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Intersections

Journals and "Journals": Taking a Deeper Look: Part 2: DOAJ Subset and Additional Notes

It all began with the rapid growth of publishers (and "publishers") and journals (and "journals") tagged by Jeffrey Beall as "predatory" (now prefaced with "potential, possible or probable")—and with Beall's assertions about OA and its supporters in general. I thought it would be useful to see to what extent the things on Beall's list were representative of Gold OA as a whole, and set out to do that.

I believe JOURNALS, "JOURNALS" AND WANNABES: INVESTIGATING THE LIST, the July 2014 *Cites & Insights* (14:7), was a useful step in that regard, both in demonstrating that many of the "journals" and "publishers" in Beall's lists were phantoms—and in demonstrating that they were neither a dominant part of or particularly representative of Gold OA journals as a whole. For that matter, the number of journals with extremely low APCs say to me that the right word is "questionable," not "predatory": Some (perhaps most) of the actual journals in Beall's lists may be questionable but they're not all about ripping off naïve authors for huge sums of money.

The July 2014 study used journals published by members of the Open Access Serial Publishers Association (OASPA) as a control group for comparison with journals on Beall's lists and included a limited look at actual publication volume, mostly seeing whether a journal managed to publish 20 or more articles in a recent year or 30 in two years. But OASPA is itself not all that representative of Gold OA journals as a whole—and the limited article-volume check was really too limited and covered too short a period.

I embarked on a more ambitious and longer project that involves a much larger subset of journals in the *Directory of Open Access Journals* (DOAJ). The new project involved checking the websites of more than

11,000 journals and "journals," taking more complete counts of article volume in 2012 and 2013, going back to 2011, and deliberately limiting 2014 counts to the first half of the year—starting the checking on July 1, 2014.

Part 1 of this discussion, JOURNALS AND "JOURNALS": TAKING A DEEPER LOOK, appears as the October/November 2014 *Cites & Insights* (14:10). That article includes detailed background on the project and how it proceeded and analysis of the results for the Beall set and the OASPA set, with an overall table introducing the DOAJ set. If you haven't yet read that article, you should do so before reading this issue: I don't repeat most of the background discussion, and I do draw comparisons that refer back to that article.

This article looks at the DOAJ set in detail, including the same measures used for Beall and OASPA, but adds a new set of tables showing annual distribution of articles for a given subset of journals—and also annual distribution of the number of journals with *any* articles in that year, and the percentage of no-APC (that is, free) journals and articles. After that discussion, we'll look at broad subjects, roughly two dozen of them, to see how the three sets compare and to what extent key issues such as general publishing volume and percentage of journals with and without article processing charges (APCs) differ by general subject. In case it wasn't already clear, I use "APC" to refer to *all* author-side charges, including mandatory membership and submission or reviewing fees.

For clarity in comparisons, table numbers in Part 2 are preceded with "2."; thus, "Table 14" refers to a table in the October/November *Cites & Insights* while "Table 2.14" is a table in this report. Where triplets of the new distribution table appear (one each for the three sets of journals), they use letters to distinguish the three (e.g., Table 2.7a, Table 2.7b, Table 2.7c).

A voyage of discovery

In case it wasn't obvious in the October/November 2014 essay, I'll say it up front: both parts are written as a voyage of discovery. I didn't begin the essay knowing everything that was in the tables. I generate the tables, then comment on them. If only 3% of journals in the OASPA set had lacked APCs, I would have noted that and wondered why the percentage was even lower than for Beall—but as it is, I could note that 42% (OASPA's no-fee percentage) was 10 times Beall's 4.2% (not surprising, since his hobbyhorse is all about charges). At this point, I don't know *what* the percentages will be for the DOAJ set, but I'm guessing they'll differ considerably by subject area.

A bit of the background

You need to read the October/November 2014 issue for detailed background—more than nine pages worth in all. I won't repeat that background, but here are a few quick notes.

The DOAJ set begins with all journals in *DOAJ* as of May 7, 2014. I deleted journals that didn't list English as the first-named language (because I'm monolingual). I attempted to remove all journals in the fields of biology, biochemistry and human medicine, as those seemed to me to be the primary subjects in the Beall and OASPA sets. I removed journals published by publishers in the other two sets and, to the extent that I could, journals in Beall's "independent" list (only about 54 of those). Finally, another 127 journals disappeared during the investigation for one of several reasons (e.g., they actually *were* from publishers in the Beall or OASPA set or they didn't have enough English in the interface for me to be able to do the investigation). The final set discussed here includes 3,338 journals.

I visited each journal site, looking for obvious yellow-flag or red-flag issues but mostly checking for APCs and counting articles for 2011, 2012, 2013 and the first half of 2014. (That sometimes involved approximation: see the October/November issue.) I also flagged some journals as opaque or obscure because I found it too difficult to do the article count; those journals aren't part of the detailed analysis.

Finally, the groups (previously "grades") in this report differ from those in the July 2014 report in several ways, most of them intended to provide more consistency; see the details in October/November 2014.

Unlike Beall and OASPA, I do *not* include counts of journals and articles by publisher for DOAJ because there are too many publishers, most with only one or a handful of journals. My first attempt at clustering journals by publisher yielded some 2,500 publishers for 3,338 articles.

The DOAJ Set, Overall Figures

Group	Count	%All	%A-E
A: Apparently good	1,942	58.2%	68.1%
B: May need investigation	274	8.2%	9.6%
C: Highly questionable	69	2.1%	2.4%
D: Dormant or diminutive	558	16.7%	19.6%
E: Empty	8	0.2%	0.3%
H: Hybrid	0	0.0%	
N: Not OA peer-reviewed	140	4.2%	
O: Opaque or obscure	175	5.2%	
X: Unreachable	172	5.2%	
Total	3,338		2,851

Table 2.1. Journals in DOAJ set

Table 2.1 is comparable to Tables 7 and 29 and, except for the final column, Tables 2 and 4. It shows the overall breakdown of the 3,338

DOAJ journals by group—with **%All** showing the percentage of the 3,338 represented by a group and **%A-E** showing the percentage of the *analyzed* set, the 2,851 journals that receive full discussion here.

Compared to the other groups, the DOAJ set has by far the highest percentage of A journals (partly because so many OASPA journals charge APCs of $1,000 or more) and by far the *lowest* number and percentage of empty journals. The percentage of opaque and unreachable journals is a bit lower than the Beall set but much higher than the OASPA set; the latter is not a surprise.

Most tables cover groups A-D, with E included in certain cases. But first, let's look at the four groups that aren't included in further analysis.

H: Hybrid journals

As far as I can tell, there aren't any of these in the DOAJ set. That's good. There may be some that don't offer free access to everything in the journal, but that *do* offer free access to all peer-reviewed articles. That's still full Gold OA: It's entirely appropriate for a journal to offer paid subscribers access to editorials, news reports, conference reports, book reviews and other non-peer-reviewed items that aren't free for everybody.

N: Not an OA peer-reviewed article journal

Note the full definition of N: Not *peer-reviewed articles*—or not fully readable without registration or other barriers. The 140 cases here may seem high as compared to the 50 in the Beall set, but that's misleading: another 417 journals in the Beall set were flagged as N in the July 2014 report and not included in this larger study. (The 50 are cases that either added barriers over the summer or were more clearly not fully OA.)

What's included here? One "journal" that appears to be a blog rather than a refereed journal; some two dozen that appear not to be peer-reviewed based on their own descriptions; one that now appears only as a link to priced print-on-demand annual paperbacks; a couple that consist entirely of book reviews; around three dozen that appear to consist entirely of conference proceedings; more than a dozen with embargos—recent articles aren't available without a charge, where "recent" means anywhere from one quarter to five years—or other limits on access to articles. Several that explicitly limit copying (or even preclude it); some that are magazines or newsletters, not journals; a few that are monographic series; some two dozen that require registration in order to read articles; and a few that are either staff-written (and not formally peer-reviewed) or consist entirely of solicited articles.

Some of these aren't OA at all (in a few cases, they say so); many more *are* OA but aren't peer-reviewed scholarly articles.

O: Opaque or obscure

I tried to count articles by year in as many journals as possible. In 175 cases among the DOAJ set, I gave up.

Why? Reasons include 60 journals with no dates in the archive, either at the volume or issue level. More than 60 have archives consisting entirely of whole-issue PDFs or using multipage PDFs to present the contents: it was just too cumbersome to do. Some have archives that are so poorly supported that it simply took too long to scan them—or don't provide any way to scan the archives at all. In some cases, I couldn't even *find* the archive. Some have multilayer archives that are so complex that I gave up; in at least one case, articles from more than one journal appear in a single intermingled archive. One journal includes three years of articles in each issue.

APC	Journals	Percent
$300-$599	1	1%
$200-$299	6	3%
$100-$199	13	7%
$50-$99	5	3%
$1-$49	1	1%
None	124	71%
Unknown	25	14%
Total	175	

Table 2.2. APCs for DOAJ journals in group O

Table 2.2 shows APCs for these journals, using the same APC ranges as throughout both parts of this report. Note here and elsewhere that "Unknown" means one of two things:

- The journal explicitly says that it does have an APC but doesn't say what that APC is. (This would automatically put the journal into group C if it wasn't in group O.)
- The journal doesn't say one way or the other—but it's published by an apparently commercial publisher (not a university or society), making it highly likely that it *does* have an APC.

Compare Table 2.2 to Table 8, the equivalent figures for the Beall set. The unknown percentage is less than half as high—and seven out of ten of the opaque journals *don't* charge APCs, compared to barely 1% of the Beall O group. (I did not include zero-count lines in Table 2.2; none of these journals charges more than $340.) The sweet spot—for the tiny group of journals with APCs—is clearly $100-$199, one step lower than for Beall.

X: Unreachable or unworkable

Comparing the 172 journals in this set, 5.2% of the total DOAJ set, with the 427 or 6.3% in the Beall set is misleading: another 525 journals in the Beall set, marked unreachable in the July 2014 study, weren't rechecked.

What's here? Eighty-five journal links yielded 404 errors. Five yielded entirely empty pages and at least sixteen are now parking pages. More than 30 were simply unreachable, tried twice more than a week apart.

Other cases include journals with archives that don't work at all (although some of these wound up in O rather than X), sites that require permission to enter, one site that opens more than half a dozen ad windows as soon as you reach the "journal," some either flagged as security risks or with bad certificates, and a handful that had been replaced by blogs or other content that clearly wasn't the journal.

In all of these cases, if there ever were actual, worthwhile articles submitted by actual authors, that's a shame: unless the articles appear in repositories or elsewhere, they're gone. And, of course, if the journals reemerge, I'd regard them as untrustworthy.

That's the cruft. Let's proceed with tables offering overviews of the remaining journals. While there are 2,851 journals in groups A-E, these tables include only the journals in groups A-D, that is, journals that actually *published* articles between 2011 and June 30, 2014. Fortunately, there are only eight empty journals (group E), so these tables reflect 2,843 journals—99.7% of groups A-E.

Peak article count, DOAJ groups A-D

Peak	Journal	Percent	Volume	Percent
1,000+	5	0.2%	23,443	6.6%
600-999	13	0.5%	22,568	6.3%
300-599	41	1.4%	40,989	11.5%
100-299	222	7.8%	93,598	26.3%
75-99	124	4.4%	28,299	8.0%
50-74	229	8.1%	36,548	10.3%
35-49	285	10.0%	31,073	8.7%
20-34	658	23.1%	43,991	12.4%
10-19	793	27.9%	28,492	8.0%
5-9	367	12.9%	6,211	1.7%
1-4	89	3.1%	664	0.2%
None	17	0.6%	0	0.0%
Total	2,843		355,876	

Table 2.3. Peak articles in DOAJ journals, groups A-D

Table 2.3 shows the number of articles in the peak year (from 2011 through 2014) of each journal in groups A-D, including 17 with no articles that are in group D rather than E because they were explicitly closed or merged. It also shows the total article volume—the number of articles published in those journals from January 1, 2011 through June 30, 2014. The two percent columns are percentages of all journals and all articles, respectively.

If you accept the estimates that there are 28,000 peer-reviewed journals publishing two million articles per year, the "average journal" publishes 71.4 articles per year. By that reckoning, somewhere between 78% and 86% of DOAJ journals have fewer articles than average.

The comparable figures for the Beall and OASPA sets appear in Tables 9 and 31, respectively, and those comparisons may be interesting. For one thing, although the DOAJ set is about three-quarters as large as the Beall set (groups A-D only) and a little more than twice as large as the OASPA set, all three sets have roughly the same number of articles (DOAJ has the most, but that's only about 10% more than Beall and 6% more than OASPA).

But you need to factor in *PLOS One* in the OASPA set. Remove its 84,718 articles and the OASPA set's remaining 1,307 journals have 249,149 articles; the DOAJ set has 42% more.

Ignoring *PLOS One*, the sweet spot is the same for all three sets: journals with 100-299 articles have more articles in total than any other level.

The DOAJ set—which excludes medicine and biology—has relatively few very prolific journals. Of the five journals with at least 1,000 articles in their best year, only two have peaks in excess of 2,000 (both between 2,500 and 2,900) and none published 3,000 or more articles in its peak year. Looking at total volume, only one journal published more than 10,000 articles over the 3.5 years (just barely over 10,000) and one other published between 5,400 and 5,500 articles. One other comes in between 3,600 and 4,000, and five published at least 2,000 but fewer than 3,000 articles over 3.5 years.

I find it interesting that so few journals in the DOAJ set had fewer than five articles in the peak year (89 or 3.1%), given that 876 of the Beall set (22.6%) and 116 of the OASPA set (8.9%) are in that "barely publishing" group. Frankly, given the number of small humanities journals in the DOAJ subset used here, I expected to see more very low peaks. On the other hand, there are proportionally *more* journals in the 10-19 article range, where you'd expect to find quite a few of those small humanities journals.

The DOAJ set definitely tends toward more articles from smaller journals: whereas more than two-thirds of all articles in the Beall set come from journals publishing at least 100 articles in their peak year and that figure's even higher for OASPA (more than three-quarters), journals

publishing at least 100 articles per year (at peak) account for barely over half of the DOAJ volume (50.7%).

Article Processing Charges, DOAJ groups A-D

APC	Journals	Percent	Volume	Percent
$2,000+	3	0.1%	462	0.1%
$1,000-$1,999	54	1.9%	29,791	8.4%
$600-$999	25	0.9%	6,721	1.9%
$450-$599	28	1.0%	11,542	3.2%
$300-$449	88	3.1%	31,069	8.7%
$200-$299	65	2.3%	20,589	5.8%
$100-$199	134	4.7%	33,964	9.5%
$50-$99	70	2.5%	11,151	3.1%
$1-$49	33	1.2%	8,560	2.4%
None	2,236	78.6%	188,618	53.0%
Unknown	107	3.8%	13,440	3.8%
Total	2,843		355,907	

Table 2.4. APCs for DOAJ journals, groups A-D

Key finding: As shown in Table 2.4 (compare it to Tables 10 and 32), more than three-quarters of the journals in this DOAJ set do not charge APCs at all—and those journals publish more than half of the articles from the whole set.

Compare that 78.6% and 53.0% to the 42.0% and 8.3% for the OASPA set or, even worse, the 4.2% (of journals) and 1.6% (of articles) for the Beall set.

Here we have the answer to the question I've heard (paraphrasing): "Where *are* all those Gold OA journals that supposedly don't charge APCs?" A quick answer: They're in fields other than medicine and biology and they're not "questionable" journals.

Including the "opaque" journals and the empty journals wouldn't change this significantly. Nearly three-quarters of the "opaque" ones don't charge APCs, and none of the empty ones have stated APCs.

This finding comes as a pleasant surprise. Much as I believe the earlier research (showing that most OA journals *don't* charge APCs and that most subscription journals, at least in science, *do* charge author-side fees), I was beginning to think that most of the non-fee OA journals might be non-English journals. Looking at the journals one at a time, those *with* APCs tend to stand out more than those without—but putting all of them together, the picture's clear.

