

Blinding us with Science? Man, Machine and the Mass in B Minor*

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For Alexander Silbiger

If, as seems likely, J. S. Bach intended the Mass in B minor as his musical testament, we must think it a distressing irony that the work survives in a form that not infrequently obscures the intentions of its composer.¹ Bach left the Mass in an autograph score largely written towards the end of his life.² Whether for the density of its corrections or because of the ink with which he wrote it, the manuscript – especially the *Symbolum Nicenum*, or Credo – proved unusually hard to read even within a few years of his death. Figure 1, a detail from a copy of the Mass written by the Berlin *musicus* Johann Friedrich Hering and an unknown text scribe in the mid-1760s, gives us a sense of the problem. Hering found himself compelled to leave the tenor in the first bar blank, obliging Bach’s son Carl Philipp Emanuel, who owned the autograph, to decipher what Hering couldn’t read and fill in the missing notes accordingly.

* This article originated as a paper for the Fourteenth International Conference on Baroque Music at The Queen’s University of Belfast in July 2010; my thanks to Robert Dodson, Director of the School of Music, Boston University, for securing assistance for me to attend the conference. The dedication honours a friend and colleague uniquely versed in both natural and humanistic sciences, and whose *‘Inversus, Superjectio, Passus Duriusculus, and Other Unnatural Practices in Bach’s B Minor Mass’*, in *Aspects of Renaissance, Baroque, Classical, and Romantic Music, and Ragtime: Interim Reports in Tribute to Joshua Rifkin*, ed. Mary S. Lewis, Mitchell P. Brauner and sundry hands (Winchester: Fellsway, 1982), occupies a special place in my scholarly pantheon.

¹ For the background to the composition of the Mass, and for details on all the sources discussed here, see *Johann Sebastian Bach (1685–1750): Messe h-moll BWV 232*, ed. Joshua Rifkin (Wiesbaden: Breitkopf & Härtel, 2006), especially v–vi and 254–6. The admittedly tantalizing possibility, suggested by the recent research of Michael Maul and Peter Wollny, that Bach wrote the Mass on commission from Count Johann Adam von Questenberg for the ‘Musicalische Congregation’ in Vienna strikes me as still too tenuous to displace what has become the traditional view of the work’s origin; see Michael Maul, “‘Die große catholische Messe’: Bach, Graf Questenberg und die Musicalische Congregation in Wien”, *Bach-Jahrbuch* 95 (2009), 152–75, and Peter Wollny, ‘Beobachtungen am Autograph der h-Moll-Messe’, *Bach-Jahrbuch* 95 (2009), 144–7.

² Wollny, ‘Beobachtungen’, 144–7, points to hints that Bach may have had – or intended to have – parts copied; again, these remain too vague at present to support any firm conclusions.

Table 1: Principal sources of the Mass in B minor (all but H Staatsbibliothek zu Berlin – Preußischer Kulturbesitz; nomenclature from *Johann Sebastian Bach (1685–1750): Messe h-moll BWV 232*, ed. Joshua Rifkin (Wiesbaden: Breitkopf & Härtel, 2006), 254–5)

Complete scores

- A Autograph: *Mus. ms. Bach P 180*
- B Copy by Johann Friedrich Hering and an anonymous text scribe: *Mus. ms. Bach P 572 (Part I), P 23 (II), P 14 (III, IV)*
- C Copy by the Berlin copyist An. 402: *Am. B. 3*

Copies of the *Symbolum Nicenum*

- F Parts, mostly by Johann Heinrich Michel, but with three earlier parts by Heinrich Georg Michael Damköhler: *Mus. ms. Bach St 118*
- G Score by Ludwig August Christoph Hopff: *Mus. ms. Bach P 1212*
- H Score by Ludwig August Christoph Hopff: private collection, Lawrenceville, New Jersey, Michael D’Andrea
- I Score by Johann Heinrich Michel: *Mus. ms. Bach P 22*



Figure 1: 'Et resurrexit', bars 58–59 (voices and continuo), Source B (all figures Staatsbibliothek zu Berlin – Preußischer Kulturbesitz, Musikabteilung mit Mendelssohn-Archiv; used by permission)

