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## *Dating of the Otis King: An Alternative Theory Developed Through Use of the Internet*

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### **The Otis King Date Problem**

The sequence of four articles in this journal [1, 2, 3, 4] concerning Otis King's Patent Calculator (OK) has painted a complex and inconclusive picture of this instrument's history and dating. By using the Internet to gather new data, as well as clarifications and corrections of the previously collected data, I have been able to paint a clearer and simpler picture.

The key open question about the OK has been the relationship of serial numbers, or at least the series letters, to dates. In a recent article [4], Colin Barnes <models@clara.net> proposed the theory that the series letter changed each year and cycled through the alphabet more than twice. Barnes' theory has an elegant appeal in its logical basis, and accommodates the wide range of combinations of series letters, types, and addresses that had been reported by collectors. But evidence in support of it is sparse, and it conflicts with several dates that I feel are reliable.

I present an alternative scheme: Each letter appears only once in the history of the product, with the exception of A and B, with letters in an orderly progression relative to dates, types, addresses, and instruction sheet variations. Until recently, however, the data were too disorderly to support my scheme.

### **Use of the Internet for Research**

I adopted the hobby of slide-rule collecting when I purchased an OK over the internet from The Gemmary <rcb@gemmary.com> in late 1996. I wanted to know how old my OK was, so I joined the Oughtred Society, bought back issues of the journal, and studied what was known about classifying and dating the OK. From reading the journals and from looking at other OKs at the society's 1997 Palo Alto meeting, I concluded that my OK, serial number R3474, did not fit the existing classifications, since it had characteristics of both type B and type C as defined by Peter Hopp [2]. I sent a brief note and table to Andrew Davie <adavie@mad.scientist.com> to post on the Slide Rule Trading Post<sup>2</sup> appealing for more data from readers.

I then began to build my own web pages on the OK<sup>3</sup>, to which Mr. Davie provided links. After the web search services indexed my pages, responses began to pour in. They continue as people who seek information on OKs find my pages, and send me e-mail about their OKs. These inputs are often incomplete, vague, or confused,

but we quickly exchange e-mail and get them straight.

I also continued my own active search of web pages, net news, eBay auction listings, and so on to find information about more OKs. Direct e-mail to known large collectors netted me a wealth of information. At this writing, the list of known OKs has tripled from the last list published [3], with the majority of new units coming from collectors via my internet work, plus additional finds by Hopp and Barnes. We shared our findings regularly, and resolved conflicting information.

I have saved over 700 e-mail messages about Otis King's calculators (compare with 1200 messages from eBay and 2200 other collecting-related messages). It is inconceivable that I could have undertaken this project using only more traditional communication channels.

### **Data and Observations**

Barnes was writing up his dating theory [4] at about the time he saw the first of my new data, so the influence of my search is not reflected in his article. The data with which he and Hopp were working prior to late 1997 were indeed difficult to model and explain: dates, addresses, types, and scale colors were at odds with the simple theory that the serial number letters were cycled just slightly more than once.

In this report, I refer to Carbic's common Holborn Viaduct, Seymour Place, and Dundonald Road addresses as HV, SP, and DR, respectively. For the purposes of this project, I have not tried to distinguish type A [2] from other early variants (e.g., type D [3]).

Table 1 summarizes my consolidated data set, which includes old, new, and corrected findings. The current set is not yet perfectly clean, but the following points, which previously appeared to be contradicted, are now well supported:

1. The A series units in all cases can be classified as old (type A, HV address) or new (type C, DR address). No intermediate units (type B or from the SP address) have been found.
2. All B series units are new; old B series units may exist, but none have been found (I have obtained first-hand classification information on all previously unclassified B units).
3. Most other letters—other than R, S, and T—have only a single type: C through P are type B, and U through Z are type C (we have no definite information

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<sup>3</sup><http://dicklyon.home.mindspring.com/OK/OtisKing.html>

for several units, but also have no reason to believe that they will break this pattern).

4. Most R units and some S units are a hybrid of types B and C, with type-C cursor and construction, but with "Made in England" on the top cap instead of on the base (more R, S, and possibly T units previously reported as type B or C may yet be found to be B/C hybrid).

5. Remaining S and T units are found in types B and C. S and T are also the series found with the U.S. addresses (Geniac and ABCO); we speculate that there

may have been parallel production and serial numbering at several locations.

