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Fifty-Seven Years of Creation Astronomy

Part I: A Survey

Andrew Repp*

Abstract

Since its inception in 1964, *CRSQ* (along with other creation science journals) has published a significant amount of work in astronomy, with the number of articles in this field comparable to that in paleontology. In general, the fraction of articles dedicated to astronomy has fluctuated between 5 and 20%, even as total creationary output has roughly tripled since the 1960s. Contributors to creation astronomy literature include several holding Ph.D.s in astronomy or physics; many, however, do not seem to hold an earned science doctorate. This state of affairs calls, on the one hand, for continued contribution by creationists at all levels of training and, on the other, for intentional acquisition of astronomy degrees by young creationists.

Key Words: Astronomy, historical survey, scope of research, researcher qualifications

Introduction

The most immediate conflict between neo-Darwinism and special creation occurs in the field of biology; likewise, the most immediate conflict between old- and young-Earth paradigms occurs in the field of geology. Astronomy is not separate from these disciplines, and it also brings its own share of perceived conflicts with a straightforward reading of Scripture.

It has been noted (e.g., Faulkner and DeYoung, 1991, p. 87) that there is less creationary work in astronomy than in these other fields, and there is as yet no astronomical young-Earth "consensus paradigm" analogous to Flood geology. However, it is desirable to quantify the actual amount of creationary astronomy work, which is possible only by sifting through the literature and comparing the work in various fields. To that end, this article (Part I of a planned two-part series) seeks to answer the following questions: first, how does the quantity of creation research in astronomy compare to that in other natural sciences? Second, has the focus of creationary astronomy been characterized by breadth or by narrowness? Third, what qualifications are typical of contributors to creation astronomy?

Articles and Frequency

This work surveys four YEC (young-Earth creationist) journals (see below). These journals publish on a wide variety of topics, including Biblical exegesis, physics, chronology, and education. However, to determine the frequency

* Andrew Repp, Ph.D. mathematics; Ph.D. astronomy
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of astronomy articles relative to other natural sciences, we here select the fields of biology, geology, and paleontology as standards of comparison. Of these three, biology is the most relevant to the critique of neo-Darwinism, which attempts to explain the origin, unity, and diversity of life on a purely naturalistic basis. Because of this relevance, a diverse array of anti-Darwinian scientists (young-Earth, old-Earth, intelligent design, etc.) often converge in their critiques of neo-Darwinian biology (see, e.g., the essays in the first section of Moreland et al., 2017)—whereas these scientists would sharply disagree in their interpretation of geology and paleontology.

These latter two fields are relevant specifically to YECs, who conclude that a straightforward reading of Scripture requires an Earth on the order of ten thousand years old, as opposed to the 4.5 billion years claimed by mainstream science. Mainstream geology arrives at this age by assuming, in general, that one can extrapolate the types and rates of today's geological processes into the distant past; in particular they thus extrapolate the observed rates of radioactive decay. Thus the YEC community has given significant attention to the field of geology, usually reinterpreting the geologic record in terms of the Noachian Deluge, which involved processes well beyond those occurring today. Likewise, mainstream paleontology interprets the fossil record as a more or less sequential history of terrestrial life, whereas the YEC community typically interprets it as largely the result of the Flood, along with ecological zonation, hydraulic sorting, etc.

Because of their relevance to origins, these three fields have seen significant YEC activity. Quantification of the number of articles published in each field requires somewhat arbitrary decisions regarding the boundaries of each. For this article, we define biology to include biochemistry (relevant to the origin of life) and biogeography (relevant to speciation and dispersion) as well as baraminology (relevant to the stasis or fluidity of created kinds) and cryptozoology. We define geology, in turn, to include topics such as radiometric dating (the basis for the mainstream understanding of geological rates) and ice-age simulations (relevant to the Flood model, i.e., the post-Flood 'Ice and Storm Event'); we also include the pre-Flood canopy theory, due to its relevance to the Flood mechanism. Finally, we define paleontology to include both prehistoric archaeology and the study of mammoth remains (both relevant to early postdiluvian prehistory) as well as of Neandertal mitochondrial DNA (a biological matter, but approachable primarily through study of preserved remains). One could make good arguments for the inclusion of some excluded topics or for the reverse; however, these are the field boundaries employed in this article.[1]

We now consider the frequency of articles in each of these three fields, plus astronomy, in four journals.

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CRSQ is arguably the flagship journal of creation science, with essentially uninterrupted publication since 1964. Article tallies must handle the fact that the journal format has changed over the decades. For instance, at various times the journal has featured compendia of brief thoughts on current scientific issues; e.g., Armstrong's (1974) "Comments on Scientific News and Views" includes short speculations on topics such as stellar composition, astronomical distance determination, redshifts, and in-transit creation of light—as well as topics from other fields of science. Such comments are not included as articles, due to the (designedly) superficial treatment of the topics and the lack of focus on any particular field. It was difficult to handle "Panorama of Science" notes consistently: usually they are brief reports of recent developments, but in some cases (e.g., Froede, 1995) they are lengthy enough to almost force recognition as an article. Such instances were handled on a case-by-case basis.