Unfortunately, the story didn't end there.³ As has become widely known, Emanuel seems then to have entered his clarifications into the autograph itself, and over the years he returned to the autograph on a number of occasions in connection with the series of copies enumerated in Table 1. Each time, it appears, he would clarify some ambiguity in his father's manuscript or – above all in the phases represented by the copies of the *Symbolum Nicenum* labelled F, G, H and I – amplify or even rework details of what his father had written. Emanuel operated from the best of motives: he clearly wished to propagate the Mass, and in particular the *Symbolum*, which he performed on at least two occasions in Hamburg.⁴ Nor, we must recall, would he have had any reason to view the autograph as a sacrosanct historical document rather than as part of a living practice. But his efforts have left us with a host of difficulties. While his interventions in the *Missa*, the *Sanctus* and the final catch-all of movements from 'Osanna' to 'Dona nobis pacem' do not generally cause much trouble, his repeated involvement with the *Symbolum*, not least as a performing musician rather than an archivist, creates problems of another dimension. Emanuel's hand does not always differ obviously from that of his father. Not only that, but he didn't hesitate to overwrite his father's entries; and worse yet, his well-known obsession with neatness moved him at times to erase those entries with a razor before entering his own readings. Comparison with the copies, aided by close visual examination of the autograph, does make it possible to eliminate many of Emanuel's additions, and to restore much of what he covered over or scraped away. Nevertheless, there remain more than enough places where even the most patient scrutiny leaves us in the dark as to what J. S. Bach actually wrote. As we shall see, some of them concern particularly crucial spots in the music.

At such moments we inevitably wish for a magic bullet; and in our age, we look to technology to provide one. I myself, when preparing the critical edition of the Mass published by Breitkopf & Härtel in 2006, sought to explore the possibilities of imaging tools that would enable us to distinguish between the entries of father and son with a security that the naked eye – even the naked eye abetted by ultra-violet magnification – could not hope to achieve. But although Helmut Hell, the then-director of the music division at the Berlin Staatsbibliothek, responded positively to the idea, a practical means of realizing this intention lay beyond our reach. Barely had my edition appeared, however, than word came that advances in equipment manufacture, bolstered by the institutional persuasion of the Bach-Archiv in Leipzig, would facilitate the sort of investigation I had hoped to carry out. Let me not pretend that I found the news entirely welcome. Plainly, I too looked forward to seeing all the intractable problems finally resolved; but as someone with, so to speak, a dog in the fight, I also wondered if the solutions would not make my best efforts obsolete. To what extent this ambivalence colours what follows, I cannot say. Whatever the case, a preliminary report on the new examination of the autograph, by the musicologist

³ As we shall see, Uwe Wolf argues that it didn't begin there either; but see page 52 below.

⁴ Evidence of a performance before the well-known one of 1786 comes chiefly from the three parts of Source F copied by Heinrich Georg Michael Damköhler; see Rifkin, ed., *Bach: Messe h-moll*, 255.

Uwe Wolf and the scientists Oliver Hahn and Timo Wolff, has appeared in the 2009 *Bach-Jahrbuch*; even without the full exposition of their findings that we might hope will accompany the edition that Uwe Wolf has prepared on commission from the Archiv, the material already presented raises enough questions to warrant discussion.⁵

Surprisingly, perhaps, Wolf and his colleagues did not employ any of the newer methods of digital analysis that, some more expert than I have told me, have had particular success in sorting out layers of palimpsests, but used the classic method of X-ray fluorescence, or XRF. I must leave consideration of this choice, obviously, to my scientific betters. But whatever the technology, we can ask: What do we expect from such an examination? Resolution, no doubt, of cases where traditional methods of handwriting analysis and textual comparison fail to yield unambiguous conclusions; confirmation of other conclusions regarded as reasonably, but not absolutely, secure; and, surely, corrections of some findings that looked solid enough but that we must now recognize as mistaken. Even in cases of this last sort, however, we may reasonably expect that the answers will – at least on reflection – yield a picture that brings not only the raw scientific data but also findings inferable from other forms of evidence into what we can perceive as a coherent whole.

Consideration of the material presented by Wolf, Hahn and Wolff might best begin with a straightforward illustration of how XRF appears to resolve ambiguous evidence. Figure 2 shows the end of the 'Et in unum Dominum' in the autograph; the systems belong respectively to violin 1, violin 2, viola, soprano 1, alto and continuo, with clefs reading g2, g2, c3, c1, c3 and f4. Readers will quickly notice the second sharp sign in violin 2 at bar 78. Not only does it differ from the sharps in its immediate proximity, but it differs as well from any sharp that we would normally ascribe to J. S. Bach. Obviously, the question of who wrote this accidental has no bearing on the music itself: no one, surely, would advocate reading the note in question as anything but C#. But in a critical edition what appears as Bach's text and what appears as an editorial addition does matter – and, in fact, I spent more hours than I would care to think of over this very sharp. For one thing, if it does not look much like J. S. Bach, it does not look typical of C. P. E. Bach either. For another, the sharp appears in every copy from source B onwards; and so far as my own work indicated, C. P. E. Bach did not intervene in the autograph prior to Hering's copy – a point to which we shall return. Speculation that Hering might have added the sharp, while an obvious enough guess, foundered on the difference between it and Hering's accidentals. On several occasions with the autograph in Berlin, moreover, I could not detect a difference between the ink of the nettlesome sharp and that of the music that surrounds it, except for a possible hint of overwriting on the cross-beams – precisely the element that most obviously distinguishes this sharp from those

