

Eric Sams

## Elgar's cipher letter to Dorabella

*The Musical Times*, Feb., 1970 (pp. 151-154) © The Estate of Eric Sams

"I looked with amazement at the absurd hieroglyphs upon the paper"

*The return of Sherlock Holmes*)

The words "cipher" and "cryptology", in their strict senses, have nothing to do with black magic, or numerology, or the Great Pyramid, or whether Queen Victoria wrote *In Memoriam*, or even whether Bacon wrote Shakespeare. Cipher nowadays is a universal method of communication:<sup>1</sup> cryptology is a skilled profession (once my own) and can be a decisive weapon of war. David Kahn's recent and definitive compendium *The Codebreakers*<sup>2</sup> says that musicians often make good cryptographers, and describes *inter alia* the cipher letter sent by Elgar in July 1897 to Miss Dora Penny (later Mrs Richard Powell; "Dorabella" of the *Enigma Variations*). She was 20, he 40. In 1895 her widowed father, the Rector of Wolverhampton, had married a close friend of the Elgars, who were then living at Malvern. By 1897 the families had exchanged four or five visits, and Elgar had written two brief friendly notes to Dora Penny. This third missive (as reproduced on the front cover) followed a visit by the Elgars to Wolverhampton in July 1897 and was enclosed by Mrs Elgar in a letter to her friend. On the back is written "Miss Penny". She published it in her memoirs of Elgar<sup>3</sup> saying that she "never had the slightest idea what message it conveys" and asking for solutions. The third edition (1949) says that no solution had been forthcoming, although the cipher had "been examined by a good many people skilled in such matters". Mr Kahn (1966) says that it had remained unsolved; and he is not alone in suggesting that it may well contain a clue to the Enigma itself. "If it does", he adds, "it may well help resolve one of the oddest mysteries in the musical domain".

In this article I give, with some confidence, a general solution of the cipher; I later propose to offer, with some diffidence, a solution of the Enigma. As in my articles about Schumann's use of cipher,<sup>4</sup> readers are invited to test and judge for themselves.

At first sight it looks easy. The basic system of cusps and arcs is described in a cipher manual of 1809. Elgar's pattern of one, two or three arcs at eight possible angles implies a system of  $3 \times 8 = 24$  symbols and hence a simple substitution cipher (ironic technical term for the direct replacement of letters by other letters or by symbols). The most efficient (though least diverting) way of solving such ciphers is by getting hold of the key. So first we look for a book in which Elgar might have found it. But in vain. So that leaves three main lines of attack: (a) by inspection, including the "probable word" or inspired guess method; (b) by inferring the cipher-system; (c) by applying the professional techniques described below.

<sup>1</sup> For example, the so-called Morse Code is a cipher system

<sup>2</sup> Weidenfeld & Nicolson, 1966; reviewed MT Aug 1968, p.730

<sup>3</sup> *Edward Elgar, Memories of a variation* (1937, 3/1949, Methuen)

<sup>4</sup> MT, Aug 1965, May and Dec 1966, Feb 1967, Jan 1968

# The Musical Times

February 1970  
four shillings

• ARTICLES •

Frankel and the Symphony  
Hans Keller

Musiek Advanced and Vindicated  
Olive Baldwin, Thelma Wilson

Elgar's Cipher Letter to Dorabella  
Eric Sams

The Berlin New Music Group  
David Drew



Handwritten cipher text from the letter to Dorabella.

The Elgar 97

• REVIEWS •

Prokofiev

David Lloyd-Jones

Twentieth-Century Music

Arthur Jacobs

Messiah Sources

Winton Dean

Lucky-Peter's Journey

Irving Wardle

Monody and Cantata

Nigel Fortune



It's no use looking for "Dear Miss Penny" in a cipher which has remained unsolved for 70 years. But method (a) allows some helpful inferences, *eg* that, in patterns like ex 1 or Z, if the outer symbols

Ex1 E S S S S      Ex2 U U U U

represent vowels, then the inner ones will be consonants, and conversely.

