SOLVING CIPHER SECRETS

Offering a Cipher Similar to a Famous One Initialed by King Charles I and Finally Translated by Sir Charles Wheatstone

Edited by M. E. Ohaver

A GOOD many years ago the British Museum paid a large price for a lengthy document in cipher, comprising seven folio pages of closely written numerals, each page initialed at the top by King Charles I and countersigned by Lord Digbye.

The document was rightly believed to be an important historical paper. Still, after many efforts, its decipherment was almost despaired of.

Finally the document was given to Sir Charles Wheatstone, the eminent physicist. And this last attempt was crowned with success. For Sir Charles soon translated the paper.

This, as you may well suppose, was no mean task. For the cipher was written without spaces between words. Further, decipherment was complicated by the fact that text was in French, where all along it was thought to be in English.

The cipher was of a numerical type much used at the time by various European courts for important papers. About ninety numbers were employed in this case for the letters of the alphabet, each letter thus offering a choice of several substitutes. For example, *A* could be represented by 12, 13, 14, 15, 16, or 17; *B* by 18 or 19; *C* by 20, 21, or 22; *D* by 23, 24, or 25; and

so on, in numerical order, with the rest of the alphabet.

The cipher also used the higher numbers to signify the terms of a somewhat extensive vocabulary, 320, for example, being used for *les*—the; 376 for *pour*—for; and so on. This vocabulary was so prepared that when arranged in numerical order, the words were in alphabetical order of their first letters only, thus not being in exact dictionary order. Persons and places were also designated by numbers, as 474 for *England;* 478 for *France;* 495 for *the King of England;* and so forth.

The alphabet and vocabulary of this cipher as reconstructed from the document will be found in Wheatstone's *Scientific Papers*, London, 1879. But the following short example, expressing the message, "*Send for instructions immediately,*" will show how the cipher is used.

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S   E   N   D—FOR—I   N   S   T   R   U  C
89. 30. 56. 24. 3 7 6. 42. 58. 92. 96. 86. 102. 22.
T   I   O   N   S—I   M   M   E   D   I   A
97. 46. 62. 56. 90. 44. 55. 52. 26. 23. 47. 17.
T   E   L   Y
94. 32. 51. 110.
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Wheatstone does not describe his method of analyzing the cipher, and, so far as we know, no explanation of it

has ever been published. Nevertheless, we are of the opinion that some of our readers will readily perceive how such decipherment can be accomplished.

And to afford them an opportunity of testing their powers, we are appending Cipher No. 199, the alphabet and vocabulary of which have been constructed along similar lines to those of the Charles I cipher.

As compared with the problem which faced Wheatstone, here, of course, the type of cipher and the language are known to the reader beforehand. But these advantages are somewhat offset by the brevity of the present example.

Did you get No. 194, last issue's crypt by John R. Edwards? The answer: "Folklore symbolized each month by different gems, e. g., among Polish the figurative representation of August was sardonyx, with Hebrews carnelian. First meant conjugal happiness while latter kept away iniquitous misfortune."

This interesting crypt offers numerous points for attack. For example, the symbol F, with the predominating frequency 21, is an easy mark for *e*. Then there are the groups NPF (*the*) and VKNP (*with*), having a digraph in common. Also we have the terminal -FGG (*-ess*), not to mention -NKQF (*-tive*), -NKBO (*-tion*), and -NBSG (*-tous*), which easily fall by comparison.

No. 195, by J. Lloyd Hood, used the subjoined alphabet in conveying the message: "To try to solve cipher secrets is a fascinating pastime even though one may often be unsuccessful."

11	A	20	H	24	O	44	V
12	B	30	I	25	P	45	W
13	C	40	J	26	Q	46	X
14	D	50	K	33	R	55	Y
15	E	60	L	34	S	56	Z
16	F	22	M	35	T	66	(space)
10	G	23	N	36	U	00	(repeat)

An ordinary set of double-six dominoes suggested the key to this system, the digits representing pips, and the two positions of any domino signifying the same letter, as 12 or 21 for B;

13 or 31 for C; and so on. By assuming this in solution, the cipher would practically be reduced to a simple substitution problem. Did you see through it?

No. 196 used the key, FEAR—6515 —and expressed the message: "The wolf dreads the pitfall, the hawk suspects the snare, and the kite the covered hook." Recurrent groups MZS, KWO, and LVW, at intervals of 56, 36, and 36, respectively, indicate a four-letter key, and the redundancy of THE's render its determination a matter of minutes.

Turning now to this week's layout, besides the Charles I type cipher, two other ciphers are being offered to captivate your interest. The first, No. 197, is a crypt, or simple substitution cipher, and well worth your efforts.

No. 198, the joint production of two fans, is a concealment cipher of the open letter class, certain words being significant and the rest nulls. Try to determine the simple rule which regulates the position of the significant words. Another thing, fans, don't fail to submit your answers. Another solvers' list will be published before long, you know.

CIPHER No. 197, by L. G. Williams, Sulphur Springs, Florida.

PSOUJE RILM LXIMY TXKA NZC-EAJ SPZXLL OBSVVS ZCHJZ WXIZ-MJJK OCTJL JSLM OBSVVS PCMB. QSCM IKMCT BXI PXOJ.

CIPHER No. 198, by Anthony Ranieri and Vincent Alfano, Brooklyn, New York.

DEAR SON:
Why not try to avoid them? By "them" I mean the evil companions you associate with. I harbor a growing suspicion that you can cut them out if you try! Why don't you (you of all others!) break away from them and come home? Come home, where all evil companions will be forgotten. MOTHER.

CIPHER No. 199.
55. 29. 91. 26. 73. 44. 54. 71. 88. 41. 76. 30. 43. 57. 82. 59. 12. 58. 63. 85. 38. 25. 74. 52. 14. 55. 79. 77. 28. 18. 73. 26. 86. 109. 17. 61. 57. 19. 27. 11. 49. 135. 142. 122. 42. 56. 81. 75. 89. 80. 84. 25. 23. 136. 149. 86. 37. 60. 87. 35. 39. 64. 76. 28. 78. 77. 30. 21. 16. 62. 83. 36. 108. 92. 40. 58. 24. 103. 13. 54. 34. 29. 75. 136. 74. 27. 90. 24. 10. 50. 124.