⁵ See Uwe Wolf, Oliver Hahn and Timo Wolff, 'Wer schrieb was? Röntgenfluoreszenzanalyse am Autograph von J. S. Bachs Messe in h-Moll BWV 232', *Bach-Jahrbuch* 95 (2009), 118–33. In the remainder of this article I tacitly ascribe all musicological statements to Uwe Wolf alone.



Figure 2: 'Et in unum Dominum', bars 77-80, Source A

generally characteristic of J. S. Bach. No less important, the spacing seems to imply that entry of the sharp preceded that of the note that it modifies rather than vice versa: the note head lies considerably to the right of where the vertical alignment suggests it should, and the placement of the sharp squarely in front of the note contrasts palpably with that of the obviously squeezed-in – although definitely autograph – sharp two notes later. When, considering all of this, I noticed what looked like a larger version of essentially the same sharp elsewhere in the movement, then found this same larger form of the sharp at more than a few places in the latest autograph portion of the *Art of Fugue*, I decided to accept it.⁶ Now Wolf reports that the sharp in fact comes from Emanuel's hand.⁷ I see no real reason to dispute this, though the spacing continues to give me pause.

With my next example, however, we enter more difficult terrain; indeed, we jump from the innocuous to perhaps the most notorious single problem in the entire B minor Mass. I refer to bars 138-140 of the 'Confiteor', the nodal point of the extraordinary enharmonic passage that has moved more than one writer to

⁶ See the abbreviated account in Rifkin, ed., *Bach: Messe h-moll*, 254; for the other sharps see 'Et in unum Dominum', bars 24-25, and the fugue BWV 1080/19, easily consulted in the facsimile reproduction *Johann Sebastian Bach: Die Kunst der Fuge BWV 1080. Autograph - Originaldruck*, ed. Hans Gunter Hoke (Leipzig: VEB Deutscher Verlag für Musik, 1979).

⁷ See Wolf, Hahn and Wolff, 'Wer schrieb was?', 131.



