

A Mysterious Advertisement

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Editor's Note. Brian Randell submitted the following notes on July 9, 1981, in response to seeing the text of the advertisement mentioned by Garry J. Tee in the preceding article. We invite our readers to provide Randell with any further information.

1. Introduction

The Babbage papers discovered in New Zealand and Australia by Garry J. Tee (described in the preceding article in this issue) contain one very curious item in Babbage's handwriting, namely the text of an advertisement that appeared in the *Times* on March 3, 1835. This advertisement reads as follows.

Calculating Machines. The advertiser engages to furnish such machines, having three orders of differences of 5, 4, and 3 places of figures respectively, and capable of calculating any table of 6 places of figures, with the third difference constant. The price of each machine will be £40, and the advertiser will demand no money until the machine is delivered perfect according to the above conditions. Apply, post paid, to Delta, care of Mr. Robertson, Mechanics' Magazine office, Peterborough-court.

The present note documents the (meager) results of an investigation prompted by this surprising find.

2. The Investigation

The handwritten text, which is in the Babbage collection at the Wanganui Regional Museum, does not have a date indicating when it was prepared. It was therefore originally thought that the advertisement might have been placed by Babbage himself. However, a letter since found preserved among the Babbage correspondence held in the British Library (Add. MSS 37, 189-41) states:

My Dear Babbage,

The advertisement to which I alluded last night is in the *Times* of Tuesday March the 3rd, front page, 4th column, the 3rd advertisement from the bottom of the page.

Yours very truly. . .

The letter, which is undated, bears an illegible signature. It has been marked by the cataloger, "3 March ?1835 abt Calc Mach." This seems quite justified, since the details given of the position of the advertisement are correct, and the author has not thought it necessary to mention the year in specifying the date of its appearance. (The next two letters in the Babbage collection are also about an advertisement in the

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Times, in each case asking Babbage for details as to when it appeared, but it is not at all clear that they concern the same advertisement, even though this is what the cataloger has assumed.) So who was the advertiser? His identity is equally hidden by the phrasing used for what is basically the same announcement, in the April 11 issue of *Mechanics Magazine*.

Calculating Machine. A gentleman, who is known to us, and for whose scientific ingenuity we can readily vouch, has requested us to state, that he will engage to furnish for a sum of not more than £40, a calculating-machine, having three orders of differences, of five, four and three places of figures respectively, and capable of calculating any table whatever of six places of figures, with the third difference constant. He will ask no money till the machine is delivered perfect according to the above objections; and would not object to bearing himself half the expense, on condition of retaining a corresponding interest in the machine.

The next week's issue contains another announcement, although for what sounds like an arithmometer, not a difference engine.

Calculating Machine—Another Rival to Mr. Babbage. Sir, Having seen some notices in the public papers of calculating machines invented at home and abroad, I think it right to state that I have myself invented one, which is exceedingly simple, and might be made at the same expense as a common clock or time-piece. I can find the 10 power of the 9 digits in about twenty minutes; in fact, Addition, Subtraction, Multiplication, Division, the Rule of Three, Involution, Evolution and a few other rules, may be worked with despatch and facility. The parts of my machine do not require such a critical adaptation, nor are they so liable to get out of order, as those of Mr. Babbage's machine; they may be made by any ingenious mechanic, and worked by any wayfaring man, though a fool. I remain Sir, your humble servant, J. S. Holland—*Three Colt-street, Limehouse.*

I presume that Holland is referring, among others, to Delta's machine. Despite the vagueness of the phrase the public papers, I have sought, albeit not very systematically, to find the other reports he refers to, but to date without success. (The sources I have searched so far are: the *Times*, Knight's *Penny Magazine*, *Chambers Miscellany*, *The Gentleman's Magazine*, and *The Athenaeum*.)

There are in fact further relevant items in *Mechanics Magazine*. The first of these, on May 16, is a challenge to J. S. Holland to substantiate his claims.

MR. BABBAGE AND HIS RIVALS.