6. All units with white-on-black scales are old: they either have no letter or are in the old A series. All series C and later units have black-on-white scales.

7. The transition to the decimal Sterling wording on page 8 of the modern 16-page instructions occurred during the modern A series, which places that series around 1971. The pre-decimalization 16-page instructions were introduced late in the Z series, not later than 1969.

	keys	-	A	B	C	D	E	F	G	H	J	K	M	N	P	R	S	T	U	V	W	X	Y	Z	a	b
Address	Total	23	22	5	7	2	2	8	7	3	1	2	12	10	8	28	19	20	17	13	18	15	23	20	15	
Brays Lane	<b>1</b>	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tuck&Blakemore	<b>1</b>	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Holborn Viaduct	<b>16</b>	<b>17</b>	.	<b>4</b>	<b>5</b>	.	<b>1</b>	.	<b>1</b>	.	.	.	.	.	.	<i>1</i>	.	.	.	.	.	.	.	.	.	.
Conway Road	.	.	.	.	.	.	.	.	<i>1</i>	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Steward	.	.	.	.	.	.	.	.	.	<i>1</i>	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
none	.	.	.	.	.	.	.	.	.	<i>1</i>	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Seymour Place	.	.	.	.	.	.	.	.	<b>1</b>	<b>2</b>	.	.	.	<b>7</b>	<b>3</b>	<b>1</b>	.	<i>1</i>	.	<i>1</i>	.	.	.	<i>1</i>	.	
ABCO	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	<b>1</b>	.	.	.	.	.	.	.	.	.
Geniac	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	<b>2</b>	<b>3</b>	.	.	.	.	.	.	.	.
Dundonald Road	.	<i>1</i>	.	.	.	.	<i>1</i>	.	.	.	.	.	.	.	.	<b>3</b>	<b>3</b>	<b>7</b>	<b>8</b>	<b>5</b>	<b>6</b>	<b>5</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>7</b>
Calculator Co.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	<b>1</b>	.	.
Whitton	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	<i>1</i>
n/a	<b>5</b>	<b>4</b>	.	<b>1</b>	<b>2</b>	<b>2</b>	.	<b>6</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>5</b>	<b>7</b>	<b>4</b>	<b>21</b>	<b>8</b>	<b>12</b>	<b>11</b>	<b>7</b>	<b>13</b>	<b>7</b>	<b>12</b>	<b>10</b>	<b>7</b>	
Type																										
type A	<b>19</b>	<b>19</b>	.	.	.	.	<i>1</i>	<i>1</i>	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
type B	.	.	.	<b>5</b>	<b>5</b>	<b>2</b>	<b>1</b>	<b>4</b>	<b>7</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>11</b>	<b>10</b>	<b>3</b>	<b>7</b>	<b>3</b>	.	.	.	.	.	.	.	.	.
type B/C	.	.	.	.	.	.	.	.	.	.	.	.	.	.	<b>4</b>	<b>7</b>	.	.	.	.	.	.	.	.	.	.
type C	.	.	.	.	<i>1</i>	.	.	<i>1</i>	.	.	.	.	.	.	.	.	<b>8</b>	<b>14</b>	<b>14</b>	<b>12</b>	<b>12</b>	<b>15</b>	<b>14</b>	<b>19</b>	<b>19</b>	<b>15</b>
n/a	<b>4</b>	<b>3</b>	.	.	<b>1</b>	.	.	<b>2</b>	.	.	.	<b>1</b>	<b>1</b>	.	<b>1</b>	<b>6</b>	<b>2</b>	<b>6</b>	<b>5</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>4</b>	<b>1</b>	.	
Color																										
white numbers	<b>13</b>	<b>10</b>	.	.	.	.	.	.	.	.	.	.	.	.	<i>1</i>	.	<i>1</i>	.	.	.	<i>1</i>	.	.	.	.	.
black numbers	<b>5</b>	<b>10</b>	.	<b>5</b>	<b>5</b>	<b>2</b>	<b>2</b>	<b>5</b>	<b>5</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>10</b>	<b>8</b>	<b>6</b>	<b>22</b>	<b>14</b>	<b>13</b>	<b>13</b>	<b>10</b>	<b>13</b>	<b>14</b>	<b>18</b>	<b>11</b>	<b>12</b>	
n/a	<b>5</b>	<b>2</b>	.	.	<b>2</b>	.	.	<b>3</b>	<b>2</b>	<b>1</b>	.	<b>1</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>5</b>	<b>5</b>	<b>7</b>	<b>4</b>	<b>2</b>	<b>5</b>	<b>1</b>	<b>5</b>	<b>9</b>	<b>3</b>	
Instructions																										
4-page	<b>3</b>	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12-page	<b>2</b>	<b>2</b>	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
8-page unnumbered	.	<b>2</b>	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
8-page stapled	.	.	.	<b>1</b>	.	.	.	.	<b>2</b>	<b>1</b>	.	.	.	<b>2</b>	.	<b>1</b>	.	.	.	.	.	.	.	.	.	.
8-page folded	.	.	.	.	.	.	.	<b>1</b>	.	<b>1</b>	.	.	.	<b>2</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>7</b>	<b>5</b>	<b>4</b>	<b>4</b>	<b>3</b>	<b>5</b>	<b>1</b>	.	
16-page pre-decimal	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	<b>4</b>	<b>4</b>	.
16-page post-decimal	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	<b>3</b>	<b>4</b>
n/a	<b>18</b>	<b>18</b>	.	<b>4</b>	<b>7</b>	<b>2</b>	<b>2</b>	<b>5</b>	<b>6</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>8</b>	<b>8</b>	<b>5</b>	<b>25</b>	<b>12</b>	<b>15</b>	<b>13</b>	<b>9</b>	<b>15</b>	<b>10</b>	<b>18</b>	<b>13</b>	<b>11</b>	
Date																										
1920-24	<b>3</b>	<b>1</b>	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1925-29	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1930-34	.	<i>1</i>	.	.	<b>1</b>	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1935-39	.	.	.	.	<b>1</b>	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1940-44	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1945-49	.	.	.	.	.	.	.	<i>1</i>	.	.	.	.	.	<b>2</b>	.	.	.	.	.	.	.	.	.	.	.	.
1950-54	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	<i>1</i>	.	.	.	.	.	.
1955-59	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	<b>2</b>	<b>2</b>	.	<i>1</i>	.	.	.	.	.	.
1960-64	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	<b>1</b>	<b>2</b>	.	<b>2</b>	.	.	.	.	.	
1965-69	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	<i>1</i>	.	.	.	<b>1</b>	.	.	.
1970-74	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	<i>1</i>	<i>1</i>	.	.	<b>2</b>	.	.	<b>3</b>
1975-79	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1980-84	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	<b>1</b>
n/a	<b>20</b>	<b>20</b>	.	<b>5</b>	<b>5</b>	<b>2</b>	<b>1</b>	<b>8</b>	<b>7</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>10</b>	<b>10</b>	<b>8</b>	<b>25</b>	<b>14</b>	<b>18</b>	<b>13</b>	<b>13</b>	<b>15</b>	<b>15</b>	<b>22</b>	<b>17</b>	<b>11</b>	