Figure 3: 'Confiteor',
bars 137-141, Source A

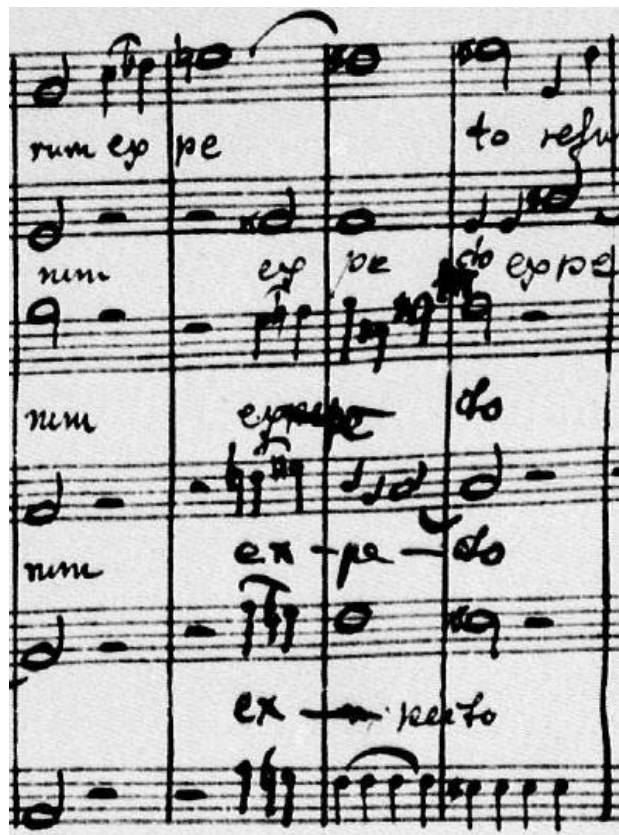


Figure 4: 'Confiteor',
bars 137-140, Source B



Figure 5: 'Confiteor', bars 137-140
(voices and continuo), Source C



Figure 6: 'Confiteor',
bars 137-140, Source G

think of 1 Corinthians 15:51–57 and the words ‘We shall all be changed’.⁸ Figure 3 shows this as it looks in the autograph; Figures 4–6 reproduce the same spot as it occurs in the chronologically successive sources B, C and G.⁹ In all four examples, clefs read c1, c1, c3, c4, f4, f4. Right away, readers will notice at least three things: first, the added staff with the tenor at the bottom of the page in the autograph; second, that B and C have readings for the tenor that are different both between themselves and from that of the added staff; and third, that only G, the latest of the sources reproduced here, shares the reading now visible in the autograph – as do, I might note, sources F, H and I as well. Those contemplating the music – either in the manuscripts themselves or in the transcriptions of Example 1 – will observe further that the readings in B and C fall readily into a progression leading to the version of the added staff and G; and those with particularly sharp eyes will see, too, that Emanuel wrote more than a little of the music in source B: the alto in bar 139, the tenor in bars 138–139 and the bass and continuo in bar 138. All of this puts special focus on that addition to the autograph: who wrote it, J. S. Bach or his son? Given the importance of the music, a lot will hang on the answer.

a Source B

b Source C

c Source A (bottom of page), F, G, H, I

Example 1: ‘Confiteor’, bars 138–140, tenor

At first sight, the script does not seem to provide a clear indication one way or another – as I wrote ten years ago, some details appear suggestive of J. S. Bach, others seem more to indicate Emanuel.¹⁰ Nevertheless, on continued reflection both Peter Wollny and I, independently of one another, have become convinced that it belongs to Emanuel; both of us, in fact, would now have difficulty associating it with J. S. Bach.¹¹ Hence it comes as something of a surprise that Wolf’s research has led him to the opposite conclusion:

⁸ See Helmuth Rilling, *Johann Sebastian Bachs h-Moll-Messe* (Neuhausen-Stuttgart: Hänssler, 1979), 106; and Eric Chafe, *Tonal Allegory in the Vocal Music of J. S. Bach* (Berkeley: University of California Press, 1991), 83. For background to the passage, sources and readings see Joshua Rifkin, ‘Eine schwierige Stelle in der h-Moll-Messe’, in *Bach in Leipzig – Bach und Leipzig: Konferenzbericht Leipzig 2000*, ed. Ulrich Leisinger (Hildesheim: Olms, 2002), 321.

⁹ Despite its place in the alphabet, all but the earliest parts of source F – the tenor among them – may well postdate G.

¹⁰ Compare Rifkin, ‘Eine schwierige Stelle’, 329–30.

¹¹ See Rifkin, ed., *Bach: Messe h-moll*, 270, and Wollny, ‘Beobachtungen’, 137–8. Although my edition, for reasons of space, did not explain the attribution to C. P. E. Bach, it in fact rested on essentially the same observations concerning the text underlay as Wollny has now published, and beyond that on the clear identity of ink between text and music – a detail, ironically, that XRF seems only to affirm.

Auch hier aber konnte mittels RFA geklärt werden, daß die Lesart des Zusatzsystems doch von J. S. Bach stammt und daher bedenkenlos in die Edition übernommen werden kann. Über die Ursachen des Nichtbeachtens dieses Systems durch die Kopisten kann nur spekuliert werden. Möglicherweise war die Durchstreichung zunächst nicht so deutlich wie heute und die Kopisten versuchten noch das Hauptsystem zu lesen – und scheiterten.¹²

Here, too, however, it was possible to clarify by means of XRF that the reading of the added system is indeed by J. S. Bach and thus can be adopted in the edition without reservation. We can only speculate as to why the copyists did not notice this staff. Possibly the crossing-out was at first not so clear as it is today and the copyists tried still to read the principal staff – and came to grief.

One would hesitate to question such a definitive judgment, especially one apparently backed up by the force of scientific evidence. Yet I cannot shake some misgivings.

Wolf's undifferentiated references to 'the copyists' – in fact, he nowhere mentions any but Hering – skim over a rather complex series of events that points to a very different picture from the one he draws. Hering indeed failed to decipher the tenor – and, as we have seen, not only this voice. But since Emanuel had to fill in what Hering couldn't read, he must have looked closely at the autograph as well. Whether or not he introduced any changes to it at this point, moreover, he returned to the autograph in preparation for the copying of source C. The scribe of this score, unlike Hering, could not call on Emanuel's help when the going got tough: although this copyist, too, worked in Berlin, Emanuel had in the meanwhile relocated to Hamburg. Emanuel thus seems to have gone through his father's manuscript with particular care to make sure that obstacles of the kind that had stymied Hering could no longer arise. The Berlin scribe – clearly a seasoned professional, as the many copies he made for Princess Anna Amalia of Prussia reveal – wrote out bars 138–140 of the 'Confiteor', like all of his score, with no apparent hesitation.¹³