Some other things are clear, comparing this large set of non-medical, non-biology journals with the mix in Beall and OASPA:

- Almost none of these journals charge $2,000 or more (none of them charges $2,300 or more): three, compared to 32 in the Beall set and a striking 251 in the OASPA set. For that matter, one of the three (*Journal of the International AIDS Society*) could plausibly be considered to be a medical journal and excluded from this set. (A couple of the group charging $1,000 to $1,999 could also plausibly be considered either medical or biological.)
- While the percentage charging $1,000 to $1,999 isn't a lot lower than in the Beall set, it's *much* lower than for OASPA: 1.9% compared to 19.9%.
- The only APC level with more than 100 journals—and the one with the highest article volume among those charging APCs—is a modest $100-$199.
- While there are more "unknown" APCs than I'd like to see, it's a much lower number and percentage than in the Beall set. It is quite possible that a number of those unknowns are actually no-APC cases where I'm suspicious of the publisher's charity. (From what I've seen, DOAJ would consider these to be no-fee journals because no APC is mentioned in the journal's pages.)

Maximum revenue, DOAJ groups A-D

Revenue	Jrnls	Percent	Volume	Percent
$1 million +	2	0.4%	15,521	10.1%
$250K-$999K	15	3.0%	22,930	14.9%
$100K-$249K	21	4.2%	21,044	13.7%
$50K-$99K	55	11.0%	32,453	21.1%
$25K-$49K	64	12.8%	18,015	11.7%
$15K-$24K	56	11.2%	10,799	7.0%
$10K-$14K	51	10.2%	9,624	6.3%
$5K-$9K	82	16.4%	12,957	8.4%
$2,500-$4,999	80	16.0%	7,094	4.6%
$1,000-$2,499	49	9.8%	2,579	1.7%
$1-$999	25	5.0%	833	0.5%
Subtotal	500		153,849	

Table 2.5. Maximum annual revenue, DOAJ groups A-D

Remember that these numbers represent improbable *maximum* revenue for the peak year for each journal, assuming the current APC, assuming 10 pages per article, assuming no waivers or partial waivers whatsoever. While I needed to make some assumptions for comparabil-

ity, the nature of those assumptions means that in many cases actual revenue is much lower—with few exceptions, nobody's getting rich off these OA journals. (For example, the top maximum revenue is more than $5 million—but if all articles in that journal are six pages or less, as most of them probably are, that would drop by about 40% even without waivers.)

The two big earners show about $3.4 and $5.3 million respectively; those are, not surprisingly, also the two journals with the most articles.

Comparable tables are Table 11 and Table 33. Where OASPA journals with APCs tend to cluster in the upper half of maximum revenue and Beall journals tend to cluster in the bottom four rows, DOAJ journals are roughly in the middle.

Originally, I decided to skip the "maximum revenue by publisher" table since there appeared to be more than 2,500 publishers—but most of those publishers don't charge for journals. There are also problems with authority control (the same publisher appearing more than once under slightly different names), but Table 2.6 below seems to be reasonably accurate.

Revenue	Publishers	Volume	%
3-6 mill.	3	27,869	18.1%
1-1.1 mill.	1	9,339	6.1%
$500-$999K	6	18,024	11.7%
$250-$499K	5	16,414	10.7%
$100-$249K	12	13,565	8.8%
$50-$99K	29	18,207	11.8%
$25-$49K	41	14,158	9.2%
$10-$24K	76	18,728	12.2%
$1-$9K	136	16,847	11.0%
$72-$999	19	698	0.5%
Subtotal	328	153,849	

Table 2.6. Maximum annual revenues by publisher, DOAJ

You can compare Table 2.6 to Tables 12 and 34. I think the message is that *very* few publishers in this DOAJ set are making killings from OA APC charges, with most showing less than $25,000 in the best year.

Article and journal distribution by year

This is a new table (or set of tables) that shows not only the number of articles per year within a given group of journals—but also the number of journals that published one or more articles during any given year, and the average articles per journal during that year. Where appropriate, the tables also show what percentage of journals and articles for each year are free, that is, have no APCs. (That figure may be off in some cases

because some commercial publishers change their APCs frequently.) These tables may not compare directly to some others because journals with unknown APCs are omitted.

	2014	2013	2012	2011
Articles/APC	28,754	52,186	42,166	30,743
Journals/APC	436	487	450	353
Art./Jrnl./APC	65.9	107.2	93.7	87.1
Articles/Free	26,341	58,589	54,808	48,882
Journals/Free	1,620	2,104	2,097	1,935
Art./Jrnl.	16.3	27.8	26.1	25.3
Free Articles	47.8%	52.9%	56.5%	61.4%
Free Journals	78.8%	81.2%	82.3%	84.6%

Table 2.7a. Article and journal distribution, DOAJ A-D

Table 2.7a includes DOAJ groups A-D, omitting the journals with unknown APCs. As always, 2014 means January 1-June 30, 2014, and some journals that publish one or two issues per year may be missing from 2014 because of that schedule.

This table suggests that the number and percentage of Gold OA journals that *do* charge APCs has been growing within this set, but slowly. On average, journals charging APCs publish more articles than those that don't, and that may make sense: many of the non-APC journals are niche journals. It's also interesting that the number of journals in either category doesn't automatically grow every year; unfortunately, niche journals come and go.

	2014	2013	2012	2011
Articles/APC	63,912	101,528	82,171	57,870
Journals/APC	695	678	606	565
Art./Jrnl./APC	92.0	149.7	135.6	102.4
Articles/Free	5,047	8,486	8,443	5,841
Journals/Free	483	459	308	241
Art./Jrnl.	10.4	18.5	27.4	24.2
Free Articles	7.3%	7.7%	9.3%	9.2%
Free Journals	41.0%	40.4%	33.7%	29.9%

Table 2.7b. Article and journal distribution, OASPA A-D

Table 2.7b shows the same figures for the OASPA set. Here there *is* growth year to year in number of journals, both with APCs and without. This set includes, I suspect, a larger percentage of journals that are *temporarily* free—and note that, not only is the average articles per journals

also much lower for free journals than for those with APCs, it's generally lower than for free journals in the DOAJ set.

	2014	2013	2012	2011
Articles/APC	56,114	94,713	68,993	40,182
Journals/APC	2,558	2,802	1,684	1,155
Art./Jrnl./APC	21.9	33.8	41.0	34.8
Articles/Free	1,276	1,823	1,129	1,062
Journals/Free	133	101	68	45
Art./Jrnl.	9.6	18.0	16.6	23.6
Free Articles	2.2%	1.9%	1.6%	2.6%
Free Journals	4.9%	3.5%	3.9%	3.8%

Table 2.7c. Article and journal distribution, Beall A-D

There are so few free journals within the Beall set that Table 2.7c may not be especially meaningful.

DOAJ Group A: Apparently good

APC	Journals	Peak	Volume	Percent
$600-$999	17	2,402	6,078	2.4%
$450-$599	23	3,782	11,364	4.5%
$300-$449	65	10,954	28,718	11.2%
$200-$299	46	4,944	12,758	5.0%
$100-$199	85	8,972	21,265	8.3%
$50-$99	46	3,153	7,322	2.9%
$1-$49	22	2,764	7,195	2.8%
None	1,638	58,434	160,603	62.9%
Total	1,942	95,405	255,303	

Table 2.8. DOAJ A, journals and articles by APC

Table 2.8 shows the distribution of journals, peak articles and total article volume by APC level. The percentage in this case is percentage of total article volume; empty rows (Group A journals can't have APCs of $1,000 or more and can't have unknown APCs) are omitted.

Even ignoring the fact that 62.9% of all the articles in A journals appear in journals that don't charge APCs, this table is strikingly different from Tables 13 and 35: peak article volume among journals charging any APC is for journals in the relatively low $300-$449 range, with more expensive journals falling below $100-$199 and $200-$299 as well.

Also probably worth noting is that the volume of articles in apparently good journals is so much higher than for the other two sets—roughly five times as high as either of the others.

Did any journal actually charge $1 as an article processing fee? No, but one did charge $12—technically, as a reviewing fee (that is, for all *submitted* articles) rather than a processing fee.

Revenue	Journals	Peak	Volume	Percent
$250K-$999K	5	3,269	8,249	3.2%
$100K-$249K	16	7,470	19,724	7.7%
$50K-$99K	37	9,388	23,660	9.3%
$25K-$49K	38	4,625	11,573	4.5%
$15K-$24K	33	3,379	7,815	3.1%
$10K-$14K	30	2,426	6,703	2.6%
$5K-$9K	53	3,487	9,813	3.8%
$2,500-$4,999	45	1,850	4,583	1.8%
$1,000-$2,499	32	810	1,900	0.7%
$1-$999	15	267	680	0.3%
$0	1,638	58,434	160,603	62.9%
Total	1,942	95,405	255,303	

Table 2.9. DOAJ A journals and articles by revenue

As in Table 2.8 and in Tables 14 and 36, the tables most comparable to Table 2.9, the Percent column is percent of total article volume, not of journals. Looking back at Table 36, although only 8.3% of articles in OASPA journals *in general* appeared in no-fee journals, that percentage was 42.8% for Group A. Here, it's once again higher than for all DOAJ journals: 62.9%, more than three out of every five articles. No journal had enough articles to manage $1 million with the $999 APC limit for group A (that row doesn't appear) and only 21 journals could have brought in at least $100,000 at peak.

Peak	Jrnls	2014	2013	2012	2011
1,000+	2	1,094	441	1,138	1,549
600-999	9	3,156	5,993	4,118	2,603
300-599	25	4,978	8,812	6,543	5,372
100-299	158	10,714	22,058	19,753	16,810
75-99	105	4,007	7,851	6,947	6,195
50-74	175	4,048	8,833	8,122	7,328
35-49	232	3,970	8,379	7,672	6,245
20-34	499	4,790	10,755	10,363	9,215
10-19	582	3,093	7,026	6,629	5,616
5-9	153	413	1,022	925	719
1-4	2	2	8	0	0
Total	1,942	40,265	81,178	72,210	61,652

Table 2.10. DOAJ A journals, article distribution by peak

The top row of Table 2.10 may seem incongruous, since it adds up two journals with peak publication of more than 1,000 articles—but never has 2,000 or more articles in any given year.

Turns out that one of the two very active journals appears to be fading away: it had 1,079 articles in 2011, 610 in 2012, 221 in 2013—and only 51 in the first half of 2014. The other, on the other hand, seems to be booming at the moment, with 470 articles in 2011, 528 in 2012, a mere 220 in 2013—and 1,043 in the first half of 2014. (Both charge APCs, but neither one charges more than $400.)

This set and group may be an appropriate place to look at journals that publish relatively few articles—let's say 5 to 19 per year at most. There are 737 such journals within this group. Only 44 of the 737 charge any fees, leaving 693, or just under 36% of group A. While there are journals among this subset in most broad subject areas (looking ahead to a later discussion), there are a few areas with more small journals than most areas, such as:

- **Arts & Architecture**, including such journals as *Journal of Jazz studies, Min-Ad: Israel Studies in Musicology Online, Visual Culture & Gender, Acta Graphica: Journal for Printing Science and Graphic Communications, Journal of Sonic Studies, Voices: A World Forum for Music Therapy*, and *Trans-Asia Photography Review*.
- **Education**, including such journals as International *Journal of Whole Schooling, Complicity: An International Journal of Complexity and Education, InSight: A Journal of Scholarly Teaching*, and *International Journal of the First Year in Higher Education*.

- **History**, including such journals as International *Journal of Badiou Studies, Catalan Historical Review, 19: Interdisciplinary Studies in the Long Nineteenth Century*, and Spontaneous Generations: Journal for the *History and Philosophy of Science*.
- **Language and Literature**, including such journals as *The Irish Journal of Gothic and Horror Studies, Pilgrimages: A Journal of Dorothy Richardson Studies, European Journal of Life Writing, Semantics and Pragmatics*, *and Persuasions: the Jane Austen Journal On-Line*.
- **Media & Communications**, including such journals as *connexions: international professional communication journal, Scan: Journal of Media Arts Culture, Logeion*, and *Styles of Communication*.
- **Religion**, including such journals as *Rose Croix Journal, The Journal of Analytic Theology, Al-Jami'ah: Journal of Islamic Studies,* and *Journal of Hebrew Scriptures*.

Areas such as Economics, Law, Library Science, Philosophy, Political Science and Sociology also show up more commonly among small journals.

	2014	2013	2012	2011
Articles/APC	17,697	31,453	25,605	19,945
Journals/APC	292	304	281	282
Art./Jrnl./APC	60.6	103.5	91.1	70.7
Articles/Free	22,568	49,725	46,605	41,707
Journals/Free	1,348	1,636	1,579	1,442
Art./Jrnl.	16.7	30.4	29.5	28.9
Free Articles	56.0%	61.3%	64.5%	67.6%
Free Journals	82.2%	84.3%	84.9%	83.6%

Table 2.11a. Article and journal distribution, DOAJ A

It's quite possible that 200 or more very small journals in group A, nearly all without APCs, just hadn't published any 2014 issues or articles by July 1, 2014; it's also possible that a fair number of these very small journals are disappearing.

	2014	2013	2012	2011
Articles/APC	5,703	8,850	9,349	5,768
Journals/APC	188	182	157	145
Art./Jrnl./APC	30.3	48.6	59.5	39.8
Articles/Free	4,083	6,720	6,675	4,753
Journals/Free	397	360	232	197
Art./Jrnl.	10.3	18.7	28.8	24.1
Free Articles	41.7%	43.2%	41.7%	45.2%
Free Journals	67.9%	66.4%	59.6%	57.6%

Table 2.11b. Article and journal distribution, OASPA A

Within the relatively small group represented by Table 2.11b, the number of journals in both APC-charging and no-APC categories that actually published articles grows each year, with by far the largest growth between 2012 and 2013—although, oddly enough, there were *fewer* articles in the fee-charging journals in 2013 than in 2012.

	2014	2013	2012	2011
Articles/APC	6,832	15,360	16,067	15,639
Journals/APC	313	302	186	146
Art./Jrnl./APC	21.8	50.9	86.4	107.1
Articles/Free	381	572	236	82
Journals/Free	35	27	15	8
Art./Jrnl.	10.9	21.2	15.7	10.3
Free Articles	5.3%	3.6%	1.4%	0.5%
Free Journals	10.1%	8.2%	7.5%	5.2%

Table 2.11c. Article and journal distribution, Beall A

Here again, the number of journals publishing articles grows from year to year in both categories, with the biggest growth coming between 2012 and 2013—and, once again, there were actually fewer articles in APC-charging journals in 2013 than in 2012.

DOAJ Group B: May need investigation

APC	Journals	Peak	Volume	Percent
$2,000+	3	151	462	0.7%
$1,000-$1,999	47	10,655	29,648	42.4%
$600-$999	3	171	451	0.6%
$450-$599	2	43	99	0.1%
$300-$449	14	583	1,451	2.1%
$200-$299	13	2,903	7,494	10.7%
$100-$199	32	5,767	11,394	16.3%
$50-$99	14	1,346	2,654	3.8%
$1-$49	7	414	1,092	1.6%
None	139	6,018	15,109	21.6%
Total	274	28,051	69,854	

Table 2.12. DOAJ B, journals and articles by APC

Most or all of the 50 journals in the top two rows are in group B only because the APCs are so high. Unlike the OASPA set, where nearly all B journals are in those two rows, those journals make up less than one-fifth of group B. There are other reasons for journals to be here—most commonly, I think, sites with really bad English, but also some sites that are so garish and otherwise questionable that they give one pause. It is interesting that although journals charging $1,000 or more make up less than one-fifth of the group B journals, they published more than two-fifths of the articles in those journals.

Revenue	Jrnls	Peak	Volume	Percent
$1 million +	2	5,403	15,521	22.2%
$250K-$999K	10	5,342	14,681	21.0%
$100K-$249K	5	480	1,320	1.9%
$50K-$99K	17	3,788	8,384	12.0%
$25K-$49K	23	2,834	5,907	8.5%
$15K-$24K	18	1,237	2,498	3.6%
$10K-$14K	13	1,061	2,033	2.9%
$5K-$9K	17	976	2,307	3.3%
$2,500-$4,999	22	745	1,731	2.5%
$1,000-$2,499	5	138	296	0.4%
$1-$999	3	29	67	0.1%
$0	139	6,018	15,109	21.6%
Total	274	28,051	69,854	

Table 2.13. DOAJ B journals and articles by revenue

Nothing in Table 2.13 is particularly surprising given previous tables. The dozen journals with the most revenue also account for a big chunk of the articles.