Table 1. This table summarizes the data on known OK units, tallying the number of units found with various features, for each initial letter of the serial number. The key "-" is used for numeric-only serial numbers, and the lower-case keys "a" and "b" are used for the later versions of series A and B. Missing items of information are counted as not available (n/a); the information may have been impossible to obtain, or it may simply not have been reported. Counts that make up an orderly "diagonal" pattern are shown bold; anomalies specifically discussed in the text are shown italic.

I have tried hard to find and verify contradictions to this set of observations; in all cases, when I have discovered contradictions and have probed them via e-mail, the result has been to correct the information and thus to void the contradiction. We have resolved many contradictions in the old data, thanks to O.S. members and online enthusiasts. One collector with a large number of OKs had his entire list of scale colors misinterpreted, accounting for almost all the previously listed white-on-black units newer than the A series.

I have not often verified data that I believed, so in this sense my data set is not unbiased; in particular, I have been content to enter "not available" in many fields when I thought that further research would furnish only the obvious conclusions. I hope that readers will let me know if they have information that will fill in my blind spots.

### Scales

Early model N monetary calculators had scale numbers 422 and 424 (the previously reported 442 was erroneous). Model N never has a letter, but has numbers as high as 8365.

Early model L units 7450 and 7636 had scale numbers 416 and 417, but by 9662 only the modern 429 and 430 scales are to be found. Model K always has 414 and 423. Earlier models existed, but are not well represented in the listings; unit 131, apparently a model A, has scales 17 and 24.