Hence 'the copyists' turns out to mean three experienced musicians, one of them Carl Philipp Emanuel Bach, who between them must have looked intensely at the autograph on at least four separate occasions. Emanuel, in particular, clearly struggled to find a suitable reading of the tenor. Can he – and everyone else – really have failed to notice a staff boldly labelled 'Tenore' at the bottom of the page? Such a feat of collective tunnel vision becomes all the more remarkable

¹² Wolf, Hahn and Wolff, 'Wer schrieb was?', 126–8.

¹³ For an itemization of his copies in Anna Amalia's library – falsely listed under Johann Philipp Kirnberger (with a '?'), but adequate for present purposes – see Eva Renate Blechschmidt, *Die Amalien-Bibliothek: Musikbibliothek der Prinzessin Anna Amalia von Preußen (1723–1787). Historische Einordnung und Katalog mit Hinweisen auf die Schreiber der Handschriften* (Berlin: Merseburger, 1965), 333; on his putative identity with Kirnberger see particularly Yoshitake Kobayashi, review of Eva Renate Wutta, *Quellen der Bach-Tradition in der Berliner Amalien-Bibliothek: Mit zahlreichen Abbildungen der Handschriften nebst Briefen der Anna Amalia von Preußen (1723–1787)* (Tutzing: Schneider, 1989), *Die Musikforschung* 44 (1991), 291–2.

if we recall that every subsequent copyist who worked from the autograph appears to have had no problem recognizing the added staff; would heavier crossing-out really have accounted for the difference?¹⁴ So here we face a dilemma hinted at earlier: what happens when the scientific equipment gives us an answer that stands in such diametrical opposition to what we can deduce from all the other evidence available to us as to become not merely surprising but downright counterintuitive? Clearly, we cannot simply ignore the results, not least as Wolf and his colleagues have unquestionably taken pains to avoid any pitfalls.¹⁵ Still, natural scientists of my acquaintance tell me that strongly counterintuitive findings inevitably force them to reappraise their methods and measurements.¹⁶ Might we face a similar situation here – and if so, how unconditionally should we trust the results of the present XRF investigation?

Let me reinforce this point with a more modest – but also not musically insignificant – illustration from the ‘Confiteor’. Figure 7 shows bars 46–48 of soprano 2 in the autograph; the clef, as usual, reads c1. Example 2 shows the same bars, in context, as they appeared to Hering and every subsequent copyist. Wolf draws attention to the correction of the second note in bar 47:

In T. 47 f. hatte J. S. Bach im Sopran II zunächst das melodisch nahe liegende *h'* notiert, dieses dann jedoch in ein *cis''* geändert, vielleicht um den Takt an das charakteristische Confiteor-Motiv mit der repetierenden Punktierung anzunähern. Diese Korrektur verdeutlichte er mit dem Tonbuchstaben ‘*c'*’ über der Note. Dieser Tonbuchstabe wurde dann vom Sohn in ein ‘*h'*’ geändert – und *h'* ist auch die Lesart der ersten Abschrift.¹⁷

In bars 47[–48] Bach had initially notated the melodically plausible *b'* but then changed this to a *c#'*, perhaps to bring the bar closer to the characteristic ‘Confiteor’ motive, with its repeating dotted figure. He clarified this correction with the letter *c* above the note; this letter was then changed by the son to an *h* [German for B] – and *b'* is also the reading of the first copy.

¹⁴ My thanks to David Fallows for enlightening discussion on this point. The later copyists include, as Table 1 makes plain, Ludwig August Christoph Hopff (twice) and Philipp Emanuel’s chief copyist Johann Heinrich Michel. Michel has left us two copies of the passage, in sources F and I; but F, it would appear, relied not on the autograph but on an earlier set of parts, revised by Emanuel, of which only Damköhler’s violins and continuo remain. See Rifkin, ed., *Bach: Messe h-moll*, 255. I might also note here that the more easily singable reading of the addition to the autograph finds no record in the copies until those connected directly with, or evidently reflective of, Emanuel’s performances of the *Symbolum*.

¹⁵ See Wolf, Hahn and Wolff, ‘Wer schrieb was?’, especially 120–23.