Peak	Jrnls	2014	2013	2012	2011
1,000+	3	4,306	6,353	5,007	3,555
600-999	3	1,168	2,076	858	636
300-599	13	1,876	4,557	4,127	2,145
100-299	40	3,574	5,766	4,288	2,977
75-99	12	312	886	679	379
50-74	36	1,031	1,864	1,634	1,177
35-49	18	312	696	476	343
20-34	70	567	1,513	1,265	946
10-19	63	351	750	652	450
5-9	16	71	120	68	43
Total	274	13,568	24,581	19,054	12,651

Table 2.14. DOAJ B journals, article distribution by peak

Another case where the group as a whole published more articles in the first half of 2014 than in all of 2011 and where the sweet spot in number of journals—but not in number of articles—is the range from 100 to 299 articles per year.

	2014	2013	2012	2011
Articles/APC	10,704	19,279	15,103	9,659
Journals/APC	125	135	117	77
Art./Jrnl./APC	85.6	142.8	129.1	125.4
Articles/Free	2,864	5,302	3,951	2,992
Journals/Free	111	139	122	106
Art./Jrnl.	25.8	38.1	32.4	28.2
Free Articles	21.1%	21.6%	20.7%	23.7%
Free Journals	47.0%	50.7%	51.0%	57.9%

Table 2.15a. Article and journal distribution, DOAJ B

This relatively small subset shows a higher percentage of APC-charging journals (and article volume) than group A; that's not especially surprising.

	2014	2013	2012	2011
Articles/APC	58,029	92,281	72,409	51,771
Journals/APC	442	420	374	353
Art./Jrnl./APC	131.3	219.7	193.6	146.7
Articles/Free	477	553	444	178
Journals/Free	16	13	12	4
Art./Jrnl.	29.8	42.5	37.0	44.5
Free Articles	0.8%	0.6%	0.6%	0.3%
Free Journals	3.5%	3.0%	3.1%	1.1%

Table 2.15b. Article and journal distribution, OASPA B

Here, free journals are rare and articles from no-fee journals are almost nonexistent.

	2014	2013	2012	2011
Articles/APC	31,541	49,383	32,376	14,468
Journals/APC	1,067	938	592	377
Art./Jrnl./APC	29.6	52.6	54.7	38.4
Articles/Free	430	465	131	66
Journals/Free	46	20	9	3
Art./Jrnl.	9.3	23.3	14.6	22.0
Free Articles	1.3%	0.9%	0.4%	0.5%
Free Journals	4.1%	2.1%	1.5%	0.8%

Table 2.15c. Article and journal distribution, Beall B

Here too, no-fee journals and articles are very rare. The reason is largely the same in both cases: journals that might otherwise be A (especially in the OASPA set) that charge $1,000 or more.

DOAJ Group C: Highly Questionable

This group is quite small—only a bit more than 2% of the DOAJ set as a whole—and 90% of the journals are here for one reason: no stated APC for a journal that seems likely to have one. Some of the tables in this section are short and pretty much meaningless.

APC	Journals	Peak	Volume	Percent
$100-$199	2	303	621	4.9%
None	5	216	641	5.0%
Unknown	62	4,862	11,458	90.1%
Total	69	5,381	12,720	

Table 2.16. DOAJ C, journals and articles by APC

It's mildly interesting that there are no C journals with significant APCs, but there are so few in general that it's not really meaningful.

Revenue	Journals	Peak	Volume	Percent
$15K-$24K	1	188	305	24.2%
$10K-$14K	1	115	316	25.0%
$0	5	216	641	50.8%
Subtotal	7	519	1,262	

Table 2.17 DOAJ C, journals and articles by revenue

The publishers of the two APC-charging journals (or "the publisher," since the two journals have extremely similar names) aren't getting rich from them; I don't believe you can draw other conclusions.

Peak	Journals	2014	2013	2012	2011
600-999	1	660	900	400	
300-599	2	182	346	580	782
100-299	14	1,126	1,650	1,167	841
75-99	1	29	95	78	
50-74	8	205	396	329	304
35-49	8	186	297	212	132
20-34	21	208	467	304	289
10-19	12	76	137	158	136
5-9	2	4	14	14	16
Total	69	2,676	4,302	3,242	2,500

Table 2.18. DOAJ C journals, article distribution by peak

Table 2.18 is slightly more interesting, but not a lot. The sweet spot for journals is 20-34 articles, but the sweet spot for articles is 100-299 articles.

	2014	2013	2012	2011
Articles/APC	281	209	131	
Journals/APC	2	2	2	
Art./Jrnl./APC	140.5	104.5	65.5	
Articles/Free	93	204	192	152
Journals/Free	5	5	4	4
Art./Jrnl.	18.6	40.8	48.0	38.0
Free Articles	24.9%	49.4%	59.4%	100.0%
Free Journals	71.4%	71.4%	66.7%	100.0%

Table 2.19a. Article and journal distribution, DOAJ C

Since these tables omit journals with unknown APCs, Table 2.19a is nearly useless, mostly saying that the two journals with APCs began in 2012.

	2014	2013	2012	2011
Articles/APC	5	23	19	19
Journals/APC	1	1	1	1
Art./Jrnl./APC	5.0	23.0	19.0	19.0
Articles/Free		9	9	
Journals/Free		1	1	
Art./Jrnl.		9.0	9.0	
Free Articles	0.0%	28.1%	32.1%	0.0%
Free Journals	0.0%	50.0%	50.0%	0.0%

Table 2.19b. Article and journal distribution, OASPA C

Table 2.19b with its two journals is even less meaningful, and I probably would have omitted these tables except that including these two allows me to include Table 2.19c, which includes many more journals.

	2014	2013	2012	2011
Articles/APC	16,919	25,078	16,136	6,729
Journals/APC	783	696	378	212
Art./Jrnl./APC	21.6	36.0	42.7	31.7
Articles/Free	400	499	575	762
Journals/Free	27	17	16	15
Art./Jrnl.	14.8	29.4	35.9	50.8
Free Articles	2.3%	2.0%	3.4%	10.2%
Free Journals	3.3%	2.4%	4.1%	6.6%

Table 2.19c. Article and journal distribution, Beall C

Table 2.19c includes more than 800 journals (in 2014) and may be useful. Note the rapid growth of APC-charging journals, especially in 2012 and 2013; I'm guessing that the apparent growth in non-fee journals in 2014 is mostly journals with APCs temporarily set to zero to attract more articles.

DOAJ Group D: Dormant, diminutive, dying, dead

Category	Jrnls	%	Peak	Sum	%
C: Ceased	135	24%	2,028	3,173	18%
D: Dying	38	7%	662	1,260	7%
E: Erratic	91	16%	1,546	2,798	16%
H: Hiatus	77	14%	4,108	7,894	44%
N: New	6	1%	32	32	0%
S: Small	211	38%	1,281	2,873	16%
Total	558		9,657	18,030	

Table 2.20. DOAJ D journals by category

As with group D in other sets, all that these journals have in common is that they failed to publish at least five articles per year in a year other than the starting year, or at least two articles in the first half of 2014—and that two-article rule wasn't enforced for issue-oriented journals that only publish one or two issues a year.

Notes on each category:

- **Ceased**: Two dozen of these formally ceased or, in one case, was suspended; several closed for new submissions; four merged into other journals or were replaced by other journals. The rest are assumed ceased based on having no content since 2012.
- **Dying**: These have publication patterns suggesting that they're failing. The 38 journals published 479 articles in 2011, 526 in 2012—but 216 in 2013 and 39 in the first half of 2014.
- **Erratic**: A few of these might belong in category S, but are in fields where you'd expect to see at least a handful of articles each year. Extreme cases include one journal founded in 2012 with 13 articles that year, *none* in 2013—and 158 in the first half of 2014. Another, founded in 2007, had no articles in 2011, 79 in 2012, 29 in 2013 and none so far in 2014.
- **Hiatus**: None of these have any 2014 articles but they have previous publication patterns that don't necessarily suggest they're dying (e.g., 100 articles in 2011, 100 in 2012, 140 in 2013…and none in 2014).

- **New**: I'm being generous here, given that one of the six published five articles in 2012 but none in 2011 or 2013 (it's an annual) and that four others published their only articles in 2013—but, with one exception, those *began* in 2013.
- **Small**: Also judgment calls, these are journals that (with few exceptions) don't show more than ten articles in any year but also don't seem to be dying. Many of them appear to be niche journals in areas where four articles may be enough; some have content other than refereed articles. Just a few examples of what might be niche journals publishing as many articles as are appropriate for their niche: *No Foundations: An Interdisciplinary Journal of Law and Justice, Journal of Florida Studies, Paideusis, Journal of Articles in Support of the Null Hypothesis, Women in Judaism: a Multidisciplinary Journal, International Journal of Motorcycle Studies, New Proposals: Journal of Marxism and Interdisciplinary Inquiry, Cuneiform Digital Library Journal*, and *Journal of Empirical Generalisations in Marketing Science*.

APC	Journals	Peak	Volume	Percent
$1,000-$1,999	7	69	143	0.8%
$600-$999	5	90	192	1.1%
$450-$599	3	41	79	0.4%
$300-$449	9	593	900	5.0%
$200-$299	6	250	337	1.9%
$100-$199	15	331	684	3.8%
$50-$99	20	683	1,175	6.5%
$1-$49	4	163	273	1.5%
None	454	6,404	12,265	68.0%
Unknown	45	1,033	1,982	11.0%
Total	568	9,657	18,030	

Table 2.21. DOAJ D, journals and articles by APC

All of the D journals charging $1,000 or more come from two publishers; five are erratic, one's plausibly a small journal (*Fire Science Reviews*) and one appears to be dying. Six of the nine charging $300-$449 (none of which charges more than $325) appear to be on hiatus. Notably, 198 of the 211 journals that may be workable very small journals do *not* charge APCs—and for eight of the remaining 13, I may be overly suspicious in not assuming that they're actually free.

Revenue	Journals	Peak	Volume	Percent
$50K-$99K	1	263	409	2.5%
$25K-$49K	3	354	535	3.3%
$15K-$24K	4	104	181	1.1%
$10K-$14K	7	322	572	3.6%
$5K-$9K	12	461	837	5.2%
$2,500-$4,999	13	449	780	4.9%
$1,000-$2,499	12	213	383	2.4%
$1-$999	7	54	86	0.5%
$0	454	6,404	12,265	76.4%
Subtotal	513	8,624	16,048	

Table 2.22. DOAJ D journals and articles by revenue

Nobody's getting rich from these journals, but you probably knew that already. As with most other areas, it is true that APC-charging journals seem to publish more articles than those that don't charge APCs—thus, although 88% of these journals don't charge APCs, those journals only publish 76% of the articles.

Peak	Journals	2014	2013	2012	2011
300-599	1		536	116	37
100-299	10	158	894	927	895
75-99	6		327	298	216
50-74	10	20	226	479	552
35-49	27	11	507	932	703
20-34	68	117	771	1,230	1,191
10-19	136	233	896	1088	1234
5-9	196	314	690	915	863
0-4	104	73	182	197	202
Total	557	926	4,493	6,066	5,856

Table 2.23. DOAJ D journals, article distribution by peak

Unlike OASPA and Beall, there *is* one DOAJ D journal with more than 300 articles in its peak year—more than 500, in fact. This set is also somewhat unusual in that there are relatively fewer journals that never hit at least five articles.

	2014	2013	2012	2011
Articles/APC	72	1,245	1,327	1,139
Journals/APC	17	46	50	36
Art./Jrnl./APC	4.2	27.1	26.5	31.6
Articles/Free	816	3,358	4,060	4,031
Journals/Free	156	324	392	383
Art./Jrnl.	5.2	10.4	10.4	10.5
Free Articles	91.9%	73.0%	75.4%	78.0%
Free Journals	90.2%	87.6%	88.7%	91.4%

Table 2.24a. Article and journal distribution, DOAJ D

Remember that you can't directly compare, for example, Table 2.23 and Table 2.24a, both because Table 2.24a omits journals with unknown APCs and because the journal count is only of journals that actually published articles that year. So, for example, it would appear that 28 articles in 2014 were in journals with unknown APCs. Beyond that, what's interesting here is that the percentages for free (no-fee) articles and journals are so high.

	2014	2013	2012	2011
Articles/APC	175	374	394	312
Journals/APC	64	75	74	66
Art./Jrnl./APC	2.7	5.0	5.3	4.7
Articles/Free	487	1,204	1,315	910
Journals/Free	70	85	63	40
Art./Jrnl.	7.0	14.2	20.9	22.8
Free Articles	73.6%	76.3%	76.9%	74.5%
Free Journals	52.2%	53.1%	46.0%	37.7%

Table 2.24b. Article and journal distribution, OASPA D

While it's interesting that no-fee journals included roughly three-quarters of the articles in each year from between 38% and 53% of the journals, I'm not sure that it's especially meaningful: there are very few articles involved.

	2014	2013	2012	2011
Articles/APC	822	4,892	4,414	3,346
Journals/APC	396	866	528	420
Art./Jrnl./APC	2.1	5.6	8.4	8.0
Articles/Free	65	287	187	152
Journals/Free	25	37	28	19
Art./Jrnl.	2.6	7.8	6.7	8.0
Free Articles	7.3%	5.5%	4.1%	4.3%
Free Journals	5.9%	4.1%	5.0%	4.3%

Table 2.24c. Article and journal distribution, Beall E

Table 2.24c is reasonably consistent with the Beall set in general: although free journals and articles are *slightly* more prominent here, they're still a tiny part of the whole.

DOAJ Group E: Empty

No tables at all this time, for a very simple reason. These journals didn't have any articles between 2011 and the first half of 2014, so the only table that *could* make sense is the one showing journals and articles by APC.

But of the eight journals in this group, five have no APC and the other three don't say one way or the other. Looking at the publishers again, it's *likely* that all three of the others—either published by universities or associations—wouldn't have APCs if they were active. So, basically, these are all no-fee cases. Four are old enough that they might have been active for a few years, then disappeared; the others are just empty, what I think of as "journals."

That's it for the DOAJ subset discussed here. It's radically different from the other two subsets, with most articles appearing in no-fee journals, which make up the vast majority of the set.

Starting Date

Year	DOA	DOA%	OAS	OAS%	Beall	Beall%
Pre-1980	43	1.5%	10	0.8%		0
1980-1989	50	1.8%	5	0.4%		0
1990-1994	73	2.6%	9	0.7%		0
1995-1999	242	8.5%	28	2.2%	2	0.1%
2000	96	3.4%	4	0.3%	1	0.0%
2001	84	3.0%	14	1.1%	4	0.1%
2002	111	3.9%	3	0.2%	14	0.4%
2003	120	4.2%	6	0.5%	7	0.2%
2004	113	4.0%	7	0.6%	2	0.1%
2005	143	5.0%	8	0.6%	14	0.4%
2006	162	5.7%	20	1.6%	30	0.8%
2007	181	6.4%	45	3.6%	129	3.4%
2008	208	7.3%	57	4.5%	152	4.0%
2009	222	7.8%	50	4.0%	187	4.9%
2010	271	9.5%	403	32.0%	306	8.1%
2011	315	11.1%	154	12.2%	634	16.7%
2012	269	9.5%	106	8.4%	708	18.6%
2013	139	4.9%	230	18.3%	1,263	33.3%
2014	1	0.0%	100	7.9%	345	9.1%

Table 2.25. Starting dates

Electronic journals free for the reader go back at least to 1987, although they certainly weren't presented in HTML or PDF form back then. Perhaps more to the point, a fair number of print journals—some going back to the Nineteenth Century—are OA on the electronic side.

Starting dates for the DOAJ set come from the journals' records as found on DOAJ itself. Starting dates for OASPA journals and the Beall set come from my observations, either of claimed starting date or the start of the archives. Table 2.25 shows starting dates for journals in groups A-D, that is, journals that have actually published at least one article since 2010; it abbreviates DOAJ to DOA and OASPA to OAS so the columns wound fit. The % columns show the percentage of all the journals in the set that began in that period.