In method (b) we try out a particular pattern (ex 3). As it happens, two of those are right, But the

Ex3 U W U U U W U  
A B C D E F etc.

possibilities are well-nigh infinite; life is too short. Besides, Elgar was a keen cryptologist;<sup>5</sup> and he seems to have concealed his tracks rather well. So only (c) is any use at this stage. The main techniques<sup>6</sup> are: (i) frequency counts, (ii) contact charts, (iii) "force" (a more sophisticated method than exx 1 and 2 of separating vowels from consonants). The count indicates that the fifth symbol in ex 3 above is likely to be E and the next T. The high frequency letter which follows but does not precede E should be A. Similarly the one which precedes but does not follow T should be N. By further inference, the one beginning the third line is S; so that line begins S T A \* T S; so we note the missing letter as a likely R. "Force" adds two new vowels, presumably I and O (though not necessarily in that order). So now we have the letters shown in ex 4. But all this

Ex4 W U m m S W n/c  
E T A N S R I/O

is too good to be true. Either the cipher or the decipherer is already half cracked. It looks like the latter, because from now on nothing goes right.

Take the top line. All those E's ought to be a complete giveaway. But KEDGEREE ALLEY or LEVEE ABBEY are addresses unlikely to inspire confidence, whether in tradesmen or cryptographers. Try the second line, using only the clearest equivalents. It apparently ends S E E S A \* O/I \* E N E A R T \* \* I/O \* \* I/O N T, with repeated consonants between the last two vowels (ex 2). How about SEES A DOVE NEAR TO BILLING? There *was* a pet dove, as Mrs Powell tells us.<sup>7</sup> SEES AN OPEN EAR TO-FILL IN? Certainly a good notion for a composer.

But though the possibilities may be varied, they are far from unlimited. And they are narrowed down still further by the third line which begins (very sensibly) STARTS. It later adds (more obscurely) SEAROT; no doubt the allusion to the Ancient Mariner is unintentional. But that line has more useful hints to offer, providing further equivalents and eliminating others. Even in a short message there are ways of telling what the various letters are certain, or almost certain, to be. After a lime I felt sure that my assumptions and decryptments were on the right lines; but I could also see that they were in fact wrong.

There is some consolation in the thought that many others must have got that far and failed, including "people skilled in such matters". But one is daunted by the fear that the solution itself may well be odd, even nonsensical. Elgar's everyday style was cryptic enough; the thought of what he might say in *cipher* made the mind reel. So did the thought of what people might say about it. I had had some personal experience of the prejudice that cipher arouses; and I could imagine the reception that might await a decryptment on the lines of, say, "bung yirds" (meaning "young birds") or "lire eggs at me as of yore" or "warbling wigorously in Worcester wunce a week" or "the fickleness of you" or any one of a score of other things that Elgar is recorded as having said or written to Dora Penny. So I gave it up.

Yet that cipher remained powerfully enigmagetic. And when Roger Fiske's helpful article on the Enigma (Nov MT, p. 1126) sent me back to Mrs Powell's book I found myself glancing at Appendix A, just for old time's sake. I got the same message as before; my solutions were just as clearly right and wrong. But, on reflection, why not? After all, some things are arguably both true and not true, *eg* half-truths. Could this be the halfway stage of a double disguise? If so what kind of disguise might it be? The symbols suggested shorthand; perhaps Miss Penny was learning it? Or had Elgar's cipher been Greek to me because it was partly Greek to him?

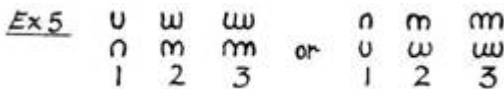
\*

<sup>5</sup> see R. Buckley's *Edward Elgar* (1905), p.41

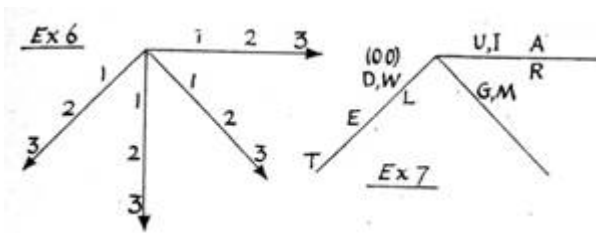
<sup>6</sup> Two excellent cipher manuals are published by Dover/Constable - *Cryptography*, by Laurence Smith, for the layman; and *Cryptanalysis*, by Helen Gaines, for the expert.