After excluding abbreviated treatments such as these, we can tally the number of articles per year in the fields of biology, geology, paleontology, and astronomy, as well as the total number of *CRSQ* articles each year. The resulting tallies display significant stochasticity (see thin curves, left panel of Fig. 1), which we smooth with a Gaussian kernel ($\sigma = 1.5$ yr.) to obtain the thick curves in the same figure. Figure 1 also displays the data as a fraction of the total articles per year.

The figure shows that while biology and geology occupy a substantial fraction of *CRSQ* output, the field of astronomy has not been neglected; indeed, except during the 1960s, the astronomy output has been comparable to that in paleontology. Note that the large decrease of total articles from the late 70s to early 90s seems partially due to an increase in the length of the articles themselves. For instance, in 1977 a total of 43 articles occupied about 180 journal pages, for an average of slightly more than 4 pages per article. In 1995, however, a total of 19 articles occupied about 160 journal pages, averaging over 8 pages per article. Considering the fraction of total articles (rather than their absolute number) helps normalize such changes in overall article length.

To further investigate whether statistically significant shifts have occurred over the history of *CRSQ*, we group the articles by decade and calculate, for

1 Note that, under these definitions, biology and geology are much broader fields than paleontology; furthermore, paleontology depends largely for its interpretation on geology and biology. For these reasons we expect *a priori* a greater number of articles devoted to the first two fields.

each field, the mean number of articles per year, both in absolute terms and as a fraction of total articles per year (right-hand panel of Fig. 1). The most consistent shift appears in the field of geology, which accounted for 13% of total articles in the 1960s but 34% in the 2010s—an increase of 4.7σ. Astronomy has also increased (by 3.1σ), and biology decreased (by 3.0σ) during the same period; however, both of these results are heavily influenced by the final data point and thus do not seem to represent the general trend apparent in geology. Another method of analysis confirms these conclusions: fitting a line to the geology fractions (assuming Poisson error) yields a slope differing by 5.0σ from zero. The same procedure for biology and astronomy yields slopes that differ from zero by only 1.7σ and 2.0σ, respectively.

We conclude that there have been some realignments in the frequency of articles in various fields; the fraction of articles devoted to geology seems in particular to have increased. However, the frequency of articles in the other three fields seems to follow no consistent trend over the half-century history of *CRSQ*.

Other creation science journals

One can now perform a similar analysis for three other creation research journals. The first, originally entitled *Ex Nihilo Technical Journal* and now *Journal of Creation* (*JoC*), is published by Creation Ministries International. It first appeared biennially (beginning 1984), then semiannually (starting in 1991), and now three times a year (starting in 1996). This journal publishes several types of submissions; for this work we include "Countering the Critic" and "Overview" publications as articles, but not "Perspective," "Viewpoint," or "Essay" contributions, since the latter three seem to be of a less-technical nature. We also count each "Forum" entry as a separate article.

We next consider the *Proceedings of the International Conference on Creationism* (*ICC*). The first of these conferences occurred in 1986 and recurred quadrennially until 1998, then quinquennially (starting 2003). All submissions to the *Proceedings* are included as articles.

The final publication, and the most recent, is the online *Answers Research Journal* (*ARJ*), published by Answers in Genesis beginning in 2008. We include all *ARJ* contributions as articles in our count.

The resulting tallies appear in Figure 2. Inspection of this figure reveals, first, that in two of these venues astronomy continues to be roughly comparable to paleontology in the fraction of total articles. The exception is *ARJ* during most of the last decade, in which astronomy articles have significantly exceeded those in paleontology, sometimes even exceeding those in geology. This surge is largely due to the efforts of Danny Faulkner, who authored 23 of the 38 *ARJ* astronomy articles from 2013–2019.

We also note that, during the first few years of what is now *JoC*, the normal pattern was reversed, with the output in astronomy and paleontology dwarfing that in biology and geology. In astronomy, this fact reflects the large number of articles dealing with the light-speed decay hypothesis: of the 21 astronomy articles published from 1984–1992, 19 dealt primarily with light-speed decay, and the remaining two assumed it as a foundation. Likewise, for paleontology, the early years of *JoC* carried a large number of articles dealing with the Guadeloupe skeleton (13 out of the 19 paleontology articles from 1984–1990). These two topics are almost single-handedly responsible for the large astronomy and paleontology tallies in the early issues of that journal.