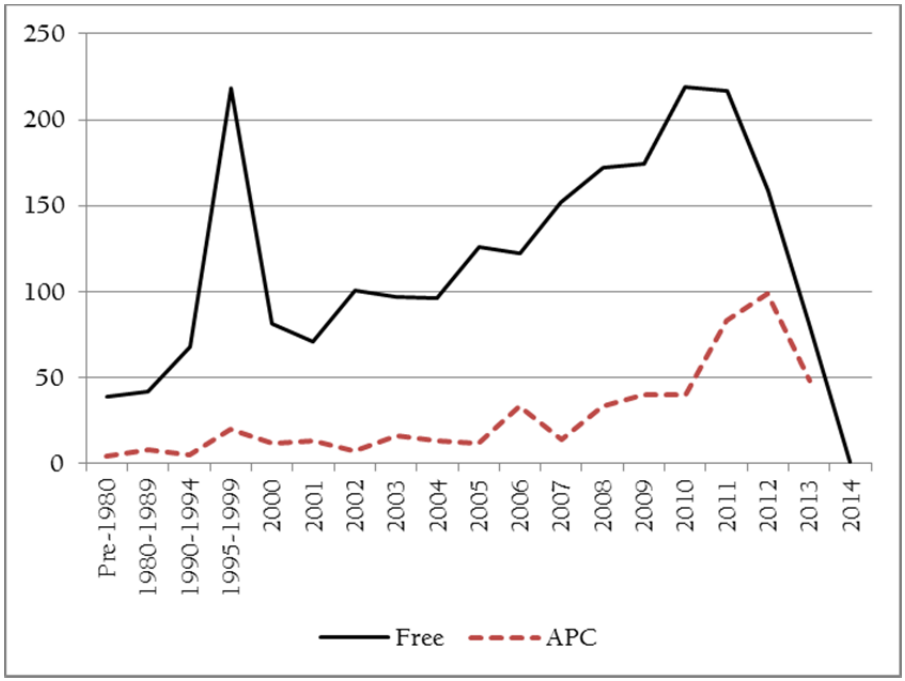

Figure 2.1. DOAJ subset journals by starting year

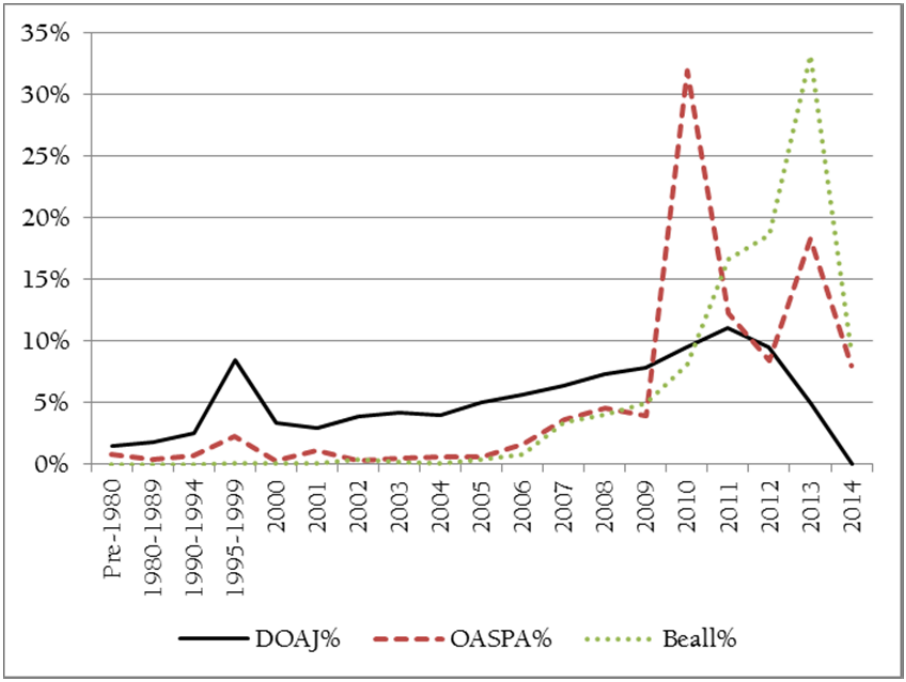

Figure 2.2. Journals by starting date (percentage)

Figure 2.1 splits the first two columns of Table 2.25 to show how many journals that currently charge APCs or are currently free to authors began in each interval. (Figure 2.1 omits journals with unknown APCs.) Figure 2.2 shows the percentage columns of Table 2.25 as a graph. I believe it says a *lot* about the explosion of APC-based OA journals, both questionable and generally trustworthy, in the last few years.

DOAJ free-vs.-APC by starting date

Tables 2.26a through 2.26e show journal and article distribution for journals by starting date. In all cases, journals are in DOAJ groups A-D omitting those with unknown APCs.

To 1989	2014	2013	2012	2011
Articles/APC	707	1,697	1,707	1,756
Journals/APC	12	12	12	11
Art./Jrnl./APC	58.9	141.4	142.3	159.6
Articles/Free	1,549	3,471	3,122	3,145
Journals/Free	63	79	78	79
Art./Jrnl.	24.6	43.9	40.0	39.8
Free Articles	68.7%	67.2%	64.7%	64.2%
Free Journals	84.0%	86.8%	86.7%	87.8%

Table 2.26a. Article and journal dist., DOAJ pre-1990

Journals with APCs publish more articles on average than those without APCs: That's true even for pioneering journals.

1990-1999	2014	2013	2012	2011
Articles/APC	3,703	6,233	5,935	5,999
Journals/APC	24	25	25	25
Art./Jrnl./APC	154.3	249.3	237.4	240.0
Articles/Free	4,555	10,235	9,836	8,932
Journals/Free	221	271	272	271
Art./Jrnl.	20.6	37.8	36.2	33.0
Free Articles	55.2%	62.2%	62.4%	59.8%
Free Journals	90.2%	91.6%	91.6%	91.6%

Table 2.26b. Article and journal dist., DOAJ 1990-1999

More than nine out of ten beginning during the 1990s do *not* charge APCs—but in recent years more than a third of the articles came from the relatively few APC-charging journals.

2000-2004	2014	2013	2012	2011
Articles/APC	2,986	6,332	6,341	5,470
Journals/APC	51	59	61	60
Art./Jrnl./APC	58.5	107.3	104.0	91.2
Articles/Free	5,203	11,964	11,657	11,967
Journals/Free	312	414	427	430
Art./Jrnl.	16.7	28.9	27.3	27.8
Free Articles	63.5%	65.4%	64.8%	68.6%
Free Journals	86.0%	87.5%	87.5%	87.8%

Table 2.26c. Article and journal dist., DOAJ 2000-2004

More APC-charging journals, but a somewhat higher percentage of articles from the non-charging journals—and we're not seeing the *very* high average articles per journal for APC-charging journals.

2005-2009	2014	2013	2012	2011
Articles/APC	6,550	14,272	12,751	10,528
Journals/APC	114	127	131	130
Art./Jrnl./APC	57.5	112.4	97.3	81.0
Articles/Free	7,475	17,146	17,780	16,536
Journals/Free	514	691	723	716
Art./Jrnl.	14.5	24.8	24.6	23.1
Free Articles	53.3%	54.6%	58.2%	61.1%
Free Journals	81.8%	84.5%	84.7%	84.6%

Table 2.26d. Article and journal dist., DOAJ 2005-2009

The most dramatic change comes in the most recent years, shown in Table 2.26e—with the percentage of free new journals dropping below 80% for the first time and, in 2012 through 2014, new APC-charging journals publishing a *majority* of the articles.

2010-2014	2014	2013	2012	2011
Articles/APC	14,808	23,652	15,432	6,990
Journals/APC	235	262	223	127
Art./Jrnl./APC	63.0	90.3	69.2	55.0
Articles/Free	7,559	15,773	12,413	8,302
Journals/Free	510	647	597	439
Art./Jrnl.	14.8	24.4	20.8	18.9
Free Articles	33.8%	40.0%	44.6%	54.3%
Free Journals	68.5%	71.2%	72.8%	77.6%

Table 2.26e. Article and journal dist., DOAJ since 2010

OASPA free-vs.-APC by starting date

There aren't enough early OASPA journals—at least as I skimmed the journal sites—to justify a set of five tables comparable to Tables 2.2a-e, but there are enough to justify three broader tables.

To 1999	2014	2013	2012	2011
Articles/APC	1,757	3,112	3,350	2,525
Journals/APC	19	21	21	21
Art./Jrnl./APC	92.5	148.2	159.5	120.2
Articles/Free	397	918	875	813
Journals/Free	22	31	31	30
Art./Jrnl.	18.0	29.6	28.2	27.1
Free Articles	18.4%	22.8%	20.7%	24.4%
Free Journals	53.7%	59.6%	59.6%	58.8%

Table 2.27a. Article and journal dist., OASPA to 1999

With the huge caveat that APCs shown are those *currently* charged, it's still interesting that a majority of early journals from what are now OASPA members didn't charge APCs—although those journals currently account for less than one-quarter of the articles from OASPA journals as a whole.

2000-2009	2014	2013	2012	2011
Articles/APC	26,844	49,533	37,311	24,526
Journals/APC	165	169	167	164
Art./Jrnl./APC	162.7	293.1	223.4	149.5
Articles/Free	167	455	549	482
Journals/Free	20	31	32	30
Art./Jrnl.	8.4	14.7	17.2	16.1
Free Articles	0.6%	0.9%	1.5%	1.9%
Free Journals	10.8%	15.5%	16.1%	15.5%

Table 2.27b. Article and journal dist., OASPA 2000-2009

PLOS One began during the 2000s, and its presence dominates the articles. The more interesting figures may be journal numbers: roughly the same number of journals started that *currently* don't charge APCs as before 2000, where new APC-charging journals increased roughly eightfold.

2010-2014	2014	2013	2012	2011
Articles/APC	35,311	48,883	41,510	30,819
Journals/APC	511	488	418	380
Art./Jrnl./APC	69.1	100.2	99.3	81.1
Articles/Free	4,483	7,113	7,019	4,546
Journals/Free	441	397	245	181
Art./Jrnl.	10.2	17.9	28.6	25.1
Free Articles	11.3%	12.7%	14.5%	12.9%
Free Journals	46.3%	44.9%	37.0%	32.3%

Table 2.27c. Article and journal dist., OASPA since 2010

Table 2.27c, representing a majority of OASPA journals, still shows a huge difference in journals per article between APC-charging and free journals.

Beall free-vs.-APC by starting date

To 2009	2014	2013	2012	2011
Articles/APC	6,656	19,238	22,803	22,272
Journals/APC	268	368	361	388
Art./Jrnl./APC	24.8	52.3	63.2	57.4
Articles/Free	310	534	648	839
Journals/Free	18	18	18	18
Art./Jrnl.	17.2	29.7	36.0	46.6
Free Articles	4.5%	2.7%	2.8%	3.6%
Free Journals	6.3%	4.7%	4.7%	4.4%

Table 2.28a. Article and journal dist., Beall to 2009

Given the dominance of new and recent commercial publishers on Beall's list, it may not be surprising that only a few hundred journals began before 2010—and even among those "early" journals, free cases are a tiny minority: 18 out of 542 (quite a few of which have unknown APCs so don't appear in Table 2.28a). In a way, the existence of *any* no-APC journals in the Beall set is the anomaly, although some of those that do appear may be free in an effort to attract more articles.

Finally for this discussion, Table 2.28b shows the bulk of the rapidly growing Beall set, journals that appear to have started in 2010 or beyond (with the biggest jump in 2013). That table closely resembles overall Beall-set figures, so there's little to say.

2010-2014	2014	2013	2012	2011
Articles/APC	49,458	75,475	46,190	17,910
Journals/APC	2,290	2,434	1,323	767
Art./Jrnl./APC	21.6	31.0	34.9	23.4
Articles/Free	966	1,289	481	223
Journals/Free	115	83	50	27
Art./Jrnl.	8.4	15.5	9.6	8.3
Free Articles	1.9%	1.7%	1.0%	1.2%
Free Journals	4.8%	3.3%	3.6%	3.4%

Table 2.28b. Article and journal dist., Beall 2010-2014

Journals by Topic

Here's a case where I have an idea what we'll find as we go through the numbers. I'd expect that no-fee OA journals would be far more prevalent in the humanities and social sciences than in the sciences and *least* prevalent in medicine and biology (after all, that's where the money is). Among the sciences (including engineering, technology and agriculture), I'd mildly expect chemistry and agriculture to have a higher percentage of APC-charging journals than some other fields, with physics and mathematics possibly on the low side. I'd also expect humanities and social science journals to have far fewer articles per journal.

But those are predictions. What's out there?

DOAJ has a specific topic for each journal, but those topics are *too* specific for the kind of overview I had in mind (so much so that I'm afraid five or six medicine-related journals and four or five biology-related journals sneaked into the DOAJ set). I had DOAJ topics for some but not all of the OASPA journals, and few of the Beall journals.

So I pared down the topics appearing in the DOAJ set to a somewhat manageable list of 25 (*not* including Medicine and Biology), then used that list (*plus* Medicine and Biology) to assign topics to remaining OASPA and Beall journals. As it happens, the latter two sets had *very* few journals in some fields within the humanities and social sciences. Unquestionably, some of my assignments of narrow topics to broader topics may be quixotic, but I believe they're reasonable overall.

While it may be reasonable to show 25 tables for the DOAJ set, it would be silly to do so for OASPA and Beall (it would be 27 for each of those), especially since there are so few occurrences in some cases. So I grouped the 25 topics into six broader topics and later grouped those six broader topics (plus biology and medicine) into three supertopics: Bio and Medicine, STEM, and HSS.

Subject	Beall	OAS	DOAJ
Agriculture	286	39	168
Anthropology	9	9	82
Arts & Architecture	34	7	80
Biology	251	146	0
Chemistry	110	52	73
Computer Science	314	36	207
Earth Sciences	99	27	106
Ecology	161	23	95
Economics	306	17	203
Education	106	16	234
Engineering	262	60	151
History	17	12	91
Language and Literature	48	8	165
Law	22	10	55
Library Science	13	4	53
Mathematics	116	44	167
Media & Communications	18	5	56
Medicine	1,086	625	0
Miscellany	24	28	40
Philosophy	8	2	72
Physics	153	55	68
Political Science	29	10	83
Psychology	31	6	48
Religion	3	4	45
Science	91	13	88
Sociology	84	17	189
Technology	131	9	106
Zoology	64	24	118
Total	**3,876**	**1,308**	**2,843**
Total without Bio, Med	**2,539**	**537**	**2,843**

Table 2.29. Journals by (rough) topic

Table 2.29 shows the overall numbers (all of which may be slightly off due to ambiguous assignments), including the number of journals left in each set if you exclude topics related to Biology and Medicine. That final line is particularly interesting for OASPA, where nearly 60% of the journals

are in those two areas. There are *more* medicine and biology journals in the Beall set, but they only represent a little more than one-third of the total. And, taking away those two fields, the DOAJ set is now the largest of the three. (The handful of medicine and biology journals that sneaked into the DOAJ set were dropped into the Miscellany category.)

Before you spend too much time with "But where's…?" here are notes on those 27 broad topics.

- **Agriculture** includes aquaculture, fisheries and other aspects of raising and processing plants and animals, including food and some aspects of nutrition.
- **Anthropology** includes archæology and sports science.
- **Arts & Architecture** includes most areas I'd consider to be in the fine arts; there are very few OA architecture journals.
- **Biology** includes most everything that has "bio" as a leading part of its topic.
- **Computer Science** includes software, data processing, AI, robotics and portions of what might be considered information science.
- **Earth Sciences** include geography, geology, oceanography, some related fields—and astronomy.
- **Ecology** includes environmental fields.
- **Economics** includes most business topics.
- **History** includes most aspects of cultural research focused on the past.
- **Language and literature** includes linguistics and a number of other fields, as well as author-specific journals and the like.
- **Law** includes forensics.
- **Library Science** includes bibliography, archives and museums and some aspects of information science.
- **Mathematics** includes statistics.
- **Media & Communications** includes film, performance, communication theory and some related fields.
- **Medicine** includes aspects of *human* health and exercise, including some aspects of nutrition.
- **Miscellany** includes those journals so broadly defined as to include most anything (including, for example, student research journals and some interdisciplinary journals) as well as the accidental bio and medicine journals in DOAJ and some fields that I couldn't find a place for. It includes some but not all "general works."
- **Political Science** includes military and defense topics.
- **Science** covers journals that cover many different sciences, including some interdisciplinary journals that appear science-focused and the various attempts at megajournals.