¹⁶ Not, however, that all scientists inevitably follow this precept: see Alexander M. Schneider, ‘Mental Inertia in the Biological Sciences’, *Trends in Biochemical Sciences* 35 (2009), 125–8. My thanks to Michael Shia for the reference.

¹⁷ Wolf, Hahn and Wolff, ‘Wer schrieb was?’, 131.

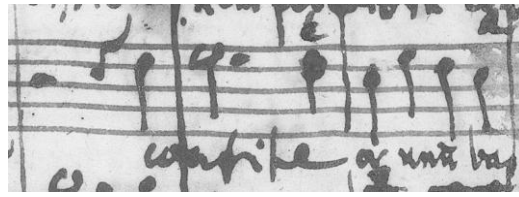


Figure 7: 'Confiteor', bars 46–48 (soprano 2), Source A

46

Soprano 1
mis - si - o - - - nem pec - ca - to - rum, con - fi - - - te -

Soprano 2
con - fi - - - te - or u - nam ba - pti - [sma,]

Alto
fi - - - te - or u - nam ba - pti - sma in re - mis - si - o -

Tenore
nam ba-pti - sma

Basso
pti - - - sma in re - mis - si - o - - - - nem pec - ca -

Continuo

 A musical score for 'Confiteor' bars 46-49. It features six staves: Soprano 1, Soprano 2, Alto, Tenore, Basso, and Continuo. The key signature is two sharps (F# and C#). The lyrics are written below the vocal staves. The Continuo part is written in the bass clef.

Example 2: 'Confiteor', bars 46–49

a
con - fi - - - te - or

b
con - fi - - - te - or

c
con - fi - - - te - or

 Three musical staves labeled a, b, and c, each showing the subject head for 'Confiteor'. Each staff has a treble clef and a key signature of two sharps (F# and C#). The notes are: a) G4, B4, C#5, B4, A4; b) G4, B4, C#5, B4, A4; c) G4, B4, C#5, B4, A4. The lyrics 'con - fi - - - te - or' are written below each staff.

Example 3: 'Confiteor', subject head

In other words, Bach changed the note from b' to $c\sharp''$, but Emanuel changed it back to b' – and did so before Hering made his copy of the Mass. Again I must confess to some unease. While I cannot fully explain the situation with the letters, for example, I must point out that the use of c for $C\sharp$ conforms neither to J. S. Bach's practice nor to that of Emanuel. The former used German tablature symbols, where $C\sharp$ appears as a letter c with a sort of rightward hook at its lower end.

Emanuel at first also used this notation – Figure 1 provides an example – but later switched to German note names, representing C# as *cis*. But however we understand the letters, I find it hard to imagine that the change in bar 47 went in the direction claimed by Wolf.¹⁸ For one thing, I would think it more likely for Bach to alter a fugue subject from its ‘normal’ form to a variant rather than the other way around. Bars 47–48, in fact, mark the first time in the movement that notes 2–4 of the subject depart from the pattern illustrated in Example 3a. Especially under these circumstances – and especially, too, since Bach had written the subject head in its customary form only one bar earlier and in the next-lower voice – we could readily imagine that he first conceived, and started to write, soprano 2 as suggested in Example 3b, then supplanted this with the version of Example 2 because the harmony demanded an *a'* rather than *b'* at the start of bar 48. I, for one, would want very strong evidence to persuade me that Bach would have altered this smooth line to the ungainly reading shown in Example 3c just to maintain the motivic consistency of the dotted figure.

Indeed, Bach himself lends sustenance to these misgivings in the very next phrase. Here, as we see in Example 4, soprano 2 repeats bars 46–48 a third lower; and here the subject shows the scalar reading of notes 2–4 – now *a'-g#'-f#'* – without any correction in the autograph. Much the same happens, moreover, in soprano 1 at bars 110–112, which I reproduce in Example 5. Significantly, just as no discernible contrapuntal exigency would have forced Bach to change bars 46–48 from the reading of Example 2 to that of Example 3c, no discernible contrapuntal exigency would have prevented him from writing bars 50–52 or 110–112 analogously to Example 3c. Admittedly, the variant of the subject in Examples 2, 3 and 4 does not occur anywhere else in the movement – but at no other place would the harmony have demanded the lowering of the fourth note that we see here. In the context of the entire ‘Confiteor’, therefore, the version of bars 46–48 in Example 2 establishes a precedent for the repetitions in bars 50–52 and 110–112; for Bach to have replaced this version with that of Example 3c would have meant undoing that precedent without compelling motivation.¹⁹

A final observation brings us back to the corrected note itself. Looking again at Figure 7, readers will recognize that it has a stem somewhat shorter than that of the dotted minim that precedes it. We might think this stem a trifle short even for a *c#''*; but especially if we compare it with the following bar, it seems decisively too short for a *b'*. In sum, given the uncertainties already elicited by bars 138–140 of the ‘Confiteor’, I wonder if the XRF evidence really has the power to make us accept the reading that Wolf proposes – or if this example does not give us more reason to question the XRF evidence as we currently have it.