Combined Journal Totals

The preceding analysis does not address whether the availability of additional publication venues increased the total number of articles or merely distributed them over more journals. For instance, one might wonder whether the increasing popularity of, say, *JoC* reduced the number of articles in *CRSQ*. To investigate this question, we combine (in Fig. 3) the tallies from *CRSQ*, *JoC*, and *ARJ*.[2]

Considering first the total number of articles, it seems that the number of *CRSQ* articles was already declining before 1990, when *JoC* began yearly publication (although, as noted before, this might be due to longer—albeit fewer—articles). More significantly, after 1990 the increase in *JoC* articles is not matched by a commensurate decrease in *CRSQ* articles; in any case, by 2000 the total yearly combined number of articles significantly exceeded the quantity published by *CRSQ* prior to the start of what is now *JoC*. Likewise, even if the addition of *ARJ* is responsible for the decline in *JoC* articles after 2005, the result seems still to have been a net increase in published creation research. Indeed, the average total output has more than tripled since the 1960s. Thus, although it is certainly likely that the availability of other journals caused some authors to submit articles to *JoC* or *ARJ* rather than *CRSQ*, the addition of available journals seems to have resulted in a net increase of articles.

Turning to the field of astronomy (the thick curves on the lower part of the figure) we see that the addition of *JoC* (and, later, of *ARJ*) accompanied a net increase in the total number of astronomy articles published. And while the number of *CRSQ* astronomy articles seems to have been low in the 1990s and 2000s, it increased again after 2010, even while *ARJ* was publishing

2 We omit *ICC* from Fig. 3 since it is not straightforward to combine, in a consistent manner, the four- or five-year *ICC* publication cadence with the much more frequent publication of the other journals.

more astronomy articles than ever before. It is always difficult to disentangle causation and correlation, but it seems likely that the literature expansion has in part been driven by the addition of new journals and that the inception of alternative outlets for peer-reviewed creation research has been net-beneficial, both for creation science in general and for astronomy in particular.

Note the large spike in astronomy articles during 2014, which reflects 14 *ARJ* articles and 3 in each of *CRSQ* and *JoC*. Of the *ARJ* articles, 6 were by Danny Faulkner (on a wide variety of issues), 3 were by Andrew Snelling (on radiometric dating of meteorites), and 3 were by John Hartnett (again on a variety of issues). A lesser spike is apparent in 1990, during which *CRSQ* and *JoC* published 8 and 4 astronomy articles, respectively; not included in the total are 3 *ICC* articles that same year. Of these 15 total articles, 11 dealt with the light-speed decay hypothesis, with *CRSQ* holding a minisymposium on variable constants that year.

In summary, by considering the number of astronomy articles in creation research journals since 1964, we can conclude that significant effort has been devoted to understanding astronomy from a young-Earth perspective. If we use the number of articles as our metric, the effort in astronomy has not been as great as that in biology or geology, but it is certainly comparable to the effort in paleontology, a field which, though relatively narrow, is directly relevant to the young-Earth apologetic. Furthermore, the fraction of articles addressing astronomy has not shown any long-term trends over the last five decades, typically fluctuating between 5 and 20%.

Subfields

The second question here addressed is whether creationary astronomy has been marked by a narrow focus or by breadth. For instance, one of the first issues that arises when comparing astronomical discoveries to the Genesis record is the light travel-time issue: if a given astronomical body is more than about 10,000 light years distant, how has its light already arrived at Earth? In this section we seek to determine whether or not YEC astronomy has focused narrowly on one or two such issues, or whether it has been distributed throughout the major subfields of astronomy.

To this end, we classify each astronomy article into one of five categories: light travel-time, planetary/solar system, stellar/Milky Way, extragalactic/cosmological, and miscellaneous. (The latter category includes topics such as extraterrestrial life, the star of Bethlehem, "Gospel in the Stars," etc., as well as astronomy-wide reviews.) Not all articles fall neatly into one category; for instance, many (but not all) of the articles exploring light travel-time overlap with cosmology, and thus there is an element of arbitrariness in the categorization. However, the statistics presented here should suffice to elucidate the range of creation astronomy.

Figure 4 displays the results, showing both the total number of articles per year as well as the fraction of total astronomy output in each subfield. In this figure we again apply Gaussian smoothing (σ = 2.0 yr.) to all curves to reduce stochasticity; for reference we also show (as thin lines) the unsmoothed data for total astronomy and for selected subfields. (For years with no astronomy articles—and thus undefined subfield fractions—the smoothing routine assumes interpolation between years for which the fraction is defined.)

The left-hand panel focuses strictly on *CRSQ* with its longer publication history. Perhaps the most salient feature in the upper part of the plot (displaying total number of articles) is the predominance of light travel-time articles around 1990, largely the result of two minisymposia (1988 and 1990) dealing with the issue. However, contributions to all five subfields are visible in the figure.

