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Abstract

The understanding of Revelation depends on separating sources of the text and showing how they were combined to make one book. The paper describes modern techniques which, for the first time, enable this to be done.

The book of Revelation stands last in the New Testament. The placing seems appropriate, it was the last to gain admission to the canon and may well have been the last to take its canonical form. For some time Revelation was insecurely lodged in the New Testament; a rival book, the Shepherd of Hermas, being preferred by some churches.

Historical studies of the book of Revelation have been limited by some fundamental problems. The book employs visions and prophecies, a mode of expression which has long fallen out of use in western cultures. What may well have been clear and simple to contemporaries is now obscure. Whether the prophecies still lie in the future or were, in part if not in whole, fulfilled in the first centuries of the book's existence is open to question. The primary problem arises over the book's integrity, is it the composition of one man, as its introductory verses claim, or is it a compilation drawing on a variety of sources? Until recently no scientific technique existed which enabled the authorship of a piece of Greek prose to be established.

This has not inhibited scholars who have argued down the centuries for very different origins of sections of Revelation. Revelation is "a single and living unity from end to end" wrote Farrer in 1949, *A Rebirth of Images: The Making of St. John's Apocalypse*, Westminster: Dacre Press. D. H. Lawrence, in his last work written in 1931, came to a different conclusion. The text is a complex compilation. The oldest layer was a pagan text describing initiation into a mystery religion, Jewish writers revised and expanded this

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text, finally it was adapted for Christian use by John of Patmos. It is hardly necessary to cite further examples of confusions and contradictions among the scholars. Only the developing of a technique which can be experimentally verified enables claims of authorship and integrity of Greek texts to be credible.

A NEW TOOL FOR NEW TESTAMENT STUDIES.

It is now possible, for the first time, to resolve this question. Cusum analysis will indicate the different sources which make up the text. This technique, which has been widely used and repeatedly validated, is fully explained in the textbook, *Analysing for Authorship*, J. M. Farrington, A. Q. Morton, M. G. Farrington and M. D. Baker, University of Wales Press, 1996, ISBN 0-7083-1324-8. In this book, there are demonstrations, for example, that the utterance of identical twins can be separated, that people imitating others cannot conceal their identity, nor assume that of their target; that neither intervals of time, contrasts of subject matter, changes of mood, variety of form, or any other factor which might be supposed to affect our utterance, defeats cusum analysis. Cusum analysis is a powerful technique, which can be very effective, it is specially suited to the intensive examination of relatively short texts, such as books written and reproduced by hand, but cusum has its limitations.

Cusum comparisons will indicate a change in the source of utterance, but it will not tell when one source was joined to another, nor who did the joining. An example is Rev. 7.5-12. This differs from the preceding and following sources, it is a listing of the tribes of Israel and a vision of the chosen from all the tribes gathered before the throne. The next passage, 7.13-8.12, is a separate source. But was 7.5-12 placed after 7.4 when the book was being written in its canonical form, or is 7.5-12 part of an original sequence of sources which ran 3.6-7.4, 7.5-12, 8.13-12.10, a sequence which was then incorporated into the canonical text? This question is later considered.

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A feature of cusum analysis is the revealing of anomalies in texts. These are short sequences of sentences, from a single sentence up to perhaps five sentences, which differ from the normal utterance of a person by reason of some internal, or external, constraint. The most common cause of such anomalies is a list, either compiled by the author, or copied into the text by the author. Examples are to be seen in 18.11-13, a list of luxuries, and 21.19-21, a description of the jewels adorning the foundations of the city. Cusum shows these differ from their context, but whether the difference was created by the author compiling the list, or by importing it from elsewhere, cusum will not show.

Cusum analysis of Revelation, which requires more than 100 charts to be constructed and compared, enables the separate components of the text to be delimited. The hypothesis that Revelation was the product of a single author is untenable, analysis shows the book to be a compilation. What cusum is not able to do is explain how the sources became the book. For that another technique is needed.

WRITING REVELATION.

In the first centuries of the Christian era, many people could read and write but the scribe, the professional clerk, was a common figure and played an important role in society and affairs. Personal notes, or informal copies, were written in the cursive hand, what schools now call joined writing, but any document, or any historical or literary work, was written in uncial letters, block capitals. There were no spaces between words, nor at the end of sentences; no punctuation, nor any indication of questions or quotations. The length of a text is simply the number of letters in all the words in the text.

