers and make them freely available.
E-print archive	An institution or academic subject area underwrites the hosting and maintenance of repository software, enabling members to self-archive published and unpublished materials.
Author fee	Author fees support immediate and complete access to open access journals (or, in some cases, to the individual articles for which fees were paid), with institutional and national memberships available to cover author fees.
Subsidized	Subsidy from scholarly society, institution and/or government/foundation enables immediate and complete access to open access journal.
Dual mode	Subscriptions are collected for print edition and used to sustain both print edition and online open access edition.
Delayed	Subscription fees are collected for print edition and immediate access to online edition, with open access provided to content after a period of time (e.g., six to twelve months).
Partial	Open access is provided to a small selection of articles in each issue—serving as a marketing tool—whereas access to the rest of the issue requires subscription.
Per capita	Open access is offered to scholars and students in developing countries as a charitable contribution, with expense limited to registering institutions in an access management system.
Indexing	Open access to bibliographic information and abstracts is provided as a government service or, for publishers, a marketing tool, often with links to pay per view for the full text of articles.
Cooperative	Member institutions (e.g., libraries, scholarly associations) contribute to support of open access journals and development of publishing resources.

this one perhaps relies the most heavily on the volunteer labor of editors playing multiple roles, with journals such as *Education Policy Analysis Archives*, for example, running on a zero budget, apart from the editors time and Internet bandwidth, both supported in this case by Arizona State University.**"**

Another example Willinsky provides for this model is *First Monday*, an online-only platform for scholarly work on everything related to the internet.[10] Perhaps it is easier to accept that this model can be reasonable or feasible for research on the internet, but there are other examples. One of them is *Journal of Machine Learning Research*; see [15] for a provocatively written account of how this journal functions. Yet another is *Numeracy*, the official journal of the National Numeracy Network, sponsored completely by the University of South Florida Libraries. Todd Chavez, a librarian with the USF, in his article [6] explains the open access model *Numeracy* employs with specific numbers. His Table 2 is reproduced below:

TABLE 2. Summary of Actual Three-Year Costs for One Title in the University of South Florida Libraries Open-Access Journal Collection, Table 2 in [6, page 6].

Cost Areas	Year 1 ($)	Year 2 ($)	Year 3 ($)
One-Time Journal Start-Up	2,500	NA	NA
Journal Management System	5,000	5,000	5,000
Archiving	400	400	400
TOTAL COSTS	7,900	5,400	5,400

These numbers differ drastically from those for a journal published in the traditional model; see Table 3 in Chavez's article, which reports in itemized format expenses involved in publishing a subscription based society journal (as around $730,000), taken from [10]. In the case of *Numeracy*, many cost items (including platform, PDF creation, author alterations, XML conversion, and overhead costs) are subsumed by the item entitled "Journal Management System". In regard to this item, the University of South Florida Libraries works with BePress, an academic publishing company which specializes in electronic publishing. BePress was founded in 1999 by UC Berkeley professors Robert Cooter, Aaron Edlin, and Ben Hermalin as *Berkeley Electronic Press* and today provides a flexible and versatile journal management platform for a variety of customers.[11] *Journal of Humanistic Mathematics*, as part of the *Scholarship@Claremont* platform, also utilizes the services of BePress.[12]

Other options do exist. Journals can use in-house talent or a combination of commercial or open source options. One alternative worthy of mentioning is the

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[10]*First Monday* is at `http://www.firstmonday.org/`, accessed February 22, 2013.

[11]`http://www.bepress.com/aboutbepress.html`, accessed February 22, 2013.

[12]One of the reasons for the demise of HMNJ, whose spirit and tradition the *Journal of Humanistic Mathematics* builds on, was arguably its funding structure. Since its inception through its first fifteen years, HMNJ was at least partially funded by Exxon-Mobil. When setting out with JHM, we made the decision to remain financially independent of all commercial enterprises.

Open Journal System, an open source journal management system package, available freely at `http://pkp.sfu.ca/?q=ojs` (accessed February 23, 2013). Edgar and Willinsky provide a survey of journals using this platform in [7]. For a comprehensive list of similar journal management software options, readers can refer to `http://oad.simmons.edu/oadwiki/Free_and_open-source_journal_management_software` (accessed February 23, 2013).

No matter what journal management system one uses, the model we are describing here redefines the role of the research library as well as its relationship with the scholars who create the scholarly products (cf. [9]). In the case of *Journal of Humanistic Mathematics* editors work closely with the staff of the Claremont Colleges Library Center for Digital Initiatives (CDI) hosting *Scholarship@Claremont*, "an open access scholarship repository with a set of services to capture, store, index, and provide access to scholarship produced by the Claremont Colleges academic community."[13] The main workflow for a brand new journal to become a part of the *Scholarship@Claremont* repository is as follows (provided by Allegra Swift, the Digital Initiatives Librarian at the Claremont Colleges Library):

(1) A potential journal completes a Journal Proposal Form[14]
(2) The proposal is approved by the CDI Advisory Board.
(3) CDI staff works with the editors to develop the look of the journal, page content, Open Access policies, copyright permission forms for authors.
(4) Completed design forms are sent to BePress by the CDI.
(5) BePress does the training once the a mock-up site has been created.
(6) Editors approve the mock-up site.
(7) BePress completes the final site.
(8) CDI staff applies for the ISSN.*
(9) Editors and staff add content.
(10) Library cataloging staff create OCLC Worldcat and library catalog records.*
(11) Library electronic resources staff add DOIs to articles as they are added.*
(12) CDI staff registers journal in OA registries such as DOAJ.*
(13) BePress sends editors and authors download count statistics.
(14) CDI staff works with editors on third party indexer contracts.