Two subfields which frequently have the highest (smoothed) curves are planetary science and cosmology. Neither of these results is surprising. Regarding planetary science, many solar system bodies display prominent craters, which the present-day cratering rate is insufficient to explain on a young-Earth timescale. Regarding cosmology, it was 1964—the first year of *CRSQ*'s publication—which saw the discovery of the cosmic microwave background (reported in Penzias and Wilson, 1965); this discovery boosted the big bang hypothesis over the competing steady-state model, resulting in its current domination of cosmology. The steady-state model (featuring an eternal universe and continuous creation) was even less Biblical than the big bang, but creation science has of course had to grapple with the observations that led to the dominance of the latter.

The bottom left section of the plot (displaying the fraction of total *CRSQ* astronomy articles) shows a prominent spike in planetary science[3] articles during the mid-1980s. This spike reflects the combination (due to smoothing) of the fractions for 1984 and 1987. In 1984, one of the four astronomy articles dealt with diluvial asteroid impacts (Unfred, 1984), and another (Humphreys, 1984) considered the creation of planetary magnetic fields. In 1987, all three articles dealt with solar system issues: the existence of short-period comets (Steidl, 1987), speculation that Martian flybys are responsible for terrestrial mountains (Patten, 1987), and the possibility of solar contraction (Benton, 1987).

The right-hand panel displays the same counts and fractions for all four journals combined (marking the ICC

3 Strictly speaking, solar system science.

years with magenta bars).[4] Here we see more clearly the large percentage of speed-of-light articles around 1990. We also see the near-dominance of cosmology articles after the turn of the century, 19 of them published in *JoC* (11 of them by John Hartnett) during the first decade, and 13 in *ARJ* (7 of them by Danny Faulkner) during the second.

Finally, however, we note that after 1990 none of the smoothed curves ever dip down to zero. We conclude that all of the major branches of astronomy (from planetary science to cosmology) are represented, and consistently so, in the past half-century of creation research, and especially during the three most recent decades. However, this breadth has not prevented a significant focus on the issues most relevant to a young-Earth scientific synthesis, in particular the issues of light travel-time, cosmology, and the timing of crater formation throughout the solar system.

Author Qualifications

The final issue we here consider concerns the qualifications of contributors to creation astronomy. Two problems hinder investigation of this issue. The first is the absence of a completely satisfactory metric. Ideally a metric for qualification would reflect general familiarity with astronomy and particular familiarity with the subfield under discussion; experience in formulating—and testing—scientific hypotheses; and an intangible, intuitive "feel" for the plausibility of various statements and speculations.[5] Unfortunately, any attempt to measure such factors would require intimate familiarity with the authors and their work—and even then would involve unavoidable subjectivity.

Only one objective proxy seems readily available, namely, educational degrees in astronomy, physics, or some other natural-science field. Of course degrees do not guarantee qualification, nor does their absence guarantee its lack; nevertheless, the two are surely correlated. Furthermore, while undergraduate and master's degrees provide general familiarity with a particular discipline, a terminal degree is intended to provide particular familiarity with (a portion of) one subdiscipline; it also provides an introduction to the actual practice of science and (one hopes) begins to build the aforementioned intuitive "feel." In addition, the closer the degree field to astronomy itself, the better the proxy. In the author's experience, a terminal mathematics degree provides experience with scholarship in general, but regarding qualification to write on astronomy, it compares poorly with the knowledge and experience provided by a corresponding astronomy degree.

Thus, the proxy we here adopt for author qualification is an earned doctorate in one of the following fields (in order of preference): astronomy, physics, or another science (including mathematics).

Two caveats are essential at this stage. First, adoption of this metric does not imply that those without terminal degrees in a science field are unqualified to write about astronomy. Indeed, it is a writer with (to the author's knowledge) no earned doctorate and no astronomy degree who has made some of the most significant contributions to understanding solar system cratering in a YEC framework. Nor is the inverse statement true: a terminal degree in astronomy does not automatically certify someone as an expert, especially when they address a different subdiscipline than that of their dissertation. Unfortunately, no better proxy for qualification seems to present itself.

Another caveat: use of this metric should not discourage potential authors *without* terminal degrees from contributing articles to creationary literature; indeed, interaction with the community—which includes writing and responding to articles—is one of the ways to *build* expertise, intuition, etc.—and, thus, qualification.

However, another problem now presents itself, namely, that of incomplete data: the creationary literature does not always publish authors' degrees—or will publish the degree without the degree field. While it is possible to fill some of these gaps by cross-referencing (and also through internet searches), the data remains incomplete. One should keep this fact in mind throughout the remainder of this section.

Figure 5 displays the (known) qualifications—in terms of terminal degrees—for authors of astronomy articles. As in previous figures, the left-hand panel considers *CRSQ* only, whereas the right-hand panel considers all four journals. Again, we smooth the raw data with a Gaussian kernel (σ = 2.0 yr.), showing the smoothed data as thick curves and selected unsmoothed data as thin lines.