An officer of the Oughtred Society who collects old models has not yet organized his data for us; we may be lucky enough to see an article from him in the future.

I have not looked at patterns of scale materials, platings, and so on, because these characteristics are hard to identify and it is therefore nearly impossible to obtain reliable reports on them.

An interesting feature reported on some early model L scales, number 429, is the notation "PATENTEES & SOLE MANUFACTURERS: CARBIC LTD. 51 HOLBORN VIADUCT LONDON E.C.1". I have verified that this notation continues through the type-B scales 429 that I have checked (D200, E0575). I have now received reports of several model K units that have the same notation (7608, A7491, type A). On type C, the dimensions are changed such that the top edge of scale 429 is always hidden under the cursor; fortunately, James Selevan <jselevan@ni.net> took apart W4138 to repair it, and found that it still has the notation, with gaps where the old address information had been, as "PATENTEES & SOLE MANUFACTURERS: CARBIC Ltd ... LONDON ...". The address probably was dropped when Carbic moved from HV to SP, as indicated by the report "G253 simply says 'Carbic London' with no street address" (source wef). On model N, the "Patentees" notation appears at the bottom edge of the top scale 424 (sources fs and cc). I conclude that lack of this notation is the exceptional feature, and could indicate a date prior to the patent issue date.

### Date Evidence

Good dating evidence is still sparse, but we have found several original owners of OKs who remember when they bought their calculators, as well as some credible secondhand reports:

- I (rfl) purchased D200 from J. Roy Ewans <royewans@aol.com> who says it was "bought in 1935 and used through my years at college."
- N3411 has written on the instruction sheet "Oct. '49" (source mp), which is probably when it was acquired by its first owner. The 1949 date agrees with a previous report on N6261 (source ds).
- Wayne Feely <wfy@bellatlantic.net> has original sales invoices for S0626 (ABCO, type C) in 1957 and T6672 (DR, type C) in 1962.
- Simon Parr <ea\_parr@compuserve.com> relays information on T0399 from its original owner: "It would be bought from Croysdale in Leeds between 1955 and 1960."
- Jim Rogers has T5198, which he purchased new in about 1960.
- Paul Davies <paul.davies@dial.pipex.com> has V9242, of which he says "Christmas 1960 would seem likely to me, but I may be a year out."
- Bill Burns <billb@savvy.com> has X1089 "Purchased by me in England, October 1965."
- Roger Wilkins <wilkins@iglobal.net> reports model L Z8333 "that I purchased in England in the 60s."
- Howard Smith <howard.smith@technologist.com> received B0663 when he was 14, "Pre O levels in the UK", in 1971.

I have combined these dates with others found previously, ignoring the many anomalous 1971+ dates that resulted from modern replicas of post-decimalization instructions or from misinterpretations of the wording. A clear trend of letters versus years is now visible, as documented in Table 1.

The B series was almost certainly the final one. Original post-decimalization instruction leaflets have not been confirmed with any letters besides A and B, except when they were in a box with a mismatched serial number. Peter Clarke <peterc@anglianet.co.uk> reports on an OK that was among the latest to be sold retail, model LB1146:

"I cannot determine when the calculator was manufactured, but I bought it new from the stationers Jowett & Sowry Ltd, Albion Street, Leeds, on 11 November, 1981 (I kept

the receipt) for the sum of £7.86. The shop had just two Otis King calculators in stock, the one I bought and a model without the log scale. The shop keeper despaired of ever selling either model as the demand at that time was for electronic calculators.”

At the other end of the date line, Otis Carter Formby King's British patent 183,723 "Improvements in and relating to Calculating Apparatus" was filed August 20, 1921 and accepted August 3, 1922. Most OKs, marked "Patentees", probably were manufactured starting after the patent issued in 1922. An early OK, serial number 131, is marked "Patented and Manufactured by Otis C. F. King, 44 & 66 Brays Lane, Coventry, Eng." but is marked with the provisional or patent application number and date "APPL. 22119 1921", so probably it is from late 1921. Barnes reports a model N #899 with instructions marked "Tuck & Blakemore, Ltd. Coventry, Wholesale Distributors" and dated November 1921.