Sir, In a late number of your publication, I observe that one of your correspondents claims to be the inventor of a calculating engine which will perform the operations of Multiplication, Division, and even do sums in the Rule of Three. As this is a subject in which I take a considerable interest, I hope I shall be excused if I request a little more information; and first I wish to learn whether this is a self-acting machine. . . . A machine which when once adjusted to perform an operation requires an assistance from the mind (even the common operation of counting the number of turns of the handle to know when to expect the result) is open to the objection of liability to error. If one turn be omitted, an error is induced into the calculation, and an error made by a machine is the more dangerous because unsuspected. I understand that Mr. Babbage's calculating engine is not liable to these objections, and that one great merit is, that its results are the operation of the machine itself, and engraved upon copper plate with unerring certainty. Has the inventor of this new machine taken any steps to make it public, or to secure the patronage of Government? Matters of this kind are of great public interest, and many valuable inventions perish for want of early attention. I trust, therefore, you will excuse my troubling you on the subject.

I remain, very truly yours,
P.S.C.

(The fact that the author identified himself only by initials does not seem significant; this was a common practice at the time, certainly in *Mechanics Magazine*.)

Next is an editorial comment on a recent American patent, by one Daniel Kohler, in the June 27 issue, which ends,

The machine operates by means of wheels and pinions, and the sums added and pointed out by indices. We do not think that we should perform a service acceptable to our readers, by attempting a description of it, more especially as the patentee has neglected to tell in what particulars its novelty consists, having made no claim, and the whole affair being treated as though the Abacus and Babbage's machine, with all the contrivances intermediate in merit and in time, had never existed.

On July 18 a very strange and (I assume) serious letter about perpetual-motion machines appeared, from one W. Pearson, under the title "Self Acting Machinery." It contains a reference to Babbage's Difference Engine.

The reader must understand that I have *not* made any of the above machines; not that I suppose there would be any great difficulties in the way, further than such as are incidental to *first* model-making, as is cleverly explained in Babbage's "Economy of Arts and Manufactures," but simply because I have not the means.

Speaking of Mr. Babbage, reminds me of his Calculating Machine, which, I believe, government is now, and has been for the last fifteen years, endeavouring to bring to perfection. Can any of your intelligent readers inform me, whether it would be possible to bring my machine under the notice of government?

It is possible that the author is William Pearson, F.R.S. (1767-1847), a keen astronomer and maker of astronomical instruments and one of the founders of the Astronomical Society of London. Unfortunately, there seems no way of proving or disproving this conjecture.

Finally, the next week, someone else joined in the attack on Holland (and summarily disposed of Pearson).

CALCULATING MACHINERY

Sir, I have been rather disappointed at not yet seeing any answer to what appeared to me the very reasonable questions of "P.S.C.," p. 119, respecting the Calculating Machines said to be invented by two individuals, and noticed in your very useful *Magazine*. Are we to conclude they would not stand the test of such enquiries? I confess I see no other sufficient reason for the silence preserved by the inventors.

Notwithstanding all that has been written respecting Calculating Machinery, comparatively but few persons seem to have a correct notion of its uses or its great importance. . . . But a machine which would make a series of calculations and print the results without the possibility of error, which would calculate and print tables for all the purposes for which science requires their assistance with a perfection of accuracy, which could not be doubted except by those whose ignorance deprived them of all right to form an opinion, would do more for the advancement of human knowledge than the steam-engine, with all its million uses, has done for the civilisation and happiness of mankind. This is a fact well known to persons the best able to judge correctly of the matter.

Now, it has been confidently stated, and no attempt has been made to contradict the statement, that a machine of this kind has been invented and partly made; but that for some reasons which few persons know, and none will acknowledge, it has been laid aside and left to rust and go to ruin for nearly three years! Does this arise from personal feelings towards the inventor? or from mere apathy on the part of those who ought to see it finished for the benefit of the nation which has expended considerable sums upon it? Or have they arrived at the comfortable conclusion, that as science has done without such assistance for so long a time, she may do without it to the end of the chapter?

