

## Otis-King – Conclusions?

*Peter Hopp*

Following my article in Vol. 4 No 2. of this *Journal*, a number of members have kindly written to me. My grateful thanks to Messrs. Otnes, Hans, Price, Feely, Nassar, Babcock, Rance, and Knott who wrote to me, and Messrs Price, Larson, Moore, Babcock, Catt, and an unsigned gentleman from New Mexico, who had written to the *Journal* following the first article.

These letters have produced considerable additional information that has enabled a more comprehensive list of numbers to be produced, from which we can speculate a bit further on the spread of O-Ks, and also to confirm some of the conclusions from my article.

The updated list and a simple histogram showing the spread of examples is shown. There are now examples listed from the majority of the “expected” series, the exception being D; I feel sure that in time we will find a serial ‘D’ O-K calculator. It is not surprising that I, L, O and Q are not used. This gives 23 possible serial number series, and a maximum of approximately 230,000 calculators.

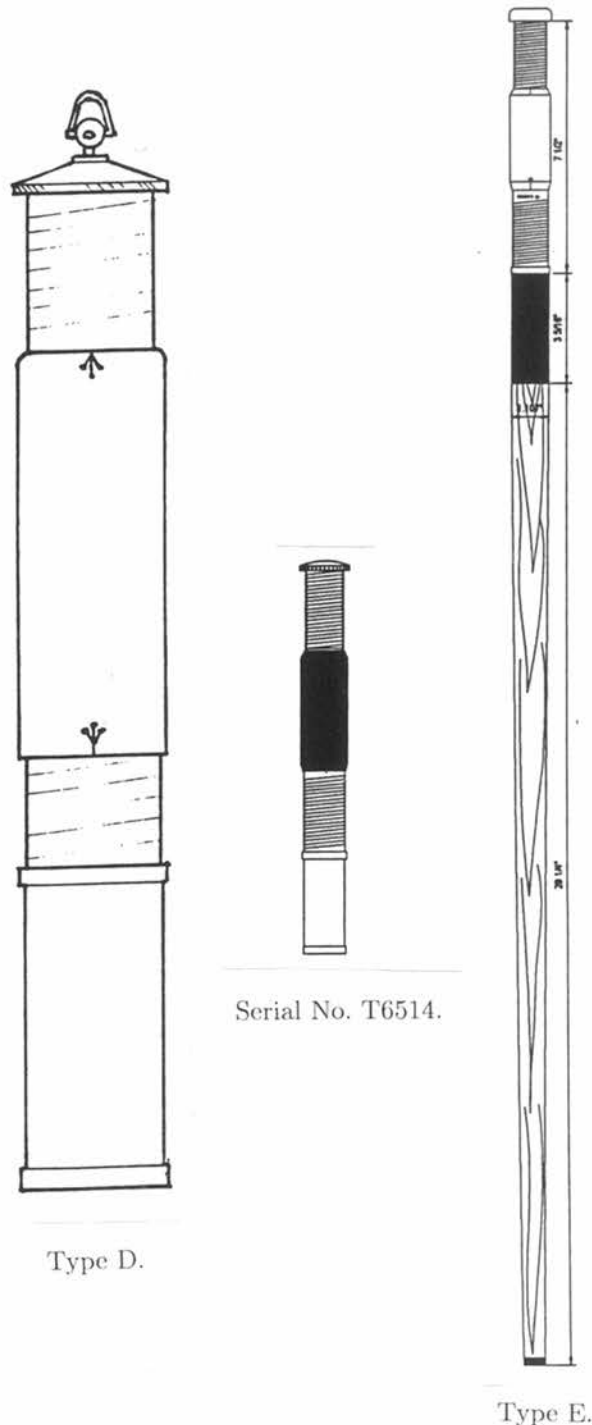
However, looking at the spread of numbers, we can speculate that C to K, and maybe M and P, may only have been made in small numbers, as all examples in these series are numbered under 1000. This is beyond the bounds of coincidence, I believe, and thus makes them effectively rarer. This also could reduce the total number made by approximately 100,000 to 130,000, using the same assumption that less than 1000 were made in each of these series.

The additional information from known examples has identified two additional types, or styles, of calculator. These are as follows:

Further study of no. 867 shows that this is actually different from, and in all probability earlier than, the Type A; a diagram of this Type D is shown. The most noticeable differences are the straight, unchamfered bottom to the cursor, and the triangular, straight shape to the top cap. The scales on no. 867 do not appear to coincide with any of the known types, but are most similar to the Model N, below. The scales are primarily English units, showing 2240 lbs as one ton, with the cash scale from  $\frac{1}{4}$ d to £1000. Wayne Feely also has an early number (no. 131) monetary calculator with different scale numbers, 17 and 24, that are considerably different from the K & L scale identity numbers.