One conclusion we can draw from Figure 5 is that there seems to be no "typical" profile for a contributor to creation astronomy. Contributors range from those with doctorates in astronomy (and respectable publication records in the mainstream astronomical journals) to those with no terminal degree in any natural science field. Again, at least one member of the latter group has made significant contributions to a young-Earth understanding of astronomy.

However, we also note that holders of terminal astronomy degrees almost never predominate (at least when considering the smoothed curves). This fact reflects the small pool of individuals involved; the great bulk of the contributions in this category, during the last two decades, has come from three authors, namely, Danny Faulkner, Jason

4 Before 1984, of course, these plots are identical to those of the left-hand panel.

5 Another ingredient is a commitment to the straightforward reading of Scripture; however, the journal publishers' doctrinal statements help safeguard this area.

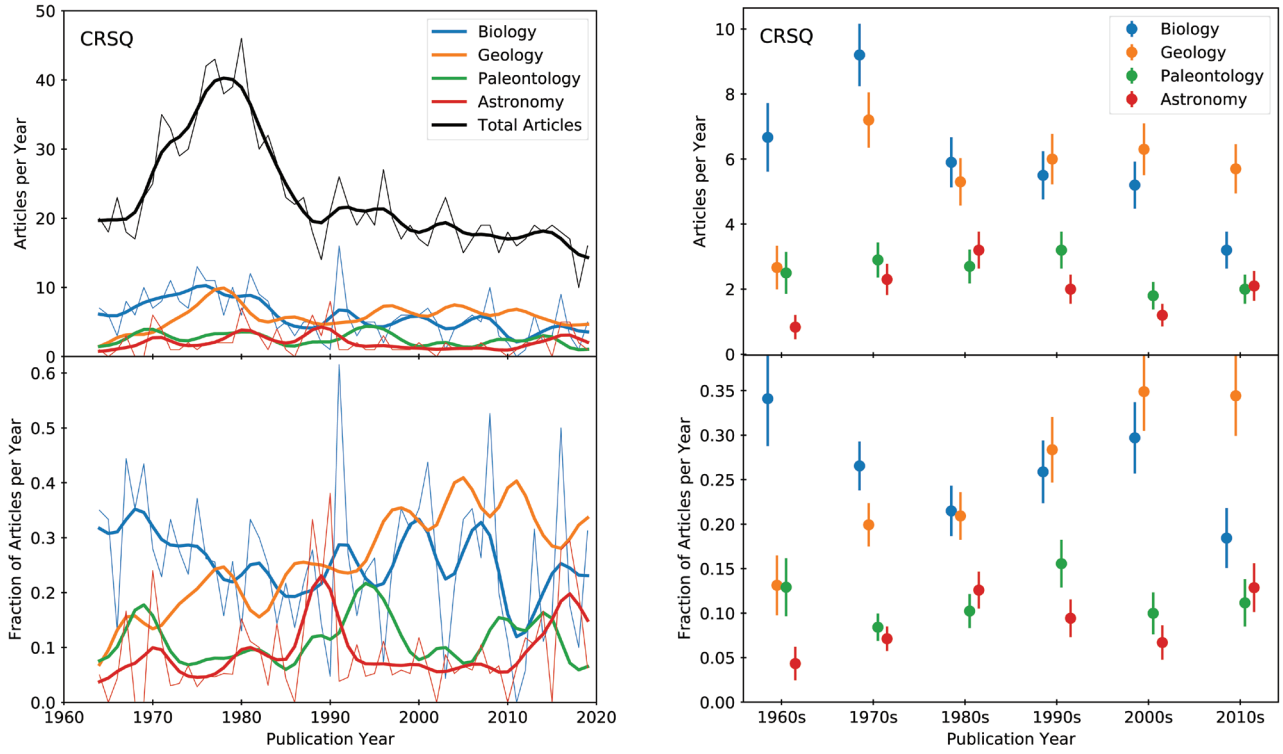

Figure 1. Left-hand panel: number of *CRSQ* articles per year dealing with biology, geology, paleontology, and astronomy, both in absolute terms (top) and as a fraction of all articles (bottom). Thick curves reflect smoothing with a Gaussian kernel (σ = 1.5 yr.); for comparison, thin lines show unsmoothed data for selected fields. Right-hand panel: the same data grouped by decade, with Poisson error bars.