<sup>7</sup> *fn 7: op cit*, p.83f

Assume that the message was partly *phoneticized*. That would explain why the normal techniques give an answer which is both right and wrong-with the right kind of wrongness. Take the last four characters. In normal word-structure all they could say was BLOB, which (even as Elgarian for full stop) seemed implausible. But use the new key, and things begin to click. For example those same four characters might then be saying "click"; or "cloak". Cloak! Then the penultimate symbol would not just be letter O (an old idea) but the sound of its name, "O" (a new idea). And if the last symbol could be C or K then why not English C plus Greek K? And the kappa seems to fit on the top line (perhaps not necessarily the *first* line of the message, if STARTS means what it says). And given the idea of Greek, plus the idea that the message might say something like "I'm sending you these absurd hieroglyphs", that blind alley of an address in the top line now has LETTERS. The symbol between the two E's occurs only once. It might mean double T. But a cryptologist usually works in capitals; so- we can guess that Elgar saw his double T's, and hence enciphered them, as the Greek Pi, or P-a suitably rare letter. So gradually the cipher-table is uncovered as an alphabet varied with phonetic vowels (*eg* different symbols for ä, á and ā) and Greek characters (which also can be used as an alternative if they look or sound different from an English counterpart). Now we see why the cryptographic results were right but seemed wrong. For example one symbol can stand for either the English consonant W or the corresponding Greek (or shorthand) vowel ω; which is why that symbol kept on appearing as both vowel and consonant. Far more puzzling is the inescapable conclusion that one or two *English* letters, *eg* G and M, can occasionally share the same symbol. If so there has to be a reason; and it is here that method (*b*) comes into its own, as a cross-check. If G and M come together, that rules out alphabetical order as in ex 3. But a common alternative is a system built up round a key word or words, for example one's own name. So what is the basic pattern? We began by assuming a matrix of one, two or three arcs at *eight* different angles. But further reflection shows a simpler method of mirror-images; the symbols can lie back to back or face to face, as in ex 5; or on a system of only *four* lines, as in ex 6.



And when our English letter equivalents occupy their designated places at that cipher table, its centrepiece looks in part like ex 7.



This could explain not only the doublets but the cloak, on the assumption that it began as the personal cipher of a man who was Ted to his sister, Ed to his mother, "Edu" or "Edoo" to his wife, E.E. to Dora Penny, Edward Elgar to the world and Edward-William Elgar to the registrar. -We can also guess why E.D.U. became three separate letters in the Enigma. Elgar's pseudonym of "Nanty Ewart"<sup>8</sup> may suggest that N and Y are not far away; and so on.

Such a cipher table was, I suggest, used by Elgar on July 14, 1897 to encipher a message to Dora Penny. Because of the double disguise the message is not easy to transcribe, even when we know or have guessed the key. This is attached (ex 8), together with a detailed working and notes, so that interested readers can test and judge for themselves. They may then be able to improve on my own solution, which runs as follows:

STARTS: LARKS! IT'S CHAOTIC, BUT A CLOAK OBSCURES MY NEW LETTERS, A, B  
[alpha, beta, *ie* Greek letters or alphabet] BELOW: I OWN THE DARK MAKES  
E. E. SIGH WHEN YOU ARE TOO LONG GONE.

A "dark saying"? I think it may be held to throw a clear and pleasant light on the Enigma itself; but that remains to be seen.

<sup>8</sup> Mrs Powell, *op cit*, p.37

Ex 8

		KEY																									
LETTER	H R X	D W	E V X Z T	B G M	I U A P L S N Y	C O																					
SOUND	AR KS	OO	NY CHRS		NG A	I U A TT	ES	V U	K O I	A (ARE) A (R)																	
SYMBOL	U W W	3	3	3 3	3 3	n	m m	c e e	e e	e e	m w m u																
No.	1 2 3	4	5	6 7 8 9	10 11 12	13 14 15 16 17	18 19 20 21	22 23 24	25 26																		

MESSAGE

S	T	A	R	T	S	L	A	R	K	S	I	T	S	C	H	A	O	T	I	C	B	U	T	A	C	L	O	A	K
17	6	14	2	6	17	16	2	3	15	6	17	5	25	4	6	13	21	9	13	6	14	21	16	22	21				