*BePress can take on steps 8, 10, 11, 12 for an additional yearly fee.

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[13]`http://scholarship.claremont.edu/about.html`, accessed February 23, 2013.

[14]The form used for *Scholarship@Claremont* is available at `http://libraries.claremont.edu/cdi/` under "CDI Forms & Documents." Last accessed February 23, 2013.

As can be seen in our example, in this model where open access is subsidized by a university library, many of the tasks traditionally undertaken by a commercial publishing company are subsumed by the library staff who already have all the skills necessary to handle them masterfully. In other words, the cost of making sure the journal is sustainable as an entity (all tasks besides the editorial and peer review dimensions of the enterprise) is covered by the university library.

This model depends on the academic library taking on the bulk of the publishing costs. In today's environment where academic libraries are famously going through tough financial times, due to the recent economic downturn and, some would argue, the rising costs of journal subscriptions, adding a new item to the budget may seem counterproductive. However this can indeed be a viable solution to the current crisis. In our model, the library uses its limited resources in a smart way. Libraries are already invested in employing competent and effective staff and using and providing modern software and information technologies for their patrons. Therefore the expense of hosting and archiving scholarship and making it accessible can be naturally incorporated into / subsumed by personnel, materials, and / or technology budget (in the case of the Claremont Colleges Library, the associated expenses fall under materials.)

The model can be represented by two simple charts. First in Figure 4 we display a simplified version of our publishing cycle.
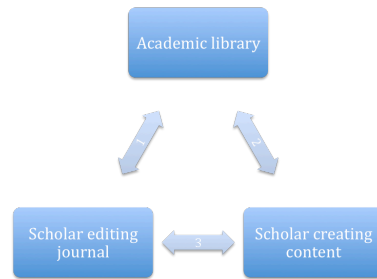
FIGURE 4. A simplified publishing cycle in our open access model.

Contributing scholars contact the editorial staff and work directly with them in developing the article. They use the interface supported by the library. The editorial staff manages the peer review process and handles other editorial tasks. The library staff provides expertise on copyright issues that might arise, supports the infrastructure that keeps the journal running, and handles archiving and indexing tasks. There is no need for a fourth party in the production and dissemination of the scholarship besides the author, the editor, and the library (which takes on both the mantels of the publisher and

the archiver). The output scholarship is accessible to anyone via online repositories or journal web sites hosted by the library. Thus users do not need intermediaries to access the scholarship they want.

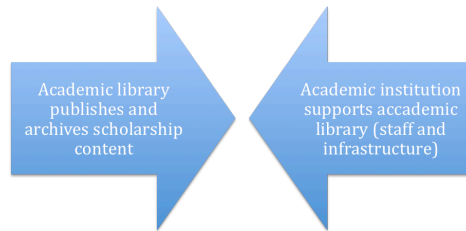Next in Figure 5 we present a simple flowchart of support.

FIGURE 5. A simplified flowchart showing how the model is supported.

The academic library provides the necessary platform and supports the editorial staff of the scholarly journal as needed. The academic institution supports the library by funding library staff and the infrastructure. Scholars both on the editorial team and on the author side benefit from this interaction and scholarship is accessible to all other scholars who want to use it. Once again, there is no external party involved in this end of the scholarship cycle. The only parties involved are the creators, users, and the archivers of the scholarship.

5. CREATIVE COMMONS LICENSING

In the digital world of today copyright is simultaneously a point of concern and a possible venue for innovation. Wilinsky in his third chapter of [18] analyzes the copyright model that is most in line with the principle of open access. *Creative Commons* is "a nonprofit organization that enables the sharing and use of creativity and knowledge through free legal tools."[15] According to their mission statement:

> "Creative Commons develops, supports, and stewards legal and technical infrastructure that maximizes digital creativity, sharing, and innovation."

In short, Creative Commons provides free copyright licenses for a variety of purposes and types of work. Wikipedia is one of the most commonly known users of CC licensing; most images on Wikipedia are licensed through Creative Commons.

There are six varieties of Creative Commons licenses. These are:

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[15]`http://creativecommons.org/about`, accessed February 23, 2013.

(1) *Attribution* (CC BY)
(2) *Attribution-ShareAlike* (CC BY-SA)
(3) *Attribution-NoDerivs* (CC BY-ND)
(4) *Attribution-NonCommercial* (CC BY-NC)
(5) *Attribution-NonCommercial-ShareAlike* (CC BY-NC-SA)
(6) *Attribution-NonCommercial-NoDerivs* (CC BY-NC-ND)

For a description of these options readers are referred to the relevant Creative Commons website `http://creativecommons.org/licenses/` (accessed February 23, 2013).