- **Sociology** includes a range of social sciences that didn't fit elsewhere.
- **Zoology** includes veterinary medicine as well as marine biology.

The line between engineering and technology, and the lines between those fields and physics, are frequently fuzzy; I relied on the journal's name in most cases, revisiting the sites as needed.

Topical Coverage: DOAJ Set

The brief discussions that follow include simplified APC tables with fewer brackets. Journals with unknown APCs are omitted, as are journals in Miscellany. (Thus the numbers won't necessarily match Table 2.29, which *does* include journals with unknown APCs.)

Agriculture

APC	Journals	%	Volume	%
$1,000+	2	1.2%	361	1.4%
$500-$999	6	3.7%	2,300	8.9%
$200-$499	21	13.0%	5,135	19.8%
$1-$199	19	11.7%	4,533	17.5%
None	114	70.4%	13,547	52.4%
Subtotal	162		25,876	

Table 2.30. Agriculture journals and articles

While no-fee journals dominate this topic, the percentages are lower than for the DOAJ set as a whole; most APCs are low.

Anthropology

APC	Journals	%	Volume	%
$1,000+	1	1.3%	348	7.1%
$500-$999	1	1.3%	72	1.5%
$200-$499	1	1.3%	17	0.3%
$1-$199	3	3.8%	426	8.7%
None	73	92.4%	4,040	82.4%
Subtotal	79		4,903	

Table 2.31. Anthropology journals and articles

The first social science coming after the first science-related topic offers an immediate contrast, as no-fee journals *wholly* dominate anthropology and related fields, with more than 80% of articles and more than 90% of journals. On the other hand, with half as many journals there are fewer than one-fifth as many articles; that's also not surprising.

Arts & Architecture

APC	Journals	%	Volume	%
$200-$499	1	1.3%	245	6.6%
$1-$199	1	1.3%	20	0.5%
None	78	97.5%	3,462	92.9%
Subtotal	80		3,727	

Table 2.32. Arts & architecture journals and articles

This group includes six journals primarily devoted to architectural design. Note the absence of *any* journals with high APCs. As Table 2.32 makes clear, essentially all of these journals are free for the author (including all of those devoted to architecture).

Chemistry

APC	Journals	%	Volume	%
$1,000+	3	4.3%	3,983	17.1%
$500-$999	1	1.4%	2,910	12.5%
$200-$499	3	4.3%	816	3.5%
$1-$199	10	14.3%	4,953	21.2%
None	53	75.7%	10,684	45.8%
Subtotal	70		23,346	

Table 2.33. Chemistry journals and articles

Back to the sciences—and this time journals with APCs include a majority of the articles and just under one-quarter of the journals.

Computer Science

APC	Journals	%	Volume	%
$1,000+	6	3.2%	1,283	3.4%
$500-$999	4	2.1%	410	1.1%
$200-$499	34	17.9%	17,036	44.7%
$1-$199	30	15.8%	7,748	20.3%
None	116	61.1%	11,658	30.6%
Subtotal	190		38,135	

Table 2.34 Computer Science journals and articles

In the case of computer science, software, robotics, A&I and related fields, a relatively high percentage of APC-charging journals (38.9%) publishes more than two-thirds of the articles. Most APCs are relatively modest, and journals with low APCs account for the bulk of the articles.

Earth Sciences

APC	Journals	%	Volume	%
$1,000+	4	3.9%	95	0.9%
$500-$999	4	3.9%	872	8.1%
$200-$499	5	4.9%	2,274	21.2%
$1-$199	3	2.9%	552	5.2%
None	86	84.3%	6,911	64.6%
Subtotal	102		10,704	

Table 2.35. Earth sciences journals and articles

This set of topics lands somewhere in the middle, with a distribution of journals and articles that fits neither the science nor the humanities and social sciences mold all that neatly.

Ecology

APC	Journals	%	Volume	%
$1,000+	4	4.4%	206	1.4%
$500-$999	2	2.2%	481	3.2%
$200-$499	11	12.2%	7,178	48.0%
$1-$199	17	18.9%	2,605	17.4%
None	56	62.2%	4,490	30.0%
Subtotal	90		14,960	

Table 2.36. Ecology journals and articles

Ecology, environmental science and the like shows a profile fairly similar to computer science: a little less than two-thirds no-fee journals, but APC-charging journals publish 70% of the articles, although most publishing is in journals with modest APCs. (All four of the high-priced journals here are from the same publisher, Springer.)

Economics

APC	Journals	%	Volume	%
$1,000+	2	1.0%	75	0.4%
$200-$499	16	8.2%	1,684	9.9%
$1-$199	24	12.2%	2,811	16.5%
None	154	78.6%	12,492	73.2%
Subtotal	196		17,062	

Table 2.37 Economics journals and articles

Economics (including business, management and related topics) shows a slightly higher percentage of APC-charging journals than you

might expect for social sciences—but also shows a high percentage of articles from free journals. There are no journals in the $500-$999 range, and the two high-priced journals aren't publishing much.

Education

APC	Journals	%	Volume	%
$500-$999	2	0.9%	316	2.2%
$200-$499	2	0.9%	131	0.9%
$1-$199	11	4.8%	1,188	8.1%
None	213	93.4%	13,037	88.9%
Subtotal	228		14,672	

Table 2.38. Education journals and articles

This is the largest group of journals in the trimmed DOAJ set—and nearly all the journals have either no processing charge or a very small one, with only four journals (and 3.1% of the articles) $200 or higher. The two journals at $500 and above are related to medicine or STEM.

Engineering

APC	Journals	%	Volume	%
$1,000+	4	2.8%	879	3.0%
$500-$999	6	4.3%	548	1.8%
$200-$499	16	11.3%	8,563	28.8%
$1-$199	24	17.0%	8,148	27.4%
None	91	64.5%	11,642	39.1%
Subtotal	141		29,780	

Table 2.39. Engineering journals and articles

Table 2.39 is about what you might expect: more than one-third of the journals charge fees—and those journals publish more than three out of five articles. That said, it's worth noting that there are 91 no-APC journals publishing more than 11,000 articles.

History

APC	Journals	%	Volume	%
$1,000+	1	1.1%	79	1.6%
$200-$499	1	1.1%	26	0.5%
$1-$199	1	1.1%	48	1.0%
None	88	96.7%	4,704	96.8%
Subtotal	91		4,857	

Table 2.40. History journals and articles

History is a pretty clear case of pure humanities—and if the "it's essentially all free" numbers aren't convincing enough, consider that the one more-than-$1,000 journal, with more than half of the non-free articles, could just as well be assigned to Medicine.

Language and Literature

APC	Journals	%	Volume	%
$1,000+	1	0.6%	17	0.2%
$200-$499	2	1.2%	1,970	18.2%
$1-$199	3	1.8%	1,927	17.9%
None	158	96.3%	6,881	63.7%
Subtotal	164		10,795	

Table 2.41 Language and literature journals and articles

Language and literature is an oddity: while more than 96% of the journals are no-fee Gold OA, there are five fee-charging journals with very high volume, such that fee-charging journals account for more than one-third of total volume. (All five are in language and linguistics, not literature.)

Law

APC	Journals	%	Volume	%
None	55	100.0%	2,997	100.0%
Subtotal	55		2,997	

Table 2.42. Law journals and articles

The situation with law journals is straightforward: Not one of them (in the DOAJ set) charges author-side fees.

Library Science

APC	Journals	%	Volume	%
$200-$499	1	1.9%	99	3.0%
$1-$199	1	1.9%	46	1.4%
None	50	96.2%	3,186	95.6%
Subtotal	52		3,331	

Table 2.43. Library science journals and articles

Not quite as clean as law, but similar to history—and the single journal charging (barely) more than $199 could arguably go in a different grouping. Still, with 96% free journals and just under 96% articles in those journals, this is clearly a case where free predominates.

Since it's also my field, I'm going to indulge myself by *listing* the free journals that actually published articles after 2010 (one early journal, *Journal*

of southern academic and special librarianship, ceased in 2009 after ten years of publishing). Journals are in order by…well, I'll leave that for readers to figure out.

- *Library Philosophy and Practice*
- *DESIDOC Journal of Library & Information Technology*
- *Evidence Based Library and Information Practice*
- *International Journal of Information Dissemination and Technology*
- *International Research: Journal of Library and Information Science*
- *Annals of Library & Information Studies*
- *Information Research: an international electronic journal*
- *Journal of Information Science Theory and Practice*
- *College and Research Libraries*
- *Sprouts: Working Papers on Information Systems*
- *Electronic Journal of Knowledge Management*
- *Code4Lib Journal*
- *In the Library with the Lead Pipe*
- *Collaborative Librarianship*
- *Journal of Electronic Publishing*
- *Interdisciplinary Journal of e-Learning and Learning Objects*
- *Chinese Librarianship : an International Electronic Journal*
- *International Journal of Digital Curation*
- *Journal of Library Innovation*
- *Information Technology and Libraries*
- *International Journal of Information Science and Management*
- *Ariadne*
- *E-Preservation Science*
- *International Journal of Doctoral Studies*
- *Partnership : the Canadian Journal of Library and Information Practice and Research*
- *Museum and Society*
- *South African Journal of Libraries and Information Science*
- *Virginia Libraries*
- *Journal of Librarianship and Scholarly Communication*
- *Communications in Information Literacy*
- *University Museums and Collections Journal*
- *Webology*
- *Issues in Science and Technology Librarianship : a quarterly publication of the Science and Technology Section, Association of College and Research Libraries*
- *Brazilian Journal of Information Science*
- *Journal of eScience Librarianship*

- *Library and Information Research : Research into Practice for Information & Library Services*
- *International Journal of Knowledge Content Development and Technology*
- *Journal of Information Literacy*
- *Journal of the Canadian Health Libraries Association*
- *Hipertext.net*
- *Education Libraries*

If anybody says there aren't any good Gold OA places to submit LIS articles…well, this list is a start.

Mathematics

APC	Journals	%	Volume	%
$1,000+	1	0.6%	25	0.1%
$500-$999	4	2.5%	3,706	18.6%
$200-$499	3	1.8%	415	2.1%
$1-$199	4	2.5%	409	2.1%
None	151	92.6%	15,344	77.1%
Subtotal	163		19,899	

Table 2.44. Mathematics journals and articles

Mathematics doesn't fit neatly into the sciences, and it's not usually thought of as part of the humanities—but its OA journals behave more like the humanities than like sciences, with only about 7% APC-charging journals, those journals publishing 23% of the articles.

Media & Communications

APC	Journals	%	Volume	%
$200-$499	3	5.4%	968	27.5%
$1-$199	1	1.8%	44	1.3%
None	52	92.9%	2,506	71.2%
Subtotal	56		3,518	

Table 2.45. Media & communications journals and articles

Looking more closely at two journals charging between $440 and $490 per article and publishing hundreds of articles (the third, at $200, has very few articles), it appears that they're primarily concerned with the *technology* of multimedia, not media as such. If you remove those two, the percentage of articles in non-fee journals jumps up to 96.7%, very much in line with other humanities and social sciences areas.

Philosophy

APC	Journals	%	Volume	%
$1,000+	1	1.4%	39	1.3%
$1-$199	2	2.9%	107	3.6%
None	67	95.7%	2,858	95.1%
Subtotal	70		3,004	

Table 2.46. Philosophy journals and articles

Philosophy (including ethics) offers a very typical humanities profile—all the more so when I note that the single high-priced journal could reasonably be grouped with medicine. Perhaps also worth noting that one of the two low-APC journals, publishing 81 of the 107 papers in that row, could equally well be called a no-fee journal, as it *suggests* a $20 donation.

Physics

APC	Journals	%	Volume	%
$1,000+	8	12.5%	12,582	52.4%
$500-$999	2	3.1%	230	1.0%
$200-$499	2	3.1%	1,811	7.5%
$1-$199	5	7.8%	326	1.4%
None	47	73.4%	9,075	37.8%
Subtotal	64		24,024	

Table 2.47. Physics journals and articles

I had (perhaps naïvely) anticipated a somewhat higher percentage of no-fee articles here because ArXiv is so well-established as a repository. But there's something else: I include optics as part of physics, and three relatively expensive OA publications from the Optical Society of America appear to have published more than 12,000 articles during the period studied—in other words, about half of the overall total and about 80% of the APC-charging total. (The numbers for OSA titles are approximations, but based on the page counts of the journals, I'm satisfied that they're not far off.) Without those three journals, physics looks more like mathematics, with about three-quarters of the articles appearing in no-fee journals.

Political Science

APC	Journals	%	Volume	%
$200-$499	1	1.2%	46	1.0%
$1-$199	2	2.5%	98	2.2%
None	78	96.3%	4,239	96.7%
Subtotal	81		4,383	

Table 2.48. Political science journals and articles

Political science fits squarely in the humanities and social science mold, with nearly all journals and articles no-fee. All of the military science journals, included in this broader topic, are no-fee.

Psychology

APC	Journals	%	Volume	%
$1,000+	2	4.3%	54	1.8%
$500-$999	2	4.3%	143	4.7%
$200-$499	2	4.3%	55	1.8%
$1-$199	1	2.2%	17	0.6%
None	39	84.8%	2,780	91.2%
Subtotal	46		3,049	

Table 2.49. Psychology journals and articles

So is psychology part of medicine and health, a social science or a hard science? "Yes" may be the appropriate answer, but I'd already filtered out journals that appeared to be medical in nature. For what's left, the overall profile is that of social science publishing, although it's a rare case with a *higher* percentage of articles than journals falling into the no-fee category. That's partly because most of the APC-charging journals, including the two high-priced ones (you can guess the publisher), aren't publishing many articles.

Religion

APC	Journals	%	Volume	%
$200-$499	1	2.2%	54	2.9%
None	44	97.8%	1,823	97.1%
Subtotal	45		1,877	

Table 2.50. Religion journals and articles

The single APC-charging journal is at the lowest edge of the bracket, charging $200. It's devoted to one religion; the rest are a mix of single-religion and comparative-religion journals. Clearly, the group fits the humanities and social science profile.

Science

APC	Journals	%	Volume	%
$1,000+	3	3.7%	7,995	36.6%
$500-$999	3	3.7%	53	0.2%
$200-$499	7	8.5%	1,251	5.7%
$1-$199	18	22.0%	6,635	30.4%
None	51	62.2%	5,894	27.0%
Subtotal	82		21,828	

Table 2.51. Science journals and articles

It's important to remember that "science" in this case means mostly broad multidisciplinary journals, including would-be megajournals, although it also includes a few cases where a science didn't seem to fit anywhere else. In some ways, it's surprising that more than 60% of these journals *don't* charge APCs, and less surprising that 73% of the articles are in fee-charging journals.

Sociology

APC	Journals	%	Volume	%
$1,000+	4	2.2%	330	2.4%
$500-$999	2	1.1%	94	0.7%
$200-$499	4	2.2%	885	6.5%
$1-$199	14	7.7%	2,824	20.9%
None	159	86.9%	9,393	69.4%
Subtotal	183		13,526	

Table 2.52. Sociology journals and articles

"Sociology" is a misnomer. This group includes lots of social science journals that didn't fit neatly elsewhere or were in a group too small to consider otherwise. It's somewhat anomalous for the social sciences, with more than 30% of the articles being in APC-charging journals, but it's worth noting that most of those journals charge very low fees. (The three APC-charging journals that published more than 400 articles each during this period, which in all represent more than 2,000 articles, charge $40, $30 and $30, although in one case that's a submission fee rather than an APC as such.)

Technology

APC	Journals	%	Volume	%
$1,000+	6	6.1%	1,686	8.5%
$500-$999	2	2.0%	147	0.7%
$200-$499	8	8.1%	1,162	5.9%
$1-$199	12	12.1%	3,479	17.6%
None	71	71.7%	13,338	67.3%
Subtotal	99		19,812	

Table 2.53. Technology journals and articles

This catchall group is also somewhat of anomaly for the science and technology fields, with a fairly high percentage of articles in no-fee journals.

Zoology

APC	**Journals**	%	**Volume**	%
$1,000+	3	2.7%	268	1.4%
$500-$999	5	4.4%	978	5.0%
$200-$499	13	11.5%	4,401	22.5%
$1-$199	21	18.6%	3,318	17.0%
None	71	62.8%	10,588	54.2%
Subtotal	113		19,553	

Table 2.54. Zoology journals and articles

I lumped veterinary medicine, zoology and other fields related to the study of living things other than plants and people together under "zoology"—and the resulting group is strongly in the science camp, although even here a majority of articles are in free journals.