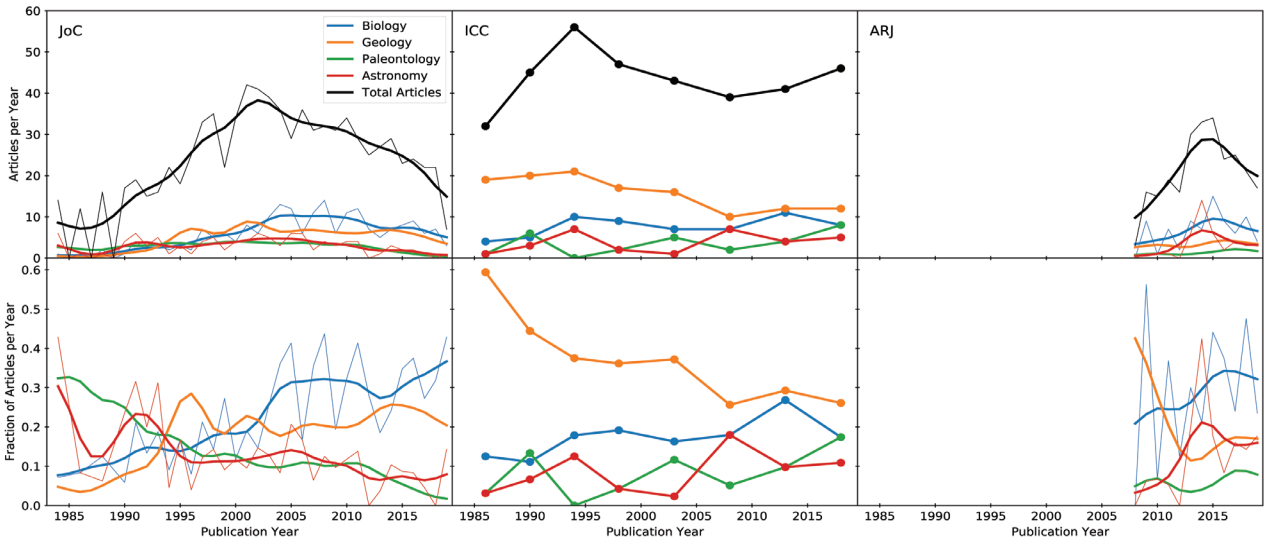

Figure 2. Articles per year devoted to biology, geology, paleontology, and astronomy, in *Journal of Creation* and predecessors (left column), in *Proceedings of the International Conference on Creationism* (middle column), and in *Answers Research Journal* (right column). The top panels display the absolute number of articles per year (or, for ICC, per conference); the bottom panels express the number as a fraction of all articles in the journal. For *JoC* and *ARJ*, thick curves have been smoothed with a Gaussian kernel (σ = 1.5 yr.); for comparison, thin lines show unsmoothed data for biology, astronomy, and total articles.

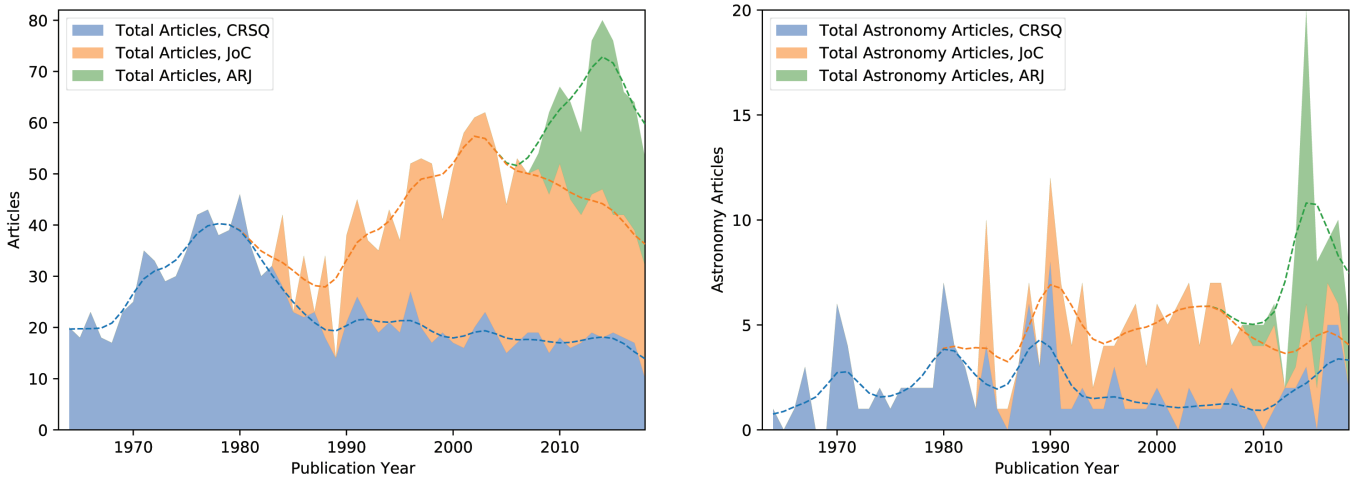

Figure 3. Left-hand panel: total number of articles per year published in *CRSQ*, *JoC* and predecessors, and *ARJ*, from 1964 to 2018. The heights of the shaded regions indicate the total number of articles per year in each journal. Note that the shaded regions stack rather than overlapping, so that the total height of all shaded regions together represents the total number of articles published in a given year, in all three journals together. The dashed curves (matched in color to the shaded regions) show the result of smoothing the number of articles with a Gaussian kernel (σ = 1.5 yr.). Right-hand panel: the same, for astronomy articles only.