#### Instruction Sheets

We have also found more information on the sequence of instruction sheets available with OKs. There are early 3-page, 4-page, and 12-page leaflets (with type-A units), several 8-page leaflet variants, and pre- and post-decimalization versions of the modern 16-page leaflet. Andries de Man <ademan@udel.edu> has made the text and images of several versions available on the web<sup>4</sup>.

Here I list leaflet variations with representative serial numbers; for the 8-page versions, I include only examples for which the stapled-versus-folded distinction has been verified. Most have green pages, although some of the older leaflets have turned brown.

- From Tuck & Blakemore (1921)
  - Single double-sided sheet with the name of the distributors: 899
- Early versions from HV address
  - 4-page Operating Instructions for Model N: 7765
  - 3-page Operating Instructions for Mathematical Model K: 9201
  - 4-page Models K and L - Pocket Size: 5782 B4456
  - 12-page Operating Instructions for Models K and L: 7450 7646 A7328 A8668
  - 8-page Otis King's Calculator (un-numbered tan pages): A6681
  - 8-page Otis King's Calculator (stapled): C1239 (type B)
- Middle 8-page versions:
  - Otis King's Calculator (folded, HV over stamped Conway Road): G372 (type B)

Reported to have no address on the instruction leaflet: J1575 (type B)

Otis King's Calculator (stapled, SP): G312 H0656 N2164 N3482 N5707 (type B)

Otis King's Calculator (folded, SP): N6465 P0114 P2711 T0399 (type B)

Otis King's Calculator (folded, SP overprinted with DR): R1903 (type B/C)

Otis King's Calculator (folded, Geniac): T1595 T2328 T8156 (type C)

Otis King's Calculator (folded, DR): R3474 (type B/C), and S6078 S8880 T8456 U1371 U2410 U3427 U3738 U6253 U7884 V0716 V8732 V9702 W5291 W5637 W7263 X9656 Y2172 Z6380 (type C)

- Late Z and A and B series expanded 16-page stapled leaflet, from DR

The Otis King Calculator—Instructions for Use (pre-decimal): Z3267 Z3741 Z7351 Z7379 Z8879 A0270 A0476 A0811 A1464

The Otis King Calculator—Instructions for Use (post-decimal): A3302 A6907 A9633 B0663 B1146 B2296 B2546

#### Remaining Anomalies

Table 1 shows a few anomalous data on units that appear to contradict our observations. Many of them are from reports on units that a collector had seen at a shop or a show, and on which she or he has taken notes, so we cannot get follow-up information for confirmation or correction. It is important to look at all the anomalies to assess the extent to which the current observations and theory are reasonable.

The only units not counted in the table are the ones for which we found no serial number: the model K that Hopp reported on a walking stick, two Geniac units for which no type or model was reported, and one other model L. At least one of these two Geniacs does not say "Made in England" anywhere on it (source fcg), so I suspect that the unnumbered ones were made in America.

Early-lettered units cited with the later DR address are A5402 (model K, type A, source bb) and F0488 (model K, source jvk). Model K J1575 (source jl) is anomalous in that it has no address on the instruction sheet. The only later-lettered unit with the early HV address is S6788 (model K, old stapled instructions from HV, source cl).

The HV-to-SP address transition is messy in the G and H letters, including H0971 (model K, type B, source amr), which carries this report: "Address is stamped on with a rubber stamp in purple; can't make out the center line, but the rest is: J.H. Steward / London, WC 2." G372 (model L, type B, source rh) has been found with the HV address "with an additional hand ink stamp (not

<sup>4</sup><http://www.comcen.com.au/~adavie/slide/otisking.html>

printed) saying 137 Conway Road, Southgate N14." The Conway Road address was previously known only from an advertisement.

The SP-to-DR address transition also is messy, in the R through V letters, with printed SP over stamped with DR in several units. Model K V6111 "Bought in 1960, has instruction leaflets on two separate sheets with address SP on one sheet & DR on the other sheet" (source cc, second hand). Model K Z5995 with SP address was seen at the Scientific Instrument show, London.

The address Whitton Precision/Bridge Works/Durnsford Road/Wimbledon S.W.19 is pasted over the DR address on the instructions with B3923 (model K, type C, source ec). Whitton may have been the manufacturer for decades by then, according to Barnes, and this late B unit may mark the end of Carbic's slide-rule operation at Dundonald Road; no later numbers have been found with any address.