That's it for individual topics within the DOAJ set, reiterating that I filtered out (almost all) journals on biology, biomedicine and aspects of human medicine and health. (I see no point in showing the Miscellany cluster, since it's so miscellaneous.

The missing journals

Rechecking the May 7, 2014 *DOAJ* download, it appears that there are about 1,220 journals in various aspects of medicine, biology and biomedicine that would meet my other qualifiers (English as the first identified language, not published by one of the publishers in the Beall list or OASPA). But I haven't looked at those 1,220+ journal sites, and the *DOAJ* download doesn't specify APC or article volume.

If I had to guess, I'd guess somewhere between half and 80% of those journals would have APCs, with quite a few of the APCs fairly high, and that the bulk of articles would be from the APC-charging journals. That

guess is based on the OASPA journals and, to a lesser degree, on the Beall list. But the Beall list is inherently biased toward journals that charge APCs, so the comparison may not be meaningful.

Broader Topics, All Sets

I found this exploration of topical coverage revelatory. Were my predictions correct? I won't look back at this point. Meanwhile, I think it may be somewhat revelatory to look at journals in all three sets using broader topics, essentially combining topics in Table 2.29 into eight broader groups (omitting Miscellany). Those eight groups can then be combined into three *very* broad groups.

Instead of a pure alphabetic arrangement, let's look at the eight groups arranged by the three very broad groups, starting with Bio & Med and finishing with H & SS. I'm including not only the simplified APC table used in topical coverage so far, but also article distribution tables; there's no actual duplication of information between the two.

Bio & Med

Since these were excluded from the DOAJ set, what follows includes the OASPA set and Beall set.

APC	Journals	%	Volume	%
$1,000+	400	54.7%	214,961	86.9%
$500-$999	80	10.9%	10,971	4.4%
$200-$499	40	5.5%	6,479	2.6%
$1-$199	3	0.4%	2,034	0.8%
None	208	28.5%	12,853	5.2%
Subtotal	731		247,298	

Table 2.55a. Bio & Med by APC, OASPA

APC	Journals	%	Volume	%
$1,000+	115	9.7%	8,382	10.8%
$500-$999	514	43.2%	40,076	51.5%
$200-$499	402	33.8%	10,640	13.7%
$1-$199	118	9.9%	17,621	22.6%
None	42	3.5%	1,128	1.4%
Subtotal	1,191		77,847	

Table 2.55b. Bio & Med by APC, Beall

Three observations from Tables 2.55a and 2.55b: OASPA publishers are more likely to charge higher prices but also more likely to offer no-fee journals—and, although the Beall set has many more journals (63% more),

OASPA journals publish *many* more articles (218% more, that is, more than three times as many). Let's look at articles and journals by year:

	2014	2013	2012	2011
Articles/APC	46,239	78,871	63,296	46,039
Journals/APC	501	492	447	423
Art./Jrnl./APC	92.3	160.3	141.6	108.8
Articles/Free	2,179	3,524	4,266	2,884
Journals/Free	200	173	123	104
Art./Jrnl.	10.9	20.4	34.7	27.7
Free Articles	4.5%	4.3%	6.3%	5.9%
Free Journals	28.5%	26.0%	21.6%	19.7%

Table 2.55c. Bio & Med distribution, OASPA

	2014	2013	2012	2011
Articles/APC	15,650	27,233	20,484	13,352
Journals/APC	897	988	598	432
Art./Jrnl./APC	17.4	27.6	34.3	30.9
Articles/Free	303	362	282	181
Journals/Free	35	24	17	12
Art./Jrnl.	8.7	15.1	16.6	15.1
Free Articles	1.9%	1.3%	1.4%	1.3%
Free Journals	3.8%	2.4%	2.8%	2.7%

Table 2.55d, Bio & Med distribution, Beall

The Beall journals with APCs don't publish many more articles per journal than the free OASPA journals, which publish far few articles per journal than OASPA journals with APCs. Note the rapid growth in Beall APC-charging journals between 2011 and 2013. To the extent that many of the Beall publishers *are* questionable, the term "gold rush" springs to mind.

Biology

APC	Journals	%	Volume	%
$1,000+	84	61.8%	36,646	89.4%
$500-$999	10	7.4%	1,245	3.0%
$200-$499	7	5.1%	600	1.5%
$1-$199		0.0%		0.0%
None	35	25.7%	2,488	6.1%
Subtotal	136		40,979	

Table 2.56a. Biology by APC, OASPA

APC	Journals	%	Volume	%
$1,000+	13	6.2%	815	4.4%
$500-$999	81	38.6%	13,118	70.4%
$200-$499	83	39.5%	1,597	8.6%
$1-$199	22	10.5%	2,810	15.1%
None	11	5.2%	292	1.6%
Subtotal	210		18,632	

Table 2.56b. Biology by APC, Beall

The differences aren't quite as extreme for biology and biomed journals, but it's still true that Beall has considerably more journals (95% of them with APCs) than OASPA (75% with APCs) but OASPA journals published many more articles.

	2014	2013	2012	2011
Articles/APC	8,256	11,382	10,060	8,793
Journals/APC	96	98	92	81
Art./Jrnl./APC	86.0	116.1	109.3	108.6
Articles/Free	539	774	701	474
Journals/Free	33	32	23	17
Art./Jrnl.	16.3	24.2	30.5	27.9
Free Articles	6.1%	6.4%	6.5%	5.1%
Free Journals	25.6%	24.6%	20.0%	17.3%

Table 2.56c. Biology distribution, OASPA

	2014	2013	2012	2011
Articles/APC	2,990	5,406	5,291	4,653
Journals/APC	145	174	104	69
Art./Jrnl./APC	20.6	31.1	50.9	67.4
Articles/Free	63	68	58	43
Journals/Free	11	6	5	3
Art./Jrnl.	5.7	11.3	11.6	14.3
Free Articles	2.1%	1.2%	1.1%	0.9%
Free Journals	7.1%	3.3%	4.6%	4.2%

Table 2.56d. Biology distribution, Beall

I see less of a gold rush here.

Medicine

APC	Journals	%	Volume	%
$1,000+	316	53.1%	178,315	86.4%
$500-$999	70	11.8%	9,726	4.7%
$200-$499	33	5.5%	5,879	2.8%
$1-$199	3	0.5%	2,034	1.0%
None	173	29.1%	10,365	5.0%
Subtotal	595		206,319	

Table 2.57a. Medicine by APC, OASPA

APC	Journals	%	Volume	%
$1,000+	102	10.4%	7,567	12.8%
$500-$999	433	44.1%	26,958	45.5%
$200-$499	319	32.5%	9,043	15.3%
$1-$199	96	9.8%	14,811	25.0%
None	31	3.2%	896	1.5%
Subtotal	981		59,275	

Table 2.57b. Medicine by APC, Beall

The differences here are accentuated versions of those for biology and medicine combined; the 316 high-priced OASPA journals published three times as many papers as all 981 of the Beall journals.

	2014	2013	2012	2011
Articles/APC	37,983	67,489	53,236	37,246
Journals/APC	405	394	354	342
Art./Jrnl./APC	93.8	171.3	150.4	108.9
Articles/Free	1,640	2,750	3,565	2,410
Journals/Free	167	141	100	87
Art./Jrnl.	9.8	19.5	35.7	27.7
Free Articles	4.1%	3.9%	6.3%	6.1%
Free Journals	29.2%	26.4%	22.0%	20.3%

Table 2.57c. Medicine distribution, OASPA

	2014	2013	2012	2011
Articles/APC	12,660	21,827	15,193	8,699
Journals/APC	751	814	494	363
Art./Jrnl./APC	16.9	26.8	30.8	24.0
Articles/Free	240	294	224	138
Journals/Free	24	18	12	9
Art./Jrnl.	10.0	16.3	18.7	15.3
Free Articles	1.9%	1.3%	1.5%	1.6%
Free Journals	3.1%	2.2%	2.4%	2.4%

Table 2.57d. Medicine distribution, Beall

This may be a good place to note that free journals are based on *current* status; some of these may have had APCs in previous years.

STEM: Science, Technology, Engineering and Mathematics

With "science" excluding biology, biochemistry and other bio- sciences.

APC	Journals	%	Volume	%
$1,000+	44	3.4%	29,363	11.8%
$500-$999	39	3.1%	12,635	5.1%
$200-$499	123	9.6%	50,042	20.2%
$1-$199	163	12.8%	42,706	17.2%
None	907	71.1%	113,171	45.6%
Subtotal	1,276		247,917	

Table 2.58a. STEM by APC, DOAJ

APC	Journals	%	Volume	%
$1,000+	88	23.3%	55,984	73.9%
$500-$999	51	13.5%	5,759	7.6%
$200-$499	23	6.1%	3,420	4.5%
$1-$199	1	0.3%	49	0.1%
None	214	56.8%	10,497	13.9%
Subtotal	377		75,709	

Table 2.58b. STEM by APC, OASPA

APC	Journals	%	Volume	%
$1,000+	14	0.9%	666	0.5%
$500-$999	500	32.2%	36,014	25.8%
$200-$499	636	41.0%	30,897	22.1%
$1-$199	305	19.7%	68,619	49.1%
None	96	6.2%	3,595	2.6%
Subtotal	1,551		139,791	

Table 2.58c. STEM by APC, Beall

While there are almost as many STEM journals in the Beall set as in DOAJ and OASPA combined (most OASPA journals *are* in *DOAJ*, but not in the subset studied), the DOAJ and OASPA journals publish more than twice as many articles.

No-fee journals account for seven out of ten in the DOAJ set and more than half of the OASPA set, but most articles are from APC-charging journals (the vast majority for OASPA). As you'd expect, there are very few free journals and even fewer (percentage-wise) free articles in the Beall set.

It's also interesting that there are some 132 journals between DOAJ and OASPA charging $1,000 or more—but only 14 in the Beall set. For that matter, consider where the bulk of articles from Beall journals appear: very nearly half are in journals with nominal APCs (less than $200). Of course, if journals are serving primarily developing nations, those APCs may not be quite so nominal.

	2014	2013	2012	2011
Articles/APC	25,076	45,792	37,047	26,831
Journals/APC	326	360	338	268
Art./Jrnl./APC	76.9	127.2	109.6	100.1
Articles/Free	16,867	35,868	31,774	28,662
Journals/Free	729	876	863	796
Art./Jrnl.	23.1	40.9	36.8	36.0
Free Articles	40.2%	43.9%	46.2%	51.6%
Free Journals	69.1%	70.9%	71.9%	74.8%

Table 2.58d. STEM distribution, DOAJ

	2014	2013	2012	2011
Articles/APC	16,355	20,516	17,404	10,937
Journals/APC	158	149	125	114
Art./Jrnl./APC	103.5	137.7	139.2	95.9
Articles/Free	2,084	3,398	2,921	2,094
Journals/Free	204	180	100	78
Art./Jrnl.	10.2	18.9	29.2	26.8
Free Articles	11.3%	14.2%	14.4%	16.1%
Free Journals	56.4%	54.7%	44.4%	40.6%

Table 2.58e. STEM distribution, OASPA

	2014	2013	2012	2011
Articles/APC	28,465	49,796	37,139	20,886
Journals/APC	1,141	1,240	771	525
Art./Jrnl./APC	24.9	40.2	48.2	39.8
Articles/Free	862	1,225	746	762
Journals/Free	79	62	44	28
Art./Jrnl.	10.9	19.8	17.0	27.2
Free Articles	2.9%	2.4%	2.0%	3.5%
Free Journals	6.5%	4.8%	5.4%	5.1%

Table 2.58f. STEM distribution, Beall

I see a similar gold-rush pattern in APC-charging Beall journals, although not as extreme as for medicine. Still, more than twice as many of these journals published articles in 2013 as in 2011, while the growth in journals from 2011 to 2013 was much smaller in the DOAJ and OASPA subsets. It's interesting that the percentage of no-fee journals grew over time for OASPA while shrinking slightly for DOAJ. A (bare) majority of DOAJ articles were from no-fee journals in 2011, but that percentage fell to roughly 40% by 2014.

Earth and Life Sciences

This group includes agriculture (and allied sciences), earth sciences (including geology and geography), ecology (including environmental science) and zoology (including veterinary medicine).

APC	Journals	%	Volume	%
$1,000+	13	2.8%	930	1.3%
$500-$999	17	3.6%	4,631	6.5%
$200-$499	50	10.7%	18,988	26.7%
$1-$199	60	12.8%	11,008	15.5%
None	327	70.0%	35,536	50.0%
Subtotal	467		71,093	

Table 2.59a. Earth & life sciences by APC, DOAJ

APC	Journals	%	Volume	%
$1,000+	34	29.8%	7,976	52.6%
$500-$999	11	9.6%	1,628	10.7%
$200-$499	13	11.4%	2,470	16.3%
$1-$199	1	0.9%	49	0.3%
None	55	48.2%	3,038	20.0%
Subtotal	114		15,161	

Table 2.59b. Earth & life sciences by APC, OASPA

APC	Journals	%	Volume	%
$1,000+	9	1.7%	410	1.5%
$500-$999	230	44.5%	16,608	60.7%
$200-$499	206	39.8%	4,766	17.4%
$1-$199	58	11.2%	5,313	19.4%
None	14	2.7%	272	1.0%
Subtotal	517		27,369	

Table 2.59c. Earth & life sciences by APC, Beall

Here's a case where, for the non-OASPA/non-Beall journals in DOAJ, *exactly* half of the articles come from no-fee journals (but fee-charging journals still tend to have more articles per journal). For this group, but not true for STEM overall, most articles in the Beall group appear in moderately expensive journals, those charging $500 to $999.

	2014	2013	2012	2011
Articles/APC	5,247	11,282	10,118	8,910
Journals/APC	121	139	130	115
Art./Jrnl./APC	43.4	81.2	77.8	77.5
Articles/Free	4,847	11,149	10,082	9,458
Journals/Free	256	313	311	297
Art./Jrnl.	18.9	35.6	32.4	31.8
Free Articles	48.0%	49.7%	49.9%	51.5%
Free Journals	67.9%	69.2%	70.5%	72.1%

Table 2.59d. Earth & life sciences distribution, DOAJ

	2014	2013	2012	2011
Articles/APC	2,599	4,085	3,353	2,086
Journals/APC	57	52	45	38
Art./Jrnl./APC	45.6	78.6	74.5	54.9
Articles/Free	653	945	844	547
Journals/Free	51	41	27	20
Art./Jrnl.	12.8	23.0	31.3	27.4
Free Articles	20.1%	18.8%	20.1%	20.8%
Free Journals	47.2%	44.1%	37.5%	34.5%

Table 2.59e. Earth & life sciences distribution, OASPA

	2014	2013	2012	2011
Articles/APC	5,413	10,519	6,611	4,554
Journals/APC	379	421	227	155
Art./Jrnl./APC	14.3	25.0	29.1	29.4
Articles/Free	84	57	59	72
Journals/Free	11	6	4	4
Art./Jrnl.	7.6	9.5	14.8	18.0
Free Articles	1.5%	0.5%	0.9%	1.6%
Free Journals	2.8%	1.4%	1.7%	2.5%

Table 2.59f. Earth & life sciences distribution, Beall

From 155 in 2011 to 421 in 2013: there's the journal gold rush again. Oddly, the number of *free* OASPA journals grew significantly (but remains small with few articles), while journal count didn't change very much for DOAJ.

Engineering and Technology

APC	Journals	%	Volume	%
$1,000+	10	4.2%	2,565	5.2%
$500-$999	8	3.3%	695	1.4%
$200-$499	24	10.0%	9,725	19.6%
$1-$199	36	15.0%	11,627	23.4%
None	162	67.5%	24,980	50.4%
Subtotal	240		49,592	

Table 2.60a. Engineering & Technology by APC, DOAJ

APC	Journals	%	Volume	%
$1,000+	11	15.9%	8,273	68.1%
$500-$999	10	14.5%	1,139	9.4%
$200-$499	4	5.8%	329	2.7%
None	44	63.8%	2,409	19.8%
Subtotal	69		12,150	

Table 2.60b. Eng. & Tech. by APC, OASPA

APC	Journals	%	Volume	%
$500-$999	100	28.2%	4,760	10.1%
$200-$499	166	46.9%	6,557	13.9%
$1-$199	67	18.9%	34,739	73.6%
None	21	5.9%	1,117	2.4%
Subtotal	354		47,173	

Table 2.60c. Eng. & Tech. by APC, Beall

In this group, a slight majority of articles in DOAJ journals were in no-fee journals, and such journals represent roughly two-thirds of both DOAJ and OASPA journals—but only one-fifth of the OASPA articles are in no-fee journals. There were no very cheap OASPA journals or very expensive Beall journals, and note where the majority of each group's articles appear.