O	B	S	C	U	R	E	S	M	Y	N	E	W	L	E	T	T	E	R	S	A	B	E	L	O	W
20	9	17	21	19	26	20	10	23	18	5	4	16	5	15	5	5	14	9	9	5	16	22			

I	O	W	N	T	H	E	D	A	R	K	M	A	K	E	S	E	E	S	I	G	H		
23	22	13	18	6	1	5	4	26	21	10	11	21	17	5	5	17	14	13					

W	H	E	N	Y	O	A	R	E	T	O	O	L	O	N	G	G	O	N	E	-
4	1	5	18	5	25	6	4	16	22	10	10	22	18	6						

Notes

1. I have made the decryptment as clear as I can by setting out the symbols in the arbitrary order of ex 3 above. From the data and from ex 7 interested readers will be able to reconstruct the cipher table, as far as possible, and perhaps draw further inferences from it and from the text. If so, I should be very interested to hear of them.
2. Both table and text seem reasonably clear, and authentically Elgarian. He was of course a devoted cryptologist; and (however hard it may be for the layman to believe) the making and breaking of cipher is a matter of intense personal feeling, like playing chess-an analogous pastime. The idea of using all one's names and nicknames to make a personal cipher table seems entirely characteristic and compelling; and so does the train of thought "chaos - cloak - obscures - letters - alphabet - dark - sigh - absence". Not only those ideas, but those actual words-together with Greek characters, a reference to stenography, and a peroration about Enigmas, Friendship, Music and Hieroglyphs recur throughout *Religio Medici* by Sir Thomas Browne, a text worth studying by all devotees of Elgar. The degree of his own involvement is shown by the cipher itself; those symbols are written in a practised hand.
3. Similarly with the rest of the text; thus "E.E." was Elgar's name to his friends and himself at this time, eg, throughout Mrs Powell's book and in his own letters to Jaeger (see *Letters to Nimrod*, ed Young, 1965). "Larks" is in her diary for 1899, op cit, p.17 - IXpin to dinner. Great larks". IXpin was Elgarian shorthand for Ninepin, his name for Troyte Griffith; "larks" (cf "Japes!", a favourite expression) sounds like his voice too. So do the many other corroborative details given in the technical notes below.
4. But there are still some puzzles, because of the nature of the cipher used. Thus "A B below", if that is right, may mean "I have added Greek letters (alpha, beta) below my English ones" which was ex-hypothesi the case; or perhaps "alphabet below", referring to a key which had been omitted or mislaid.
5. It seems in any event incredible that Elgar should have expected anyone to decipher his message with no kind of key or clue. The phonetic aspects alone are very resistant; and there are several other effective defences, eg adding extra letters to E, using two equivalents for some symbols (because of the way the cipher table was constructed); running words over the end of a line; ending with (presumably) a dummy letter; and making the text start with the third line though beginning the writing at the top (as the careful first symbol shows).
6. I think this last point explains why the eighth symbol is wrong; it should read no 17, S. The encipherer just beginning his task would note that this was the first repeated letter. So instead of consulting his table or his memory he naturally looks back along the line for it-and gets the one next to it instead. It's easily done; but one mistake in 87 symbols isn't bad going, whether for the encipherer or the decipherer.
7. This is how the game is played. First, the key may be used for straightforward encipherment, letter by letter, eg STARTS. This happens about half the time, which is why the frequency and contact charts make fair sense. But it may also be used to convert plaintext into a phonetic equivalent of the letters concerned. In this use for example letter O and sound "O" have the same symbol; similarly the symbols for AR, AH, and letter R, can be used for the vowel ii or the word "are". With hindsight the idea seems simple enough. Note how the two systems are alternated every other word or so; thus in line three STARTS/ITS/BUT A/ are literal encipherments, while LARKS/CHAOTIC/CLOAK have phonetic elements.
8. As the key and text show, the solution involves some familiarity with substitution cipher (a), on a basic pattern of arcs and cusps (b), written outwards 1-2-3 on 45° radii (c), using phonetics (d); Greek letters (e), and other such devices (f). So it is reasonable to ask what other evidence links those points with Elgar at about this time.
9. (a) His first biographer (R. J. Buckley, 1905) says that Elgar "during railway journeys amuses himself with cryptograms; and solved one by John Hunt Schooling who defied the world to unravel Iris mystery". (b) Such a system is described in books on cryptography (eg Klüber, 1809). *The Secret Letter Writer* by J. Hellberg (1896) also looks a promising source; but the BM copy was destroyed by bombing, and there seem to be no other