Bruce Babcock sent me information on an intriguing version of the O-K. This is effectively a Type B, but mounted on the end of a 30” walking cane! This hardly seems a really practical application of a calculator. The description shows that a sleeve is used to join O-K and cane, going over the handle of the O-K and the top few

inches of the cane, such that numbers, etc., are no longer visible. The metal top cap of the O-K is replaced by a plastic one. One can only assume that this alternative top is purely for decorative purposes. I have called this a Type E; a diagram is shown below.



Type D.

Type E.

There is also a variant on Type B which, on initial investigation, has no serial number. Upon unscrewing the top cap, one finds a serial number (no. H1455) stamped in, after plating. Thanks to John Knott for information on this one that is, in all other respects, a Type B.

There is also information on a Carbic cylindrical calculator with two concentric transparent cylindrical cursors. Details are not available, and what relationship this has with traditional O-Ks is not known. The patent information that has come to light has identified three other O-Ks; whether these were ever made in any quantities is not known.

We now have considerable additional information on patents and on the inventor, courtesy of John Knott. Otis Carter Formby King was an engineer who initially lived in the Midlands, and then moved to London, presumably to make and sell his calculator. He took out three patents as follows:

**1921, 22,119/21** A provisional patent relating to the basic calculator design and the "monetary scales", noted on #867. It gives Otis King's address as 44 Brays Lane, Coventry.

**1922, 183,723** The common patent granted following the provisional patent above.

**1923, 17,400/23** A provisional patent specification relating to improvements, showing several cylinders and a cursor divided into 5 sections. The scales are designed for use by quantity surveyors, and incorporate rim scales on the cursors for percentage variation (wastage, shrinkage, etc). The address for the inventor is shown as "Ashdene", Emscote Road, Stoke, Coventry, Warwickshire.

**1923, 207,762** This is the patent granted from the provisional spec above. The address is given as 51 Holborn Viaduct London EC1, late of "Ashdene" etc. We can, thus, date his move to London, and we can speculate that this must have been his home, as well as where the original calculators were manufactured or retailed from.

**1923, 207,856** This is an absolutely fascinating patent covering two very different calculators, one a variant on the "normal" hand-held O-K with three spiral scales, the cursor having three apertures to allow setting of the scales. There are also friction pads which when pressed allow the cursor to be "locked" to the cylinder. There are also edge scales to the cursor which allow ratio variations to be calculated.

The second calculator is a desk model, with interchangeable cylinders that can be moved or rotated against a cursor which can, also, be fixed or free, allowing several types of calculation to be performed on the calculator. No scale is given to enable the size to be estimated.

The O-K Patent specs are almost worthy of an article on their own!

The full list of 13 models is as follows:

Model	Purpose
A	Retail cash, scales 1d to £100; 1 to 2,500 fractions
B	Retail cash, scales 1d to £100; 1 to 2,500 decimals
C	Whlsl. cash, scales 1s to £1,000; 1 to 2,500 fractions
D	Whlsl. cash, scales 1s to £1,000; 1 to 2,500 decimals
E	Retail cash, scales 1d to £100; 1 oz to 156 lbs.
F	Retail cash, scales 1d to £100; 1 qr to 28 tons.
G	Wholesale cash, scales 1s. to £1,000; 1 oz to 156 lbs.
H	Wholesale cash, Scales 1s to £1,000; 1 qr to 28 tons.
J	Wages cash, scales 1d to £8 and 1 hr to 80 hrs.
K	Slide rule scales to 4 or 5 significant figures
L	Slide rule scales plus a log scale
M	Metrical scales
N	Sterling Cash numbers, English and French weights and measures $\frac{1}{4}$ to 2500, and vulgar fractions. (later version from instructions for no. 9677)

The basic conclusions referring to scales for Models K and L have not been compromised by the additional information.

There are a number of new addresses (see table below), the most interesting being addresses in Coventry for the early days of Otis King. There are also a number of American versions of O-Ks with different names: ABCO Cylindrical calculator, Geniac Pocket Calculator. A.S. Aloe were also, apparently, the earliest American agents for Carbic. Whitton Precision is shown on a stick-on label covering the normal Dundonald Road address; they may have been purely agents. Further information on the relationship of these companies with O-K and/or Carbic still has to be discovered.