	2014	2013	2012	2011
Articles/APC	4,379	9,333	6,581	4,319
Journals/APC	70	77	70	50
Art./Jrnl./APC	62.6	121.2	94.0	86.4
Articles/Free	4,391	8,110	6,500	5,917
Journals/Free	136	156	154	137
Art./Jrnl.	32.3	52.0	42.2	43.2
Free Articles	50.1%	46.5%	49.7%	57.8%
Free Journals	66.0%	67.0%	68.8%	73.3%

Table 2.60d. Eng. & Tech. distribution, DOAJ

	2014	2013	2012	2011
Articles/APC	2,337	2,968	2,866	1,570
Journals/APC	25	25	21	20
Art./Jrnl./APC	93.5	118.7	136.5	78.5
Articles/Free	385	868	639	517
Journals/Free	44	41	23	17
Art./Jrnl.	8.8	21.2	27.8	30.4
Free Articles	14.1%	22.6%	18.2%	24.8%
Free Journals	63.8%	62.1%	52.3%	45.9%

Table 2.60e. Eng. & Tech. distribution, OASPA

	2014	2013	2012	2011
Articles/APC	11,894	18,065	11,860	4,237
Journals/APC	271	284	190	115
Art./Jrnl./APC	43.9	63.6	62.4	36.8
Articles/Free	319	457	175	166
Journals/Free	18	15	12	6
Art./Jrnl.	17.7	30.5	14.6	27.7
Free Articles	2.6%	2.5%	1.5%	3.8%
Free Journals	6.2%	5.0%	5.9%	5.0%

Table 2.60f. Eng. & Tech. distribution, Beall

The percentage of free articles within DOAJ journals drops to just under half in 2012 and 2013—but climbs back (just) over the halfway mark for the first half of 2014. Meanwhile, as is true almost everywhere, APC-charging journals publish more articles per journal than fee-free ones—and Beall APC-charging journals publish fewer articles per journal than other such journals.

What I *don't* see here: a gold-rush pattern. That may be because engineering and technology don't have as much gold to offer.

Math and Computing

APC	Journals	%	Volume	%
$1,000+	7	2.0%	1,308	2.3%
$500-$999	8	2.3%	4,116	7.1%
$200-$499	37	10.5%	17,451	30.1%
$1-$199	34	9.6%	8,157	14.1%
None	267	75.6%	27,002	46.5%
Subtotal	353		58,034	

Table 2.61a. Math & computing by APC, DOAJ

APC	Journals	%	Volume	%
$1,000+	10	12.8%	14,723	78.1%
$500-$999	12	15.4%	1,739	9.2%
$200-$499	3	3.8%	279	1.5%
None	53	67.9%	2,115	11.2%
Subtotal	78		18,856	

Table 2.61b. Math & computing by APC, OASPA

APC	Journals	%	Volume	%
$1,000+	3	0.8%	210	0.5%
$500-$999	86	21.9%	5,942	15.6%
$200-$499	138	35.1%	11,688	30.6%
$1-$199	125	31.8%	18,537	48.5%
None	41	10.4%	1,814	4.7%
Subtotal	393		38,191	

Table 2.61c. Math & computing by APC, Beall

This is a case where the three-quarters of DOAJ journals without fees publish less than half of the articles—and where DOAJ & OASPA combined account for more than twice the articles of the Beall group with a little more than 10% more journals. The OASPA journals may be an extreme case: more than two-thirds of the journals don't charge fees, but those journals account for only one-ninth of the articles.

	2014	2013	2012	2011
Articles/APC	6,087	10,584	9,338	5,023
Journals/APC	77	85	78	57
Art./Jrnl./APC	79.1	124.5	119.7	88.1
Articles/Free	3,992	8,555	7,807	6,648
Journals/Free	213	260	255	235
Art./Jrnl.	18.7	32.9	30.6	28.3
Free Articles	39.6%	44.7%	45.5%	57.0%
Free Journals	73.4%	75.4%	76.6%	80.5%

Table 2.61d. Math & computing distribution, DOAJ

	2014	2013	2012	2011
Articles/APC	4,740	5,208	4,410	2,383
Journals/APC	24	25	19	18
Art./Jrnl./APC	197.5	208.3	232.1	132.4
Articles/Free	411	608	602	494
Journals/Free	49	45	24	20
Art./Jrnl.	8.4	13.5	25.1	24.7
Free Articles	8.0%	10.5%	12.0%	17.2%
Free Journals	67.1%	64.3%	55.8%	52.6%

Table 2.61e. Math & computing distribution, OASPA

	2014	2013	2012	2011
Articles/APC	6,298	11,792	11,242	7,045
Journals/APC	278	311	218	153
Art./Jrnl./APC	22.7	37.9	51.6	46.0
Articles/Free	345	534	441	494
Journals/Free	33	27	21	15
Art./Jrnl.	10.5	19.8	21.0	32.9
Free Articles	5.2%	4.3%	3.8%	6.6%
Free Journals	10.6%	8.0%	8.8%	8.9%

Table 2.61f. Math & computing distribution, Beall

I'm not sure what to say about these tables.

Other Sciences (Chemistry, Physics, "Science")

APC	Journals	%	Volume	%
$1,000+	14	6.5%	24,560	35.5%
$500-$999	6	2.8%	3,183	4.6%
$200-$499	12	5.6%	3,878	5.6%
$1-$199	33	15.3%	11,914	17.2%
None	151	69.9%	25,653	37.1%
Subtotal	216		69,188	

Table 2.62a. Other sciences by APC, DOAJ

APC	Journals	%	Volume	%
$1,000+	33	28.2%	25,012	84.4%
$500-$999	18	15.4%	1,289	4.4%
$200-$499	3	2.6%	342	1.2%
None	63	53.8%	2,984	10.1%
Subtotal	117		29,627	

Table 2.62b. Other sciences by APC, OASPA

APC	Journals	%	Volume	%
$1,000+	2	0.7%	46	0.2%
$500-$999	84	29.3%	8,794	32.4%
$200-$499	126	43.9%	7,886	29.0%
$1-$199	55	19.2%	10,030	36.9%
None	20	7.0%	392	1.4%
Subtotal	287		27,148	

Table 2.62c. Other sciences by APC, Beall

This group has a distinctly lower percentage of articles in no-fee journals (in the DOAJ group) than most science subsets, and maybe that's not surprising. A majority of OASPA journals are free—but those journals publish barely one-tenth of the articles, and article publication is dominated by high-APC journals.

	2014	2013	2012	2011
Articles/APC	9,363	14,593	11,010	8,579
Journals/APC	58	59	60	46
Art./Jrnl./APC	161.4	247.3	183.5	186.5
Articles/Free	3,628	8,033	7,366	6,626
Journals/Free	124	147	143	127
Art./Jrnl.	29.3	54.6	51.5	52.2
Free Articles	27.9%	35.5%	40.1%	43.6%
Free Journals	68.1%	71.4%	70.4%	73.4%

Table 2.62d. Other sciences distribution, DOAJ

	2014	2013	2012	2011
Articles/APC	6,679	8,255	6,775	4,898
Journals/APC	52	47	40	38
Art./Jrnl./APC	128.4	175.6	169.4	128.9
Articles/Free	635	977	836	536
Journals/Free	60	53	26	21
Art./Jrnl.	10.6	18.4	32.2	25.5
Free Articles	8.7%	10.6%	11.0%	9.9%
Free Journals	53.6%	53.0%	39.4%	35.6%

Table 2.62e. Other sciences distribution, OASPA

	2014	2013	2012	2011
Articles/APC	4,860	9,420	7,426	5,050
Journals/APC	212	224	136	102
Art./Jrnl./APC	22.9	42.1	54.6	49.5
Articles/Free	114	177	71	30
Journals/Free	17	14	7	3
Art./Jrnl.	6.7	12.6	10.1	10.0
Free Articles	2.3%	1.8%	0.9%	0.6%
Free Journals	7.4%	5.9%	4.9%	2.9%

Table 2.62f. Other sciences distribution, Beall

The steady decline in free percentages of journals and articles in DOAJ is interesting, as is the sudden doubling of free OASPA journals that actually published articles in 2013—a doubling accompanied by an increase of less than 20% in article count.

Humanities and Social Sciences

APC	Journals	%	Volume	%
$1,000+	11	0.8%	594	0.6%
$500-$999	8	0.6%	973	1.1%
$200-$499	35	2.5%	6,180	6.7%
$1-$199	63	4.4%	9,546	10.4%
None	1,309	91.8%	74,408	81.1%
Subtotal	1,426		91,701	

Table 2.63a. HSS by APC, DOAJ

APC	Journals	%	Volume	%
$1,000+	14	11.1%	4,208	46.4%
$500-$999	3	2.4%	161	1.8%
$200-$499	14	11.1%	576	6.4%
$1-$199	4	3.2%	655	7.2%
None	91	72.2%	3,462	38.2%
Subtotal	126		9,062	

Table 2.63b. HSS by APC, OASPA

APC	Journals	%	Volume	%
$1,000+	2	0.3%	129	0.3%
$500-$999	142	21.2%	10,420	25.1%
$200-$499	357	53.3%	16,036	38.6%
$1-$199	146	21.8%	14,413	34.7%
None	23	3.4%	557	1.3%
Subtotal	670		41,555	

Table 2.63c. HSS by APC, OASPA

More than eight out of ten articles in more than nine out of ten fee-free journals: that's the essential message for humanities and social science within DOAJ, or at least most of it—noting that OASPA's HSS journals have less than one-tenth as many articles and that those in the Beall set provide considerably fewer than half as many.

	2014	2013	2012	2011
Articles/APC	3,335	5,651	4,671	3,646
Journals/APC	99	114	100	79
Art./Jrnl./APC	33.7	49.6	46.7	46.2
Articles/Free	9,308	22,375	22,726	19,991
Journals/Free	880	1,210	1,217	1,123
Art./Jrnl.	10.6	18.5	18.7	17.8
Free Articles	73.6%	79.8%	83.0%	84.6%
Free Journals	89.9%	91.4%	92.4%	93.4%

Table 2.63d. HSS distribution, DOAJ

	2014	2013	2012	2011
Articles/APC	1,902	3,248	2,422	1,490
Journals/APC	98	121	100	71
Art./Jrnl./APC	19.4	26.8	24.2	21.0
Articles/Free	613	1,163	1,021	665
Journals/Free	66	89	71	48
Art./Jrnl.	9.3	13.1	14.4	13.9
Free Articles	24.4%	26.4%	29.7%	30.9%
Free Journals	40.2%	42.4%	41.5%	40.3%

Table 2.63e. HSS distribution, OASPA

	2014	2013	2012	2011
Articles/APC	9,501	15,399	10,326	5,772
Journals/APC	511	561	309	194
Art./Jrnl./APC	18.6	27.4	33.4	29.8
Articles/Free	111	226	101	119
Journals/Free	19	14	7	5
Art./Jrnl.	5.8	16.1	14.4	23.8
Free Articles	1.2%	1.4%	1.0%	2.0%
Free Journals	3.6%	2.4%	2.2%	2.5%

Table 2.63f. HSS distribution, Beall

That there are very few no-fee journals or articles in the Beall set says a lot about the nature of the Beall set; it's interesting that even here there's a huge growth in number of journals between 2011 and 2013. The percentage of articles in APC-charging journals grew somewhat (in the DOAJ set) from 2011 to 2014, but it's still around 90%.

HSS is still two fairly distinct subgroups of subjects. Let's look at the two subgroups separately.

Humanities

This group includes art & architecture, history, language & literature, media & communications, philosophy, and religion.

APC	Journals	%	Volume	%
$1,000+	3	0.6%	135	0.5%
$200-$499	8	1.6%	3,263	11.7%
$1-$199	8	1.6%	2,146	7.7%
None	487	96.2%	22,234	80.0%
Subtotal	506		27,778	

Table 2.64a. Humanities by APC, DOAJ

APC	Journals	%	Volume	%
$1,000+	1	2.8%	87	6.2%
$200-$499	4	11.1%	285	20.4%
None	31	86.1%	1,027	73.4%
Subtotal	36		1,399	

Table 2.64b. Humanities by APC, OASPA

APC	Journals	%	Volume	%
$500-$999	19	15.6%	892	17.4%
$200-$499	73	59.8%	2,481	48.4%
$1-$199	23	18.9%	1,645	32.1%
None	7	5.7%	111	2.2%
Subtotal	122		5,129	

Table 2.64c. Humanities by APC, Beall

Perhaps surprisingly, the percentage of *articles* from no-fee journals is a little lower for the humanities—but the percentage of free journals is higher, in the "nearly all" category. There are too few huamnities articles in OASPA and Beall to discuss.

	2014	2013	2012	2011
Articles/APC	1,097	1,939	1,430	1,078
Journals/APC	18	19	16	13
Art./Jrnl./APC	60.9	102.1	89.4	82.9
Articles/Free	2,708	6,470	6,988	6,068
Journals/Free	294	433	448	421
Art./Jrnl.	9.2	14.9	15.6	14.4
Free Articles	71.2%	76.9%	83.0%	84.9%
Free Journals	94.2%	95.8%	96.6%	97.0%

Table 2.64d. Humanities distribution, DOAJ

	2014	2013	2012	2011
Articles/APC	61	120	124	84
Journals/APC	6	6	5	4
Art./Jrnl./APC	10.2	20.0	24.8	21.0
Articles/Free	124	378	299	226
Journals/Free	15	30	23	18
Art./Jrnl.	8.3	12.6	13.0	12.6
Free Articles	67.0%	75.9%	70.7%	72.9%
Free Journals	71.4%	83.3%	82.1%	81.8%

Table 2.64e. Humanities distribution, OASPA

	2014	2013	2012	2011
Articles/APC	1,358	2,002	1,143	515
Journals/APC	88	95	52	31
Art./Jrnl./APC	15.4	21.1	22.0	16.6
Articles/Free	19	36	24	32
Journals/Free	4	4	2	2
Art./Jrnl.	4.8	9.0	12.0	16.0
Free Articles	1.4%	1.8%	2.1%	5.9%
Free Journals	4.3%	4.0%	3.7%	6.1%

Table 2.64f. Humanities distribution, Beall

While two-thirds or more of humanities articles are in no-fee journals in the OASPA set, that's never more than 378 articles, so it's not a big deal. In general, journals here have fewer articles per journal per year than in the sciences or medicine.

Social Sciences

This group includes anthropology (and related sciences), economics and business, law, library science, political science, psychology, and sociology.

APC	Journals	%	Volume	%
$1,000+	8	0.9%	459	0.7%
$500-$999	8	0.9%	973	1.5%
$200-$499	27	2.9%	2,917	4.6%
$1-$199	56	6.1%	7,410	11.6%
None	821	89.2%	52,164	81.6%
Subtotal	920		63,923	

Table 2.65a. Social science by APC, DOAJ

APC	Journals	%	Volume	%
$1,000+	13	14.6%	4,121	53.9%
$500-$999	3	3.4%	161	2.1%
$200-$499	9	10.1%	274	3.6%
$1-$199	4	4.5%	655	8.6%
None	60	67.4%	2,435	31.8%
Subtotal	89		7,646	

Table 2.65b. Social science by APC, OASPA

APC	Journals	%	Volume	%
$1,000+	2	0.4%	129	0.4%
$500-$999	123	22.4%	9,528	26.2%
$200-$499	284	51.8%	13,555	37.2%
$1-$199	123	22.4%	12,768	35.1%
None	16	2.9%	446	1.2%
Subtotal	548		36,426	

Table 2.65c. Social science by APC, Beall

Two-thirds of the OASPA social science journals don't charge APCs—but those that do publish more than two-thirds of the articles. But that's a small group, less than one-sixth as many articles (and one-tenth as many journals) as in the DOAJ set, where more than eight of ten articles and nearly nine of ten journals are fee-free.