Yours, &c.

S.Y.

June 16, 1835

P.S. The best thing Mr. Pearson, p. 300, can do, is to publish as full a description as possible of *one* of his inventions, as he may rest satisfied and certain that if *it* will do what he supposes, the others will be immediately purchased at any price. Anyone of them would make a man's fortune.—S.Y.

One can presume that S.Y. is referring to both the Delta and the Holland machines, although the P.S.C. letter he cites in fact only mentions the latter. It is clear

that S.Y. is at once as suspicious of the claims concerning, and perhaps even the existence of, these machines as he is enthusiastic about Babbage's work. Of particular interest is the unusual understanding he displays of the importance of Babbage's Difference Engine being "self-acting" and the way in which he takes the opportunity of campaigning on Babbage's behalf over the question of government support for the machine.

Once again, who was Delta? The most likely suggestion is that the pseudonym conceals the name of Alfred Deacon, who is known to have constructed a model difference engine, based on the description of Babbage's Difference Engine published by Lardner in November 1834 in the *Edinburgh Review*.

Deacon's machine was, to the best of my knowledge first mentioned in print in the anonymous introduction to *Specimen of Tables Calculated, Stereomoulded and Printed by Machinery* (London, Longman, Brown, Green, Longman and Roberts, 1857), a book about the Scheutz difference engine. This introduction, which is written by someone familiar with Babbage's work, if not Babbage himself, contains the following footnote.

The article in the *Edinburgh Review* above referred to also suggested to Mr. Alfred Deacon the contrivance of difference engine for the same purpose but on a plan of construction very different. This machine is still in existence, although not in a finished state; it was intended to calculate consecutive numbers to twenty figures, with three orders of difference; but, on account of the expense, printing the result was not contemplated.

Babbage did not know of Deacon's machine in 1835, as his autobiographical account *Passages from the Life of a Philosopher* (London, Longman, Green, Longman, Roberts and Green, 1864) makes clear.

Mr. Deacon of Beaufort House, Strand, whose mechanical skill is well known, made, for his own satisfaction, a small model of the calculating part of such a machine, which was shown only to a few friends, and of the existence of which I was not aware until after the Swedish machine was brought to London [in 1854].

If this statement is correct, it would seem that Babbage, although aware of the advertisement shortly after its appearance, did not connect Deacon with Delta. Moreover, the factual details known of Deacon's machine are not wholly consistent with those in the advertisement, which are in fact closer to those of Babbage's own first small model of a difference engine.

Thus, although there are no better candidates known to me for the identity of Delta, the case for it being Deacon is by no means certain. One alternative suggestion is that Delta might be Brian Donkin, an eminent engineer who was closely involved with Babbage, and who in the 1850s constructed a copy of the Scheutz difference engine. Could there also have been someone else, perhaps, in view of the date, similarly influenced by Lardner's article or lectures, making difference engines in 1835? My efforts to answer this question have so far come to naught. For that matter, I am also at a complete loss as to the identity of P.S.C., S.Y., and J. S. Holland. Indeed, I find it difficult to be sure that Holland's claims, at least, were genuine, and were not intended just as a means of deriding Babbage's efforts and the many thousands of pounds of government money that had gone into them. Could it be that Delta's advertisement of difference engines priced at what seems to be the suspiciously low price £40 was not as genuine as *Mechanics Magazine* (if not S.Y.) apparently believed? These questions are perhaps more intriguing than important, but it would nice to know if there had indeed been a real possibility of purchasing a cheap, reliable difference engine in 1835. What an effect that might have had on public opinion and official support for Babbage's work, which by this time had

already become centered on the Analytical Engine—a machine whose powers and significance only became widely appreciated over a century later!

Acknowledgments

I have been greatly aided in putting together this modest collection of facts, speculations, and questions by the correspondence I have had with Allan G. Bromley, Garry J. Tee, and Michael R. Williams.