The original of Revelation would have been written into a papyrus codex. Papyrus was the universal paper, manufactured, by a Royal monopoly, from the plant which grew in abundance along the Nile. Papyrus was sold in bundles of twenty sheets, a scapus, and in five sizes, although only the larger sheets were used in book production.

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In Classical times the sheets had been glued edge to edge, with a small overlap, to make a long sheet which was then rolled round a central dowel. The Christian era saw the change to the codex form of book, in which sheets were overlaid and folded, typically five sheets folded to make a quire of twenty pages, and then bound by stitching down the centrefold. A few quires, supplied with a binding sheet, would make a book.

An important point about the codex is that it is an unforgiving form of book. Writing a text into a roll had the advantage that, if the text ran on, an extra sheet could be glued on without much trouble. If the text finished before the roll, a stroke of a knife removed the blank sheet. But in a codex, each page is part of a sheet carrying four pages, excising one page is not practicable. The roll can be adjusted to fit the text, the codex requires that the text fit the book.

Writing in a codex could be very precise, each page was identical and the columns in which the text was written were marked by pricking through the page. When the New Testament was coming into existence, codices had between 300 and 600 letters on each page, written in one or two columns.

The weakness of the papyrus codex was its inability to withstand damp. This hardly mattered round the Mediterranean shores but when the churches went further, parchment, a more expensive material, became necessary.

THE FIRST COPY OF REVELATION.

It can be said, with some confidence, that Revelation would have been written by a scribe, into a papyrus codex. The text would have been dictated, as all reading and writing were voiced until many centuries later. The codex would consist of some multiple of 20 pages. We have no way of knowing what the original would look like, but we can use a model. The complete text of Revelation in the Greek text of Aland, Black, Metzger and Wikgren, contains 45,961 letters. A suitable model will have 80 pages, holding, on

Morton, **Revelation**, *IBS* 19, April 1997 average, 574.5 letters. It is simpler to think of the text written in one column although it may well have had two columns per page. Table One sets out the sources of Revelation as delimited by cusum analysis in a model of 80 pages.

Table One.

The components of Revelation.

The First 40 pages

Source	Text	Letters	C.T.	Pages	Progress
1	1.1-6	658	658	1.15	1.15
2	1.7-2.17	3215	3873	5.60	6.75
3	2.18-3.6	1678	5551	2.92	8.67
4	3.7-7.4	7176	12727	12.49	22.15
5	7.5-12	877	13604	1.53	23.68
6	7.13-8.12	1923	15527	3.51	27.03
7	8.3-12.10	7454	22981	12.92	40.00

The Second 40 pages

1	12.11-18.10	12013	12013	20.91	20.91
2	18.11-21	1352	13365	2.35	23.26
3	18.22-21.4	5242	18607	9.12	32.39
4	21.5-14	1087	19694	1.89	34.28
5	21.15-21	777	20471	1.35	35.63
6	21.22-22.19	2479	22950	4.32	39.95
7	22.20-21	30	22980	0.05	40.00

The first column of the table simply numbers the separate sources in succession. The second column indicates the text of each source, and the third column the number of letters in the words of the source. The C.T., for cumulative total, column gives the running total from the beginning of the text to the end of the source, the next two the number of pages filled by the letters of the source and then the pages filled up to that point in the progress of the book. In

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the first part an average page holds 574.53 letters, in the second part 574.50 letters, a difference not only negligible but invisible.

A copy of *Revelation* was not a cheap and convenient personal possession, it was an expensive artefact, likely to have been paid for by a rich patron, or by some group. The scribe would plan a book in consultation with the customer. The first question would be the size of the new book. This can be answered either in terms of the sources, a book to hold all of this, and as much of this other material as will go in; or in terms of the new book, 40 pages filled by this material and the other 40 from these; or some combination of the two measures, all of this and the remaining pages filled equally from two other sources.

There is one fundamental choice. If the book is a composition, entirely the utterance from one source, all the scribe need to do is to watch that the progress of the new book and the consumption of the source keep in step. This might well mean no more than checking that at the end of a quire, likely to be every twenty pages, or even only at the half way point, the new book and the source march together. If an introduction, or an ending, had to be supplied, it would be the utterance of the author of the rest of the text and not a separate source.