	2014	2013	2012	2011
Articles/APC	1,150	2,371	2,045	1,686
Journals/APC	59	72	62	49
Art./Jrnl./APC	19.5	32.9	33.0	34.4
Articles/Free	7,688	17,246	16,934	14,805
Journals/Free	608	800	791	719
Art./Jrnl.	12.6	21.6	21.4	20.6
Free Articles	87.0%	87.9%	89.2%	89.8%
Free Journals	91.2%	91.7%	92.7%	93.6%

Table 2.65d. Social science distribution, DOAJ

	2014	2013	2012	2011
Articles/APC	1,228	1,965	1,277	741
Journals/APC	26	26	24	19
Art./Jrnl./APC	47.2	75.6	53.2	39.0
Articles/Free	489	785	722	439
Journals/Free	51	59	48	30
Art./Jrnl.	9.6	13.3	15.0	14.6
Free Articles	28.5%	28.5%	36.1%	37.2%
Free Journals	66.2%	69.4%	66.7%	61.2%

Table 2.65e Social science distribution, OASPA

	2014	2013	2012	2011
Articles/APC	8,143	13,397	9,183	5,257
Journals/APC	423	466	257	163
Art./Jrnl./APC	19.3	28.7	35.7	32.3
Articles/Free	92	190	77	87
Journals/Free	15	10	5	3
Art./Jrnl.	6.1	19.0	15.4	29.0
Free Articles	1.1%	1.4%	0.8%	1.6%
Free Journals	3.4%	2.1%	1.9%	1.8%

Table 2.65f. Social science distribution, Beall

These last three tables may not show a lot new.

Cost per Article by Topic

The differences between topics may be viewed another way: what's the average cost per article for *all* articles on that topic within a set?

The tables that follow omit journals with unknown APCs (where it appears that they *should* have APCs). They're based on the same simplifying assumptions used elsewhere:

- That there are no waivers or discounts (making the average cost higher than it really is)
- That the APC was always the same as it is now (no other assumption is feasible).

Subject	$/article	Articles
Physics	$941.36	24,024
Science	$537.29	21,828
Chemistry	$299.53	23,346
Miscellany	$248.66	2,849
Computer science	$231.92	38,135
Ecology	$212.25	14,960
Mathematics	$176.16	19,899
Technology	$170.09	19,812
Engineering	$163.80	29,780
Zoology	$142.54	19,553
Agriculture	$140.82	25,876
Earth Sciences	$134.89	10,704
Media & Communications	$124.40	3,518
Anthropology	$85.43	4,903
Language and literature	$80.14	10,795
Sociology	$66.57	13,526
Psychology	$59.44	3,049
Economics	$46.37	17,062
Education	$30.63	14,672
History	$21.62	4,857
Philosophy	$18.52	3,004
Arts & Architecture	$13.31	3,727
Library Science	$8.64	3,331
Religion	$5.75	1,877
Political Science	$3.05	4,383
Law	$0.00	2,997

Table 2.66a. Average cost per article, DOAJ

It's a well-structured list: hard sciences at the top, computing and math below, engineering and technology next, earth and life sciences at the bottom of the STEM portion—and then a mixture of humanities and social sciences, with only one of them exceeding $100 per article and most under $50.

Here's a case where I do wonder what those other 1,220+ DOAJ journals (in medical and biological fields and not in OASPA or Beall) would reveal. Would medicine's average cost per article be higher than physics?

Subject	$/article	Articles
Psychology	$2,106.37	2,913
Biology	$1,840.96	40,979
Technology	$1,780.43	3,721
Medicine	$1,554.96	206,319
Chemistry	$1,450.64	13,425
Agriculture	$1,327.97	6,403
Philosophy	$1,160.00	102
Physics	$1,142.24	7,249
Science	$1,118.24	8,917
Anthropology	$1,102.33	459
Mathematics	$1,052.08	14,810
Zoology	$1,035.75	4,734
Computer science	$902.64	4,046
Engineering	$891.44	8,429
Ecology	$879.49	1,985
Earth Sciences	$742.54	1,990
Sociology	$572.32	2,042
Religion	$215.78	299
Political Science	$212.41	318
Education	$181.50	739
Miscellany	$161.45	1,229
Economics	$106.16	662
Arts & Architecture	$95.60	277
Media & Communications	$35.69	131
History	$15.79	450
Language and Literature	$0.00	157
Law	$0.00	407
Library science	$0.00	106

Table 2.66b. Average cost per article, OASPA

Perhaps not—surprisingly, among OASPA journals, psychology, biology and technology all show higher average prices than medicine, and one humanities field (with a tiny number of articles) is among the most expensive. Of course, the numbers are much smaller, but that's still an interesting discrepancy. At the bottom of the table, the numbers of articles are too small to indicate much.

Subject	$/article	Articles
Law	$592.31	633
Medicine	$591.77	59,275
Biology	$570.68	18,572
Earth Sciences	$538.36	3,846
Philosophy	$533.39	224
Anthropology	$519.19	136
Agriculture	$512.49	14,145
Physics	$503.74	8,199
Psychology	$492.62	1,411
Ecology	$478.13	7,614
Zoology	$465.21	1,764
Library Science	$392.33	245
History	$382.67	266
Mathematics	$365.20	11,486
Chemistry	$352.39	4,125
Education	$323.61	7,160
Economics	$308.31	20,000
Religion	$300.00	1
Arts & Architecture	$284.52	607
Media & Communications	$277.07	701
Political Science	$263.38	1,642
Science	$241.18	14,824
Sociology	$237.91	5,199
Technology	$233.32	11,034
Language and Literature	$231.96	3,330
Computer Science	$212.34	26,705
Engineering	$175.05	36,139
Miscellany	$91.94	6,009

Table 2.66c. Average cost per article, Beall

The first line of Table 2.66c is a little bizarre—and sends me back to the list of journals, where I see three forensics journals with the highest APCs for law journals. Still, the ability of some possibly-questionable journals to collect APCs in a field where DOAJ journals in general don't attempt to do so, including those published by OASPA members, is striking and possibly sad.

The prices are much more narrowly clustered for the Beall set (where, dropping the bottom three and top three figures, the range is only 2.32:1 or $538.36 to $231.96) than for OASPA (where, dropping the bottom three and top three) the range is 98.5:1 or $1,554.96 to $15.79).

DOAJ falls somewhere in the middle, with a broader range of (generally lower) prices than Beall but a narrower range and ratio than OASPA. Dropping the bottom three and top three, the range is 34.7:1 ($248.66 to $8.64).

My guess is that the medical journals that make up most of the missing 1,220+ DOAJ journals would tend to have more and higher APCs than most of what's currently in the DOAJ set, but I can't be sure of that.

I'm guessing some readers are looking at the rightmost column in Tables 2.66a-c and wishing they could reorder the tables by number of articles. Here are the same three tables, reordered so that the largest volume of articles appears first.

Subject	$/article	Articles
Computer science	$231.92	38,135
Engineering	$163.80	29,780
Agriculture	$140.82	25,876
Physics	$941.36	24,024
Chemistry	$299.53	23,346
Science	$537.29	21,828
Mathematics	$176.16	19,899
Technology	$170.09	19,812
Zoology	$142.54	19,553
Economics	$46.37	17,062
Ecology	$212.25	14,960
Education	$30.63	14,672
Sociology	$66.57	13,526
Language and literature	$80.14	10,795
Earth Sciences	$134.89	10,704
Anthropology	$85.43	4,903
History	$21.62	4,857
Political Science	$3.05	4,383
Arts & Architecture	$13.31	3,727
Media & Communications	$124.40	3,518
Library Science	$8.64	3,331
Psychology	$59.44	3,049
Philosophy	$18.52	3,004
Law	$0.00	2,997
Miscellany	$248.66	2,849
Religion	$5.75	1,877

Table 2.67a. Topics by number of articles, DOAJ

Except for the earth sciences and ecology, sciences consistently have more articles than humanities and social sciences among the DOAJ set.

Subject	$/article	Articles
Medicine	$1,554.96	206,319
Biology	$1,840.96	40,979
Mathematics	$1,052.08	14,810
Chemistry	$1,450.64	13,425
Science	$1,118.24	8,917
Engineering	$891.44	8,429
Physics	$1,142.24	7,249
Agriculture	$1,327.97	6,403
Zoology	$1,035.75	4,734
Computer science	$902.64	4,046
Technology	$1,780.43	3,721
Psychology	$2,106.37	2,913
Sociology	$572.32	2,042
Earth Sciences	$742.54	1,990
Ecology	$879.49	1,985
Miscellany	$161.45	1,229
Education	$181.50	739
Economics	$106.16	662
Anthropology	$1,102.33	459
History	$15.79	450
Law	$0.00	407
Political Science	$212.41	318
Religion	$215.78	299
Arts & Architecture	$95.60	277
Language and Literature	$0.00	157
Media & Communications	$35.69	131
Library science	$0.00	106
Philosophy	$1,160.00	102

Table 2.67b. Topics by number of articles, OASPA

Where the range from largest to smallest volume in DOAJ is 20.3:1, it's an astonishing 2,022:1 for OASPA because medicine is so dominant. (I dropped the bottom and top three numbers for prices because OASPA includes three topics where all the journals are free, and you can't calculate a ratio where one side is zero. That's not the case for article volume:

if there aren't any articles, the topic simply disappears, as with medicine and biology for DOAJ.)

What Table 2.67b says to me is that almost all of the humanities and social sciences—all except for psychology and sociology—are largely irrelevant to most OASPA publishers, with none of the topics showing even 1,000 articles over 3.5 years, where even the smallest topic in the DOAJ set has close to 1,900 articles over that period.

Subject	$/article	Articles
Medicine	$591.77	59,275
Engineering	$175.05	36,139
Computer Science	$212.34	26,705
Economics	$308.31	20,000
Biology	$570.68	18,572
Science	$241.18	14,824
Agriculture	$512.49	14,145
Mathematics	$365.20	11,486
Technology	$233.32	11,034
Physics	$503.74	8,199
Ecology	$478.13	7,614
Education	$323.61	7,160
Miscellany	$91.94	6,009
Sociology	$237.91	5,199
Chemistry	$352.39	4,125
Earth Sciences	$538.36	3,846
Language and Literature	$231.96	3,330
Zoology	$465.21	1,764
Political Science	$263.38	1,642
Psychology	$492.62	1,411
Media & Communications	$277.07	701
Law	$592.31	633
Arts & Architecture	$284.52	607
History	$382.67	266
Library Science	$392.33	245
Philosophy	$533.39	224
Anthropology	$519.19	136

Table 2.67c. Topics by number of articles, Beall

Medicine also dominates the Beall set, as one would expect, but nowhere nearly as much as for OASPA. This is an odd set of numbers, but then many of the Beall set are odd publishers and journals. (The Religion row, with one article, deleted in the single-column version to avoid an almost empty page.)

Smaller Journals in DOAJ

The July 2014 report had another group: group F, representing journals that had never reached 20 articles in any year (or 30 in two adjacent years). I distributed that group into groups A-C (and occasionally D) this time around because, especially as I looked at humanities and social science journals in DOAJ, it seemed clear that quite a few journals are healthy with fewer articles.

Eliminating C and D journals and journals tagged as miscellany, I grouped the journals by actual peak figure (from 19 down to 5: below 5, journals are necessarily D). Given that there are very nearly as many STEM journals in this DOAJ subset as there are HSS journals, it's interesting that HSS journals significantly outnumber STEM journals at all peak numbers below 19—and that there are at least twice as many HSS as STEM journals at every peak number below 15. The extreme is the lowest peak, five articles in one year, where there are nine HSS journals and only one STEM journal.

Some of these journals are healthy within their own niches; some may be young. A fair number of these journals *do* have other content, sometimes a lot of other content; I've only counted what appeared to be peer-reviewed articles and literature reviews. I'll just list journals in the bottom three peak-number groups (five, six or seven articles in the peak year), without adding comments. (Within a group, to avoid the tyranny of the alphabet, journals are arranged by total number of articles in the 3.5-year period, from most to least.)

- **Five articles in the peak year**: *This Rough Magic; Bulletin of the International Association for Paleodontology; International Journal of Bahamian Studies; Electronic International Journal of Time Use Research; Elektropika: International Journal of Electrical, Electronic Engineering and Technology; IALS Student Law Review; Intersectionalities: A Global Journal of Social Work Analysis, Research, Polity and Practice; International Journal of Social Pedagogy; On Our Terms: The Undergraduate Journal of the Athena Center for Leadership Studies; Finno-Ugric Languages and Linguistics*
- **Six articles in the peak year:** *International Journal of Digital Accounting Research; Nota Bene: Canadian Undergraduate Journal of Musicology; Federal History; The Irish Journal of Gothic and Horror Studies; Geophysica; Michigan Telecommunications and Technology Law Re-*

view; Verniana: Jules Verne Studies/Études Jules Verne; Bulletin of Geography. Physical Geography Series; Communication & Language at Work; Journal for the History of Analytical Philosophy; Hope's Reason: A Journal of Apologetics; Research and Issues in Music Education; Journal of Service-Learning in Higher Education; Journal of Applied Computing and Information Technology; Euxeinos: Governance and Culture in the Black Sea Region; Middle East: Topics & Arguments; International Journal of Production Management and Engineering; Global Advances in Business Communication; Research in Sierra Leone Studies: Weave; Journal of Environmental and Tourism Analyses; connexions: international professional communication journal.

- **Seven articles in the peak year:** *Croatian Economic Survey; Linguistics Journal; Journal of Jazz studies; Locale: the Australian-Pacific Journal of Regional Food Studies; Traces in Time; Emerging Leadership Journeys; Applied Petrochemical Research; Peitho: Examina Antiqua; Urban Public Economics Review; Journal of Methods and Measurement in the Social Sciences; Pilgrimages: A Journal of Dorothy Richardson Studies; Critical Multilingualism Studies; MediaTropes; Case Studies in Strategic Communication; Hmong Studies Journal; Suvremene Teme: Contemporary Issues; Roczniki Socjologii Morskiej; Journal of Environmental Statistics; Min-Ad: Israel Studies in Musicology Online; Education Libraries; Skepsi; Journal of Praxis in Multicultural Education; Forest Phytophthoras; Oxford University Undergraduate Law Journal; EPJ Nonlinear Biomedical Physics; Physical Activity Review; Open International Journal of Informatics; KOME: International Journal of Pure Communication Inquiry; Current Opinion in Creativity, Innovation and Entrepreneurship; Large-scale Assessments in Education; Journal of Practical Ethics; Micro and Nano Systems Letters*.

Especially as I browsed some of these journals, I was reminded that a journal doesn't need to churn out dozens of articles each year to be worthwhile to its audience. Only one of the journals I've listed here has an APC (a fairly high one), and it's probably not hard to spot the exception.

Two Worlds or Three?

It seems fairly clear that there are at least two worlds of Gold OA publishing, with no-fee journals (most of them with relatively modest numbers of articles) dominating the humanities and social sciences and fee-charging journals (many with higher article volume) more significant in STEMM fields (the second M is Medicine), such that a majority of articles are probably in APC-based journals even though a majority of journals don't charge fees.

What's less clear is whether there are *three* worlds, with medicine and biomedicine (or medicine and biology in general) separate from science, technology, engineering and mathematics.

I suspect that there are three worlds, based on what I see in the OASPA tables. But without doing the same research for the rest of DOAJ, I can't be sure. (While I might be interested in doing a followup project that looks at all of DOAJ, it's *way* too much work to do without compensation, with or without the additional 1,220+ journals.)

But Wait! There's More!

As noted in the October/November *Cites & Insights*, I intended to close this two-part discussion with brief discussions on two related topics: the new criteria for the *Directory of Open Access Journals* and the possible (dis)economies of scale in OA (that is, why small may be beautiful at least for some areas).

Those discussions will appear—but not in this issue. Once I started looking at subjects and cost per article, this "half" of the report started getting a little long. And, to be honest, I found that I really wanted to sample a portion of the remaining DOAJ English-language listings, the 1,220+ journals in biology and medicine that aren't OASPA or Beall. Expect to see those discussions (along with some non-OA content) in the January 2015 *Cites & Insights*, probably out some time in December 2014.

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Masthead

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