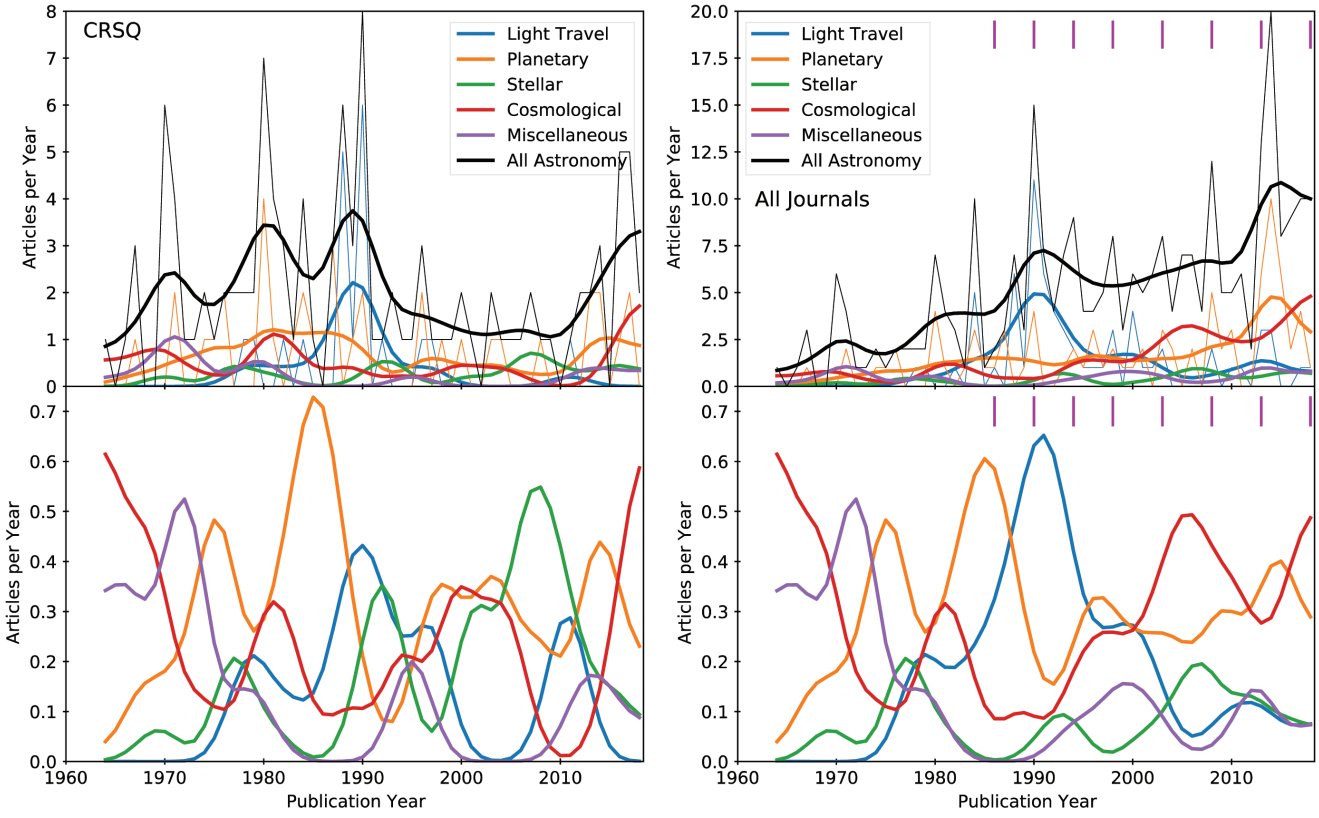

Figure 4. Left-hand panel: top – number of *CRSQ* astronomy articles per year for each subfield identified in the text. Thick curves reflect smoothing with a Gaussian kernel (σ = 2.0 yr.); for comparison, thin lines show unsmoothed data for total astronomy and for selected subfields. Bottom – the same data as a fraction of total *CRSQ* astronomy articles. Right-hand panel: the same totals and percentages for all four journals combined. Magenta bars denote ICC years.