holdings (unless a reader can tell me of one?). Or the symbols might just have been adapted from shorthand or Greek. (c) The table itself might have been inspired by shorthand. Such patterns as ex 6 above, so numbered, appear in primers of "phonography" (already world famous by the time Sir Isaac Pitman died-in 1897). (d) Elgar was oddly obsessed by phonetics at about this time; eg in 1899 (Letters to Nimrod) he spells "score" as "skore", "skoughre" (presumably ough = ó), "cszquórr" (presumably cs as in csardas, or cz as in czar, with qu as in French que), çkor (c cedilla = s); and finally ssczowoughOHr (*sic*) which is (so to speak) self-explanatory. (e) Elgar could write Greek characters - thus he writes "Athenaeum" in Greek on his election to that club in 1904; but he read neither Greek nor Latin. (f) As to spelling words with the names or sounds of letters, cf in 1849 "xqqq", meaning "excuse" (*op cit*).

10. Here are some more contemporary Elgarisms from the same rich source; "Cueen's Qopy", "axidentles", "frazes", etc; a name-anagram, GERLADERADW, and a greeting worthy of James Joyce himself "The mister-y is soluted".

#### The symbols 1-26

1 See 4, 26.

2 Letter R is pronounced AR; and see 25, 26.

3 X as KS as in "Thanx for the indeks", to Jaeger (*op cit*), c1898.

4 H, D, T, B, M, L, N have no different phonetic equivalents, and so are used simply as letters. W is pronounced 00 because W looks like omega in Greek and is a vowel (oo) in shorthand. D, W and 00 come together in the table (see ex 7 above) because of Edward, and the nickname "Edoo".

5 V, X, Z with E (for which see 11 below) confuses the analyst. W, Y and the other X are allocated elsewhere. Treating each as Greek equivalent V = the sound `NU', X = Chi, Z = Zeta, or RS, makes good sense at the only three places where E doesn't fit (though U = YOU is also a possibility).

7, 8, 12 and 24 are not used; but no doubt they had equivalents; one of them should be F, for example; the others would be J, Q, Theta, Psi, V, X = Chi, and Z, to fill only four vacant places, which might explain why those last three are added to E.

10 The first of two Gs is pronounced *ng* in Greek; thus *aggelos* = *ang-gelos* (a word referred to in Religio Medici). This in turn suggests such expressions as "long gone", which amuse the encipherer and confuse the decipherer. G, M come together on the cipher table (ex 7) as part of William Elgar.

11 Occurs only as a long vowel; which is also the name of the letter "A". The same applies to 23 "I", and perhaps also to 5, E (used as letter in "the" *etc.* or as name in "E.E.") and 22 (letter in "long" but name "O" as in "cloak"). See also notes 25, 26.

13 U, I occur only as short vowels; they come together in the cipher table (ex 7) because of E.D.U. and William.

14 Occurs only as letter A except in the suggested word "sigh", where it is interpreted as S -I- alphaiota diphthong.

15 The idea is TT seen as Pi. For a sign looking like TT = Pi accompanied by a symbol of three arcs, see the interesting pointer in the plate opposite p.124 of Mrs Powell's book (*op cit*).

19, 20 These vowels go round BSC to make OBSCURES; their symbols suggest a relationship; so the only real candidates are short and long epsilon, and presumably the parent letter is Y.

21 C is pronounced K throughout. The notional C L O C as the decipherment of the last four characters suggested a phonetic equivalent of CLOAK, *ie* ...

22 O = "O"; and similarly ...

23 = "I" (see 11). Perhaps 22, 23 and 11 were thus added as afterthoughts.

25, 26 A, H, R, were decrypted as separate letters; so it is interesting to note their phonetic equivalence; AH = AR = letter `R' = word `are' = vowel k (as in "dark").