In a making a compilation the situation is very different. The book has to be planned so that the desired alternation of sources enhances the book. This may make it necessary to expand a source, or to reduce it, or combine it with other material. It may be a source is regarded as inviolable and its incorporation presents a difficult editorial problem or a source might be almost purely a spacing piece, its position and size being determined by the mechanics of book production. A new beginning and an ending may well be the work of the person planning the book, and have little or no connection with any other parts of the text.

The most significant signs of the compilation are the successive sizes of the sources and the book. The ends of quires come to fulfill

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a role rather like the way points of modern air-routes, the actual position is compared with the predicted position and any remedial action is put in hand. The mid-point of a new book should allow a check on progress. But by far the most indicative sign is the result of counting in the unit of the score. If you have 40 pages, the mid-point presents no problem. But if you wish to divide into thirds, you must have 13, 13 and 14 pages. The alternative is to have a column in which the number of lines is divisible by three, in which case the divisions will be very precise. Divisions which present no difficulty in current calculations, were not simple with the score as the main unit and the arithmetic then available to a scribe.

Another feature of compilations concerns the size of the sources. A few words on a scrap of paper will not long survive without being incorporated into something larger; there is a minimum length for a text which will allow separate existence. In the New Testament the two shortest books are 2nd and 3rd John which contain 1132 and 1118 letters. These might not have had a separate existence for long and the next largest book, Philemon, with 1563 letters, may be a more realistic representative of the minimum length of a text. The New Testament would then range from Luke and Acts, 95,804 and 95,696 letters to Philemon 1563 letters. It is to be noted that the longer parables and speeches in the gospels and Acts run to more than 1500 letters. The longest, the speech of Stephen in Acts 7.1-53, contains 4903 letters. The orations of Isocrates, preserved on rolls, ran from Oration 15, with 97,395 letters down to Epistle 5, with 1,572 letters.

For a source to have existed as a separate text, it would be likely to contain more than 1,500 letters, say three pages in the model of Revelation. If a source is less than this limit, it is more likely to be the product of editorial action during the construction of the book.

The simplest procedure may well be to state the final conclusions, and then examine the evidence which supports them. Revelation is a compilation, two major sources provided the body of the book,

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other smaller insertions were made to facilitate the production of the new book.

HOW REVELATION WAS WRITTEN.

The first half of Revelation ends precisely at 12.10, and contains 22,981 letters. The second half has 22,980 letters in it. A change of source comes at 12.10 and separates the two largest components of the text, the final section of part one, which runs to 13 pages, 12.97 to be precise, and the following source, the first in the second half of the book, to 21 pages, 20.91 by actual count. Of the 7 sources marked off in the first half by the cusum analysis, two, S1 and S5 are well below the limit of separate existence, one, S3 is just below it and another S6 just above it.

S1 has a complex structure and verses 1-3 differ from verses 4-6. Whatever their origin, this is evidence that Revelation is a compilation. The most obvious feature of the first half of the book is that S7, 7454 letters, is very near to filling 13 pages, the capacity of 13 pages is 7469 letters. Similarly, S4 plus S5 contain 8053 letters, 14.02 pages, the exact content of 14 pages being 8043 letters. This leaves S1 + S2 + S3 + S6 with 7474 letters, 13.01 pages. S4 + S5 + S7, contain 15,507 letters, 26.99 pages - 27 pages hold 15,512 letters This would indicate a plan having 13, 13 and 14 pages as the structural units.

The body of the first half is a single source made up by S2, S4 and S7, in all 17,845 letters, 31.06 pages, 31 pages of the model hold 17,810 letters. This has been enlarged by a beginning, S1, and the insertion of two blocks, S3 and S5 with S6.

S1 presents no problem, if a book is being made for formal use, an introduction is required. The two sections, verses 1-3 and 4-6, are conventional greetings. The following source, S2, runs from 1.7-2.17 and ends with three letters to churches, at Ephesus, Smyrna and Pergamum. The same source continues from 3.7 with letters to Philadelphia and Laodicea. The inserted material S3 has letters to

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churches in Thyatira and Sardis, these are churches in the same geographical area and the letters exhibit the same causes of pastoral concern. Lacking *cusum* analysis it would be difficult to differentiate the two added epistles from the others.

The next insertion, 7.5-12, is in two parts, after a list of those selected from the twelve tribes of Israel, there is a vision of the lamb upon the throne. As was earlier noted, this list of tribes followed by the quotation of the responses of the crowd, are the kind of constraints which produce something unlike free composition.