Ref.	Years	Address
0.	1921	44 & 66 Bray's Lane, Coventry.
A.	1922	"Ashdene," Emscote Road, Stoke, Coventry.
1.	1923-38	51 Holborn Viaduct, London, EC1.
2.	1942-45	137 Conway Road, London, N14.
3.	c1950	171 Seymour Place, London, W1.
4.	1962-71	54 Dundonald Rd, London, SW19.
5.	c1957	ABCO, USA
6.	?	GENIAC Pocket Calculator, NY, USA.
7.	c1927	A.S. Aloe Co. Sold O-K Calculators in the USA (Models K & L).
8.	>1962	Whitton Precision Ltd., Bridge Works, Durnsford Rd., Wimbledon London, SW19.

The relationship between Otis C.F. King and Carbic is not known. Could the "Car" in his second name and Carbic have any significance? Time may tell!

Otis King calculators were always among the more expensive available. We have prices (in shillings and pence) for a number of dates:

Year	Price
1921	21/-
1923 - 1938	22/6d
1955	42/-
1960	60/-
1967	75/-

The price increases in the later days were well above inflation, and were counter to the trend of all other slide

rule manufacturers' prices, which generally decreased over a similar period.

Finally, the postulated reuse of numbers, added as a postscript in the original article, may still hold water with the additional numbers now available. It is harder

to see the logic, or indeed where the reuse started, in the various serial number series; and there are possible anomalies with various address 1's and 4's appearing within the A series numbers in seemingly random patterns, and an address 3 in the middle of the Z series.

Table of Known Otis-King Spiral Slide Rules

Serial	Scales	Model	Address	Date	Wht/Blk	Curs	Ch/Ni	Type	Scale Mat
131	24, 17	?	0	1921?	Blk	Chr	Chr?	D?	?
867	Monetary	N?	1	1923?	Wht	Chr	Ni	D	VP?
5513	414, 423	L	1?		Wht	Chr	Chr	A	?
6704	414, 423	L	1		Blk	Chr	Chr?	A	?
7765	442, 424	N	1		Blk	Ni?	Ni	D	?
9201	?	?	?		?	?	?	?	?
9662	?	K	?		?	?	?	?	?
9677	429, 430	L	1	early	Wht	Ni	Ni	A	?
A0936	?	K	?		?	?	?	C	?
A1685	?	K	?		?	?	?	C	?
A2309	429, 430	L	4		Wht	Blk	?	C	?
A3062	429, 430	L	4		Wht	Blk	?	C	?
A5107	414, 423	L	1	1932/5	Wht	Ni	Ni	A	?
A5402	414, 423	K	4		Blk	Blk	Ni	A	?
A6047	414, 423	K	1	1923	Blk	Blk	Ni	A	VP?
A6141	414, 423	K	4	1971+	Blk	Blk	Chr	C	PCP/PF
A6306	429, 430	L	1		Blk	Blk?	?	B ?? (1)	?
A6523	414, 423	K	1		Wht	Blk	Ni	A	VP?
A7087	?	L	?		?	?	?	C	?
A7176	414, 423	K	1		Wht	Chr	Ni	?	PCP/PF
A7751	429, 430	K	?		?	?	?	?	?
A8427	?	L	?		?	?	?	C	?
B0886	?	?	?		?	?	?	?	?
B1979	429, 430	L	4		Blk	Blk	Chr	C	PCP/PF
B2314	414, 423	K	4	1971+	Blk	Blk	Chr	C	PCP
B3696	414, 423	K	4		Blk	Blk	Chr	C	PCP/PF
B3946	?	L	?		?	?	?	?	?
B6580	?	K	?		?	?	?	C	?
C1135	429, 430	L	1		Wht	Blk	Chr	B	?
C1198	414, 423	K	4		Wht	Blk	Chr	B	?
E0106	?	L	?		?	?	?	?	?
E0575	429, 430	L	?		Blk	Blk	Chr	B	?
F0488	414, 423	K	4		Blk	Blk	Brs	B	VP
G629	429, 430	L	?		Blk	Blk	Ni	B	VP
H500	414, 423	K	1		Blk	Blk	?	B	?
H1455	414, 423	K	?		Blk	Blk	Ni	B (3)	VP
J0202	?	L	?		?	?	?	B	?
K0050	429, 430	L	?		Blk	Blk	Chr	B	PCP/PF
M1351	429, 430	L	?		Blk	Blk	?	B	?
N0214	?	K	?		?	?	?	B	?
N0975	429, 430	L	?		Blk	Blk	Ni	B	PCP/PF
N7021	414, 423	K	3		Blk	Blk	Chr	B	PCP/PF
P0859	414, 423	K	3		Blk	Blk	Chr	B	PCP/PF
P2601	414, 423	K	?		Wht	Brs	Ni	B	?
R3733	414, 423	K	?		Blk	Blk	Chr	B	?
R4306	429, 430	L	?		?	Blk	?	B	?
S0368	429, 430	L	?		Blk	?	?	?	?
S0626	429, 430	L	5	1957	Wht	Blk	?	C	?
S3890	429, 430+	L	?		Blk	Blk	Chr	B	PF
S3896	429, 430	L	?		Wht	Blk	Chr	B	?
S3904	429, 430	L	6		Wht	Blk	?	C	?
S4754	429, 430	L	?		Blk	?	?	?	?
S4794	?	L	?		?	?	?	B	?
S5260	429, 430	L	?		Wht	Blk	?	B	?
S6232	429, 430	L	?		Blk	Blk	Chr	B	?
S6376	414, 423	K	?		Blk	?	?	?	?
S9126	429, 430	L	?		?	?	?	?	?
S9826	414, 423	K	?		Blk	Blk	Chr	C	PCP
S9897	429, 430	L	6		Wht	Blk	Chr?	C	?
T0145	414, 423	K	?		Blk	Blk	Ni	B	VP