¹⁸ We may wonder, in fact, if the autograph even contains the supposed letter *c*. I do not recall noticing it when I examined the manuscript. Admittedly, at the time nothing about the spot struck me as suspicious, so I might not have looked as closely as I could have; but a colleague who has recently examined high-resolution digital images of the autograph tells me that even under considerable magnification he could not detect the presence of a *c* either.

¹⁹ See the observations on ‘immediate’ corrections in Robert L. Marshall, *The Compositional Process of J. S. Bach: A Study of the Autograph Scores of the Vocal Works*, 2 vols. (Princeton: Princeton University Press, 1972), ii, 36.

50

Soprano 1
or, con - fi - - - te - or, con - fi -

Soprano 2
con - fi - - - te - or, con - fi - te - or u - nam ba -

Alto
nem pec - ca - to - - - rum, pec - ca - to - rum,

Tenore
fi - - - te - or, con - fi - - - te - or u - nam ba -

Basso
[to] - - - rum, in re - mis - si - o - - - nem pec - ca -

Continuo

Example 4: 'Confiteor', bars 50-53

110

Soprano 1
con - fi - - - te - or, con - fi - - - te -

Soprano 2
to - - - rum, con - fi - - - te - or u -

Alto
to - - - rum, con - fi - - - te -

Tenore
o - - - nem

Basso
mis - si - o - - - nem pec - ca - to - - - rum, con - fi -

Continuo

Example 5: 'Confiteor', bars 110-113

I have laboured over this one note – more, surely, than Bach ever did – because it has a bearing on a larger issue. Wolf introduces it as a demonstration that Emanuel intervened in the autograph of the B minor Mass prior to Hering's copy. This finding, clearly, would have far-reaching consequences for our understanding of the process by which the Mass evolved from the form in which

J. S. Bach left it to the form the autograph ultimately assumed, and would also intensify the textual problems with which that process has left us. But on present evidence, I do not really see much reason to share Wolf's view. Let me, as a last example, take another of the arguments he introduces in support of his point:

C. P. E. Bach hatte nicht nur die Textunterlegung des Vaters vervollständigt, sondern dabei sowohl tatsächliche als auch wahrscheinlich vermeintliche Versehen des Vaters korrigiert. Tatsächliche Fehler gab es im 'Et resurrexit' in T. 97 f. zu beseitigen. Diese Takte gehen zurück auf die Takte 14 f. desselben Satzes, es ist allerdings ein anderer Text unterlegt. J. S. Bach hatte nun teilweise versehentlich den Text der frühen Takte ('et resurrexit') auch an der zweiten Stelle unterlegt; der richtige Text 'cujus regni' wurde an diesen Stellen erst von C. P. E. Bach eingetragen (teils auf Rasur). Herings Abschrift bietet bereits den im Autograph durch C. P. E. Bach korrigierten Text, und zwar korrektorenlos.²⁰

C. P. E. Bach had not only filled out his father's text underlay but in so doing also corrected both genuine and, it would seem, supposed errors of his father. There were genuine errors to be removed in the 'Et resurrexit' at bars 97-98. These bars derive from bars 14-15 of the same movement, only a different text is underlaid. J. S. Bach, however, had, partially in error, underlaid the text of the earlier bars at the second passage as well; the correct text, 'cujus regni', was only entered by C. P. E. Bach (in part over an erasure). Hering's copy already presents the text as corrected in the autograph by C. P. E. Bach, and indeed free of any correction.

Before getting into the details of this, it seems worth pointing out that none of what Wolf says here invokes XRF or presupposes recourse to it. Earlier scholarship had already reached the same conclusions about the autograph.²¹ Concerning Hering's copy, one could perhaps wish for some input from XRF; for to my eyes – and, I hope, to those looking at Figure 8 – this source reveals something quite different from what Wolf contends. While it indeed 'presents the text as corrected in the autograph by C. P. E. Bach', it hardly does so 'without any correction'. On the contrary, I see corrections to the text in at least three places: bar 97, bass; bar 98, tenor; and bar 99, alto. More important, each of these corrections – as well as some further text in the alto and tenor – seems unmistakably to belong not to Hering or his text scribe but to Emanuel, whom Wolf in fact recognizes as the scribe responsible for the notes of the alto in bar 98.²² If Emanuel had already retouched the autograph as Wolf claims, why did he still have to add to or revise so much of what Hering and his text scribe had written? And why, if he took the pains with the text that Wolf presupposes,

²⁰ Wolf, Hahn and Wolff, 'Wer schrieb was?', 130-131. I read 'an dieser Stelle' and have translated accordingly.