Address anomalies are generally easy to categorize as being caused by instruction-sheet mixups, but I remain open to the possibility that they may contain genuine information.

Type anomalies are easier to verify or correct when we can contact the owner; a few such anomalies remain, however, and for most we have no hope of verification: model K D1094 type C (source ldh), model K F0477 type A (reported seen at Cambridge OS meet), G1053 type A (seen by cb, no other information), and model K G1080 type C (reported seen at Cambridge OS meet).

At least one type B in the T series is definitely confirmed, with SP address (T0399, source eap). This unit has its own anomaly, perhaps indicating that it was not part of the main line of production: "On the other (concave) end is stamped T/0399 (i.e., the / is on it)." T1030 (model K, type B, source amf) also has the "/". T0145 is also reported as type B (model K, source jvk, no other information).

Anomalous reports of white numbers on a black background probably are due to widespread confusion about the meaning of the category labels in various reports. Model K P2601 (seen at Newmarket), model L S0626 (ABCO, no source information), and model K W5256 (no source information) will be difficult to verify. Many other reports have been corrected; there are possibly a few reversals remaining in the unlettered and early A series, where both colors are found.

The greatest date variability is in the T, U, V letters. Model L T3239 is reported as 1970 (source wh, no back-up explanation). Model K U2963 (no source information) has a post-decimalization 1971 instruction sheet. Model L U8232 (seen by rfl) was said by the owner's wife to have been purchased by her for him around 1951, but the owner thought that perhaps the purchase date was not

that early. The V series dates range from V0716: "The guy I got it from remembered (he said) buying it from a camera shop in 1958" (type C, source rh); to V8592: "c.1970. I can remember which job I was in (started in 1967, but I think this would have been at least a couple of years later)" (type C, source fgw, tallied as 1965–1969 in Table 1).

Model K A5107 (source wef) is listed as 1932–1935 because its previous owner spent those years in England, but we have no confirmation that it was bought new during that period.

Model K F0477 is listed with "1945?" (reported seen at Cambridge OS meet, no back-up information).

### Conclusions

Detailed histories of the Otis King calculator and of Carbic Ltd. still elude us; fortunately, Barnes continues to investigate at key UK sites. We still have questions about the serial-numbering sequence. Nonetheless, the evidence presented here makes a convincing case that the letters were used once, with only A and B being recycled.

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### Late-breaking News: an Old-B-series

#### Type-A-variant Otis King Model L

Otis King model L serial number B1914 has just been reported, and appears to be the only known example of the old B series. It has type-A cursor arrows, "Made in England" on the top, HV address, and minor features that make it a little different from most (source requests anonymity).

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ONE	PATENT № 183723.																			
9	895 9	905 91	915 92	925 93	935 94	945 95	955 96	965 97	975 98	985 99	995									
795 8	805 81	815 82	825 83	835 84	845 85	855 86	865 87	875 88	885 8											
71	715 72	725 73	735 74	745 75	755 76	765 77	775 78	785 79												
3	635 64	645 65	655 66	665 67	675 68	685 69	695 7	705												
	565 57	575 58	585 59	595 6	605 61	615 62	625 6													
	505 51	515 52	525 53	535 54	545 55	555 56														
	45 455	46 465	47 475	48 485	49 495	5 445														
4	405 41	415 42	425 43	435 44	445															
355	36 365	37 375	38 385	39 395																
16	318 32	322 324	326 328	33 332	334 336	338 34	342 344	346 348	35											
282	284 286	288 29	292 294	296 298	3 302	304 306	308 31	312 314	3											
252	254 256	258 26	262 264	266 268	27 272	274 276	278 28													
224	226 228	23 232	234 236	238 24	242 244	246 248	25													
9	2 202	204 206	208 21	212 214	216 218	22 222														
178	179 18	181 182	183 184	185 186	187 188	189 19	191 192	193 194	195 196	197 198	19									
8	159 16	161 162	163 164	165 166	167 168	169 17	171 172	173 174	175 176	177										
1	142 143	144 145	146 147	148 149	15 151	152 153	154 155	156 157	15											
126	127 128	129 13	131 132	133 134	135 136	137 138	139 14	14												
2	113 114	115 116	117 118	119 12	121 122	123 124	125													
ONE	101 102	103 104	105 106	107 108	109 11	111	11													

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 OTIS KING'S POCKET CALCULATOR.

One of the Otis King scales