Journal of Humanistic Mathematics applies Creative Commons Licensing (CCL) to all works we publish. Authors choose one from the six CCL licenses. Our submission agreement form (see Figure 6) spells out explicitly that:

> **"**Under CCL, authors retain ownership of the copyright for their work and specify if readers may download, reuse, reprint, modify, distribute, and/or copy articles in *JHM*, so long as the original authors and source are cited. . . . No permission is required from the authors or the publishers.**"**

Most JHM authors pick the standard CC-BY option, but some wish to disallow commercial use, and poets often prefer their work not be modified. These contributors might prefer to choose CC-BY-NC or CC-BY-SA options. In our agreement form we do inform authors that "[w]orks by authors choosing CC-BY-NC or CC-BY-SA will not be included in commercial databases or aggregators."

6. A LOOK TOWARD THE FUTURE

The online journal is here to stay. The open access movement is gaining speed. Creative Commons is not only for Wikipedia anymore. I believe that these are not merely changes that we the mathematical community should adapt to but in fact opportunities we should take advantage of. With the academic library on our side, we can develop and utilize publication models and advance mathematical scholarship in ways that allow more researchers to access products of our research.

The major commercial publishers have been taking note. And they are responding in a variety of ways. It is now the turn of the mathematical community to take note. Next will come the time to take action. Some among us will decide to boycott certain journals, others will petition grant funding agencies to support open access publishing, and yet others will choose to follow alternative paths. However it behooves all of us to think carefully about the status quo and what is at stake and what might lie ahead for us, and make our decisions accordingly.

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The Journal of Humanistic Mathematics (JHM)

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_____ ;
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FIGURE 6. A copy of our submission agreement form.

From where I stand, I cannot see what the future holds for the world of scholarly publishing. However I hope that the path there will be thoughtfully created with participation of mathematicians, librarians, and publishers together. Open access and Creative Commons licensing offer us a whole new world of opportunities; I hope readers of this note will at least choose to read and investigate these themes further. For

them, I suggest as possible starting points the references below and the links provided at `http://libguides.libraries.claremont.edu/OpenAccess` (*Scholarly Communications and Open Access Guide*, accessed February 23, 2013).

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APPENDIX A. A HISTORICAL CONTEXT FOR HUMANISTIC MATHEMATICS

The term *humanistic mathematics* is historical and goes back over thirty years to the foundation of the *Humanistic Mathematics Network Newsletter* (*HMNN*) in 1987. Skrivanos and Zhang in [14] provide a bibliography of the *Newsletter*. What I'd like to focus on here is the phrase *humanistic mathematics* itself.

From the beginning of the movement that led to the foundation of the *HMNN*, there were two different approaches to the term. One cloud of ideas revolved around the notion of teaching mathematics humanistically. The phrase proponents liked to use was "teaching as if students mattered." For most of its adherents, the phrase was most urgently a call for a humanistic philosophy of mathematics instruction:

> "...to place the student more centrally in the position of inquirer than is generally the case, while at the same time acknowledging the emotional climate of the activity of learning mathematics. What students could learn from each other and how they might come to better understand mathematics as a meaningful rather than arbitrary discipline ..." [17]

Another cloud of ideas revolved around the notion of mathematics as a humanistic discipline. The motto for this approach was "mathematics as a human endeavor." This path took followers toward a humanistic philosophy of mathematics. As Reuben Hersh in his 1997 book wrote:

> "from the viewpoint of philosophy mathematics must be understood as a human activity, a social phenomenon, part of human culture, historically evolved, and intelligible only in a social context." [8]

The pages of the *HMNN* and its descendant *Humanistic Mathematics Network Journal* (*HMNJ*) have seen many discussions on the meaning of the phrase, with at least eight articles through the years specifically focusing on finding a definition. Still the term avoided a precise description, all the while individual adherents of the movement had a clear view of their goals.

When we began to plan for the launch of *Journal of Humanistic Mathematics*, we thought about the phrase. To us it offered many connotations and a wealth of connections with ideas and themes we wanted our journal to be associated with. And yet, we could not pinpoint a precise description for the term that was historically so appealing. In the end we decided to agree upon the sentiment suggested by the following:

> **"**Perhaps the energies of those who struggle to define '*humanistic mathematics*' are better devoted to pondering the meanings of our embryonic endeavor. Perhaps we can serve ourselves and our students most faithfully by posing as amateur anthropologists who strive to describe the moods, the senses, and the cultures birthed at the confluence of mathematics and humanism ... Perhaps the felt need to define '*humanistic mathematics*' is antithetical to its spirit, which cries for an expansiveness, even an infinitude of meaning, rather than the constriction and the delimitation of a definition ... I propose that we engage in the devotion of a philosophy of humanistic mathematics by pondering and questioning its multitudinous meanings and what we are doing with them. May we seek to refine, expand, and characterize rather than to define, constrain, and circumscribe.**"** [13]

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