²¹ See Rifkin, ed., *Bach: Messe h-moll*, 267.

²² For details see Rifkin, ed., *Bach: Messe h-moll*, 267; and Wolf, Hahn and Wolff, 'Wer schrieb was?', 123-125, which, however, surely misreads the chronology of the musical revisions concerning bar 98.



Figure 8: 'Et resurrexit', bars 97-99, Source B

would he have left the music of the alto in bar 98 in its illegible state? So far as I can tell – and here, as indicated, Wolf cites nothing from the XRF data to suggest otherwise – we have another instance in which Hering foundered and C. P. E. Bach then resolved the situation in both the copy and the autograph; as Wolf himself writes about this very spot in another connection, 'clarification of the autograph and completion of the copy thus went hand in hand'.²³ Hence both here and in bar 47 of the 'Confiteor', the case for supposing that Emanuel intervened in his father's manuscript before putting it at Hering's disposal would seem anything but secure. In principle, of course, the sharp in the 'Et in unum Dominum' with which we began would still support Wolf's argument. But given the cracks that have now appeared in the armour of the XRF evidence, we should perhaps reserve judgment on even that sharp as well.

In fact, the cracks do considerably more than reopen the question of a single accidental. Anything less than blanket acceptance of the conclusions offered by Wolf and his colleagues forces us to assess the plausibility of each individual result; and it takes little effort to recognize that we have no means of doing this beyond those very criteria – visual, musical and stemmatic – that XRF ostensibly supplants. Yet the moment XRF becomes subject to other kinds of evidence, it no longer has any credibility of its own as an arbiter of the issues for which we

²³ Wolf, Hahn and Wolff, 'Wer schrieb was?', 124: 'Verdeutlichung des Autographs und Vervollständigung der Abschrift gingen also Hand in Hand'.

turned to it in the first place. In other words, if we reject even one of the XRF findings, we must reject all of them, however plausible some may appear – for under these circumstances, any plausibility they may claim owes nothing to XRF itself. Its intervention thus winds up as at best irrelevant, and indeed potentially misleading.

So the hope that technology would resolve our uncertainties about the text of the B minor Mass remains, at least for now, chimerical. We should hardly take it amiss that science has failed to reward our expectations: this happens to humanists time and again. But at the same time, the apparent shortcomings of the XRF investigation should not give musicological Luddites anything to cheer about. We need the technology; and I can well imagine that, with a return to the drawing-board and some reconsideration of methods, measurements and perhaps even equipment, the kind of pioneering work that Wolf, Hahn and Wolff have done will indeed bring us closer to solutions than we could come before.

As our discussion has shown, however, it would seem premature to think that the more traditional philological approaches dictated until now if by nothing other than necessity – approaches themselves sometimes derided as excessively ‘scientific’ – do not still retain their efficacy.²⁴ True, the answers they provide concerning the *Symbolum Nicenum* in particular remain frustratingly incomplete; but pending further developments, they remain the only answers we have. We need to trust our eyes, our musical sensibilities and the logic of textual comparison no less than we need continually to challenge them. Especially with a masterwork like the B minor Mass, we must guard against reinscribing the insidious dichotomy between ‘criticism’ and ‘positivism’ under new banners. No less than the magic bullet, the very goal of recovering Bach’s B minor Mass in every detail may amount to nothing more than an illusion, which approaches and recedes from us in changing measure with changing times, attitudes and methodologies. But this doesn’t mean we should stop chasing after that illusion – with every possible means at our disposal.

Having said this, I must close on a more sober note. The realities of publishing and of institutional power will probably rule out any significant change in the present situation for many years to come. Seen from this perspective, I fear that the XRF investigation, and its consequences for the newest edition of the Mass, in fact represent a step backwards – and a step from which we shall not soon recover. The ill fate that has dogged the B minor Mass for so much of its history seems destined to continue.

Editorial note: This article is a reprint of Joshua Rifkin, ‘Blinding us with Science? Man, Machine and the Mass in B minor’, *Eighteenth-Century Music*, 8/1 (March 2011), 77–91, reproduced with permission.

²⁴ See also, on this point, Wollny, ‘Beobachtungen’, 137.