T3239	429, 430	L	4	1970	Blk	Chr	Chr	C	?
T4208	414, 423	K	4		Blk	Blk	Chr	C	PCP/PF
T6514	429, 430	L	?		Blk	Blk	Chr	C	?
T6672	429, 430	L	4	1962	Wht	Blk	Chr?	C	?
U0501	?	K	?		?	?	?	?	?
U2963	414, 423	K	4	1971+	Blk	Blk	Chr	C	?
U3427	429, 430	L	4	1971+	Blk	Blk	Chr	C	?
U6266	414, 423	K	?		Wht	Blk	Chr	C	?
V0270	414, 423	K	?		Wht	Blk	Chr?	C	?
V1154	414, 423	K	?		Blk	?	?	?	?
V4542	429, 430	L	4		Blk	Chr	Chr	C	PCP/PF
V5533	429, 430+	L	?		Blk	Blk	Chr	C	?
V9524	414, 423	K	?		Blk	?	?	?	?
W5256	414, 423	K	4		Wht	Blk	Chr?	C	?
W5291	?	K	?		?	?	?	?	?
W9412	?	K	?		?	?	?	C	?
X4090	429, 430	L	?		Blk	?	?	?	?
X5274	429, 430	L	4	1971+	Blk	Blk	Chr	C	PCP/PF
X5291	429, 430	L	4	* Blk	Blk	Chr	C	?	?
X5599	?	K	?		Blk	Blk	Chr	?	?
X7372	?	K	?		?	?	?	C	?
X8629	?	?	?		?	?	?	?	?
X8984	?	L	?		?	?	?	?	?
X9673	429, 430	L	4	1971+	Blk	Blk	Chr	C	?
Y2971	414, 423	K	4	1971+	Blk	Blk	Chr	C	?
Y6427	414, 423	K	?		?	Blk	Chr	C	?
Y8370	414, 423	K	?		Blk	Blk	Chr	C	?
Z1796	429, 430	L	?		Wht	Blk	Chr	C	?
Z1920	429, 430	L	4		Wht	Blk	Chr?	C	?
Z5995	414, 423	K	3		Blk	Blk	Chr	C	?
Z6311	429, 430	L	4		Blk	Blk	Chr	Cl	?
Z8088	?	L	?		?	?	?	C	?
(2)	429, 430	L	?		Blk	Brs	Brs	E	?
?	429, 423	K	?		?	?	?	?	?

Blk=black, Brs=brass, Chr=chrome, Ni=nickel, PCP=plastic coated paper, PF=paper with plastic film, VP=varnished paper Wht=white

Notes:

1. Says "Patentees".
2. This is an O-K on a 30" wooden cane. The top cap is plastic; otherwise same as Type B?
3. Serial Number stamped on the underside of the Top Cap; otherwise as Type B.

### Otis King Calculators – Spread of Serial Numbers

Letter	Number of Examples	Lowest Number	Highest Number	Letter	Number of Examples	Lowest Number	Highest Number
none	8	131	9677				
A	14	0936	8427	N	3	0214	7021
B	6	0886	6580	O			
C	2	1135	1198	P	2	0859	2601
D				Q			
E	2	0106	0575	R	2	3733	4306
F	1	0488	0488	S	13	0368	9897
G	1	629	629	T	5	0145	6672
H	2	500	1455	U	4	0501	6266
I				V	5	0270	9524
J	1	0202	0202	W	3	5256	9412
K	1	0050	0050	X	8	4090	9673
L				Y	3	2971	8370
M	1	1351	1351	Z	5	1796	8088