S6, 7.13-8.12 is large enough to have existed separately. It also causes a minor confusion in the numbering of angels. In 7.1 we are told he saw four angels at the four corners of the earth, 7.2 adds he saw another angel, presumably number five. But 8.3 adds yet another angel who came and stood at the altar. This is followed by seven angels with as many trumpets. Chapter 9 begins with the fifth angel, usually taken as belonging to the sequence of the seven starting in 8.6: but the angel of 7.2 is also the fifth in a series.

What might at first sight appear to be an obstacle to separate origin of this source is the mention in it, at 8.1, of the seventh seal, the last in the series starting in 6.1 and carrying on to the sixth seal in 6.12. This is too simple, and can only be advanced by ignoring other examples. The six seals in chapter 6 are grouped together, all occur within the compass of 1500 letters, and the average distance between them is less than 300 letters, just over half a page. The seventh seal is five pages distant, suggesting another rhythm.

There is another series of seven, the angels of 8.6f. Within this source, there are four angels, at 8.7, 8.8, 8.10, and 8.12. The fifth angel arrives in the next source, at 9.1, the sixth follows at 9.13 and although no seventh angel is mentioned, "another mighty angel" comes down in 10.1. So we have four angels within a space of under two pages, a fifth half a page away and a sixth two and a half pages distant. In Chapter 16 we have more angels in verses 2, 3, 4,

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8, 10, 12 and 17. This means six angels closely spaced, about three to a page, and the last one page off. In Chapter 14 we have angels at 14.6, 14.8 and 14.9 but no inclusive number is cited. The irregularities in these sequences make it impossible to argue that sequences in this book follow any single pattern. The sequences have no evidential value in determining the sources of the text.

The next step is to look at S2, S4 and S7 to see if they are homogeneous. They are, and so the major structural unit in this first half of Revelation is the sequence 1.7 - 2.17, 3.7 - 7.4 and 8.3 - 12.10, 17,845 letters, filling 31.06 pages of the model. . To this was added three blocks of material, a beginning, 1.1-6, the two epistles in 2.18-3.6, and 7.5-13 with 7.13-8.12. The provision of the introduction is logical, but the book would not have been much impoverished had the later additions to this part of the text not survived.

The second half of Revelation resembles the first. The body is a sequence of three sections from a single source, S1, S3 and S6, the text is 12.11-18.10, 18.22-21.4 and 21.22-22.20. In making the book, this major source was expanded by adding four small sources. None is large enough to have led a separate existence. The first, S2,18.11-21, introduces new categories of people, merchants, sea captains, and voyagers, on whom vengeance is to be wreaked. There is nothing in the source which refers to any other part of the book, nor is there any reference elsewhere to merchants and shipping. The next two come together, S4, 21.5-14 and S5, 21.15-21. The text of 21.4 reads on at 21.22 and the two sources are rather diversions than amplifications of the narrative sequence. The final source is the concluding verse and is the necessary benediction.

Revelation has been created in one stage, the two halves of the book have been constructed but there is no sign, as for example, those which abound in the gospels and Acts, of regularities made necessary by adapting a previous design. A confirmation is the few anomalies in the text. The opening verses proved two anomalies, two sections with 2 and 4 sentences. The next is 4.1-4, 4 sentences

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In the second part of Revelation there are only two anomalies, 16.10b-11 and 17.4-5. The first has no obvious cause and might be a chance creation. The second is the description of the woman whose forehead bore the name with a secret meaning. It is little to be wondered that such a passage differs from normal free composition.

CONCLUSIONS.

The first conclusion to be drawn from the cusum examination of Revelation is that the book is a compilation made in a single operation; it is not, as are the gospels and Acts, an enlargement of an existing text. The two main sources run to just over 4,000 words and just under 5,000 words. The rest is material required to shape these into a book. There is no sign of the small revisions, appearing in the gospels as anomalies, which sought to make clear things which the passing of time had made obscure.

A second conclusion is that there exists a general critical problem. Many scholars have failed to detect the presence of two sources each running to more than four thousand words yet claim to have delimited very much smaller, and more complex, sources in the text: others have asserted the unity of the text having convinced themselves that Revelation is a composition. How sound are the judgements based on traditional criteria?

A. Q. Morton.