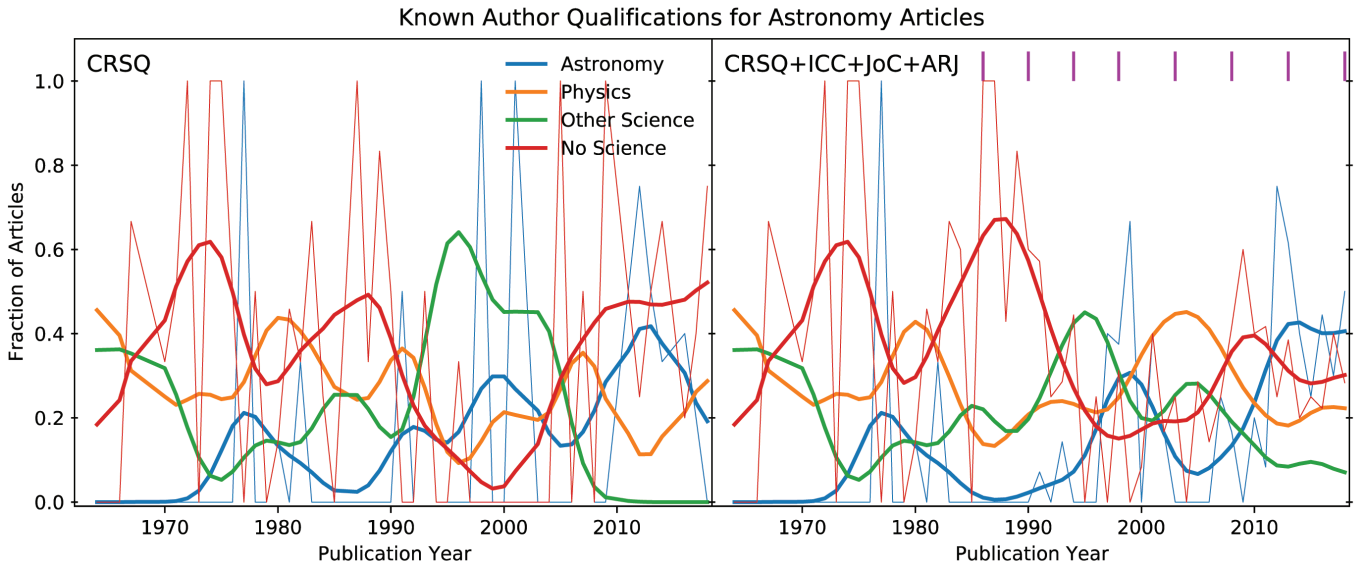

Figure 5. Areas of expertise (defined as a terminal degree in the field) for authors of astronomy articles, in *CRSQ* (left-hand panel) and in all four journals (right-hand panel). In the right-hand panel, magenta bars denote ICC years. Thick curves reflect smoothing with a Gaussian kernel (σ = 2.0 yr.); for comparison, thin curves show unsmoothed results for astronomy and "no science." The figure is based on available—but incomplete—information.

Lisle, and Ron Samec. (Likewise, two individuals have contributed the bulk of recent articles from physics Ph.D.s, namely, Russell Humphreys and John Hartnett.) It would be highly desirable to increase this pool, and the most obvious means of doing so is for more YEC believers (especially the young) to earn astronomy doctorates. Obviously this course of action is not feasible for everyone, and the process involves significant commitment. Nevertheless, the payoff (in the author's experience) is immense.

However, the impact on the field by authors without a doctoral science degree has been both significant and beneficial. The breadth of input into creationary astronomy is a strength, not a weakness, and is to be encouraged. It is hoped that creationary astronomy will continue to attract a broad range of contributors, even as the pool of astronomy Ph.D.s continues to grow.

Conclusions

This article (Part I of a planned two-part series) has sought to address three questions regarding creation astronomy over the past half-century. The first question involves how much effort (reflected in published articles, and compared to other natural sciences) has been devoted to development of a creationary understanding of astronomy. We find that the quantity of creation research in astronomy is significantly lower than that in biology and geology—as one might expect, given the focus of Scripture on terrestrial events; nevertheless, the astronomy output is comparable to that of paleontology—and has remained so even as the total number of creationary articles has more than tripled. In addition, the availability of more outlets for creationary research seems to have multiplied rather than divided creation astronomy output. We conclude that the field of astronomy has not been neglected by creation researchers.

We next considered the distribution of this effort among the subfields of astronomy in order to characterize its breadth. We find that creation research has addressed, in some manner, each major subfield of astronomy, from planetary science to cosmology. Naturally, much of the work has focused on a few significant issues relevant to a young-Earth framework, such as light travel-time and the place of meteoric bombardment in the Creation/Flood paradigm. We intend Part II of this series to include a more detailed analysis of the topics, foci, agreements, and disagreements of this research effort.

We finally considered the typical qualifications of creation astronomy contributors. Based on admittedly incomplete information, there seems to be no common profile of a "typical" contributor to the field. Contributors

range from those holding doctorates in astronomy to those with no terminal science degree—and members of the latter group have made significant contributions to YEC astronomy.

However, contributors holding astronomy doctorates constitute a small pool of individuals, which it would be desirable to increase.

We conclude that creationary efforts in astronomy have been both vigorous and diverse.

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