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## Determining K&E Slide Rule Production Dates, 1922 to 1976: A Beginning

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*“What I had to do,  
I did the best I could.”  
Henri Matisse*

Did you ever wonder when your favorite K&E slide rule was produced? This article is a starting point to answer that question and is composed of two parts; an historical background on K&E’s serial number philosophy by Clark, and the methods used in determining the serial number series rollover dates and slide rule dating by Richard.

The six digit numbers found on K&E slide rules after 1922 have been referred to as “serial numbers”. Some people do not like to call them serial numbers since the numbers roll over at 999,999 and start over at 1; therefore, the numbers are not unique. This rollover of the numbers complicates using them to estimate a production date for a given rule. The numbers appear to have started in 1922 and four rollover series date ranges have been defined, series A from 1922 to 1942, series B from 1942 to 1956, series C from 1956 to 1968, and series D from 1968 to 1976.

Before 1922, K&E stamped 2 and 3 digit numbers on the end of rules on all three pieces of the frame. These numbers are assumed to be used to match pieces of a given rule that were cut from a common blank. These numbers have only a production purpose. In 1922, the numbers on the end pieces were replaced with 6 digit numbers, on the left end of the slide and the edge of the left end of the frame on most rules. In the early 1950s the placement of the serial number was modified to having the full number on the left end of the slide and the last 3 digits of the number on either part of the frame next to the number on the slide. Now that the number was again on all three pieces, the number was used to keep the three parts of a rule together in production. To further complicate the problem of using these numbers for dating a rule is that rules made from other materials apparently had their own serial number scheme. All celluloid laminated rules that started in production in 1933 through 1945 clearly had their own number series. The plastic rules that were produced from 1948 forward apparently had their own number series. All of the 4058 series of Beginner’s slide rules do not have any number on them at all, including the plastic variants in the 1950s and 1960s.

After thinking about this for some time, Clark decided to ask Joe Soper, who managed the Salisbury plant for K&E, what their use of the numbers was. His comment was that K&E did refer to them as “serial numbers” and they had two uses in the plant. On the production floor, if a bin of rules in process was dropped and scattered over the floor, the numbers on the piece parts were used to put the rule sets back together. The second use was when a rule came back from a distributor with a workmanship flaw; the rule was easy to match with the original batch work order to try to resolve any associated ongoing production problem.

After hearing from Joe Soper, Clark suddenly realized that K&E did not care that the numbers rolled over or that there were different series for different types of rules. K&E had a forever warranty, so tracking the age of a rule for return reasons was not an issue. They only used the numbers to track the original production date for several years to solve their own production problems. The serial numbers did not mean anything more to them. K&E definitely did not care about collectors’ looking back 50 to 80 years trying to make sense of the numbers.

Using these numbers to estimate the production dates of slide rules is complicated. Knowing the serial number of a particular rule, considering all of the variants of the rule, one can place a particular rule in one of the four serial number ranges. Once you know the serial number range, a linear approximation using the serial number within that date range will yield a production date plus or minus one year. This statement is true only for mahogany framed rules. The celluloid and plastic rules follow a different set of rules, which at the date of this writing are not well understood.

Richard first had to define variation in scale sets and attributes (laminated top/bottom, scale limits, etc.), which are a necessity in serial number sequencing. The definition and evolution of various attributes (things that change over time) had to be found (see [2] for a comprehensive discussion of attributes and their evolution) and was not a simple task, as a large number of slide rules had to be studied, sequenced, and dated. Bill Robinson, our Vector slide rule guru, kindly supplied a listing of the K&E Vector rules in his collection. Clark’s web site [1], Dick Rose, and eBay were invaluable in this effort.

The reasoning for the provided serial number ranges will be presented first, followed by the methods necessary to determine the production date of your K&E. Various slide rules are dated to demonstrate the procedure. Remember that this is just a beginning.

### **Serial Number Series A, 1922 to 1942; Table 1 and Table 2 (for the 4080/4081/4083)**

Serial numbers first appeared on the 4092-3 in the K&E 1922 catalog, so this is a reasonable starting point. The earliest known serial number, 8041, is on the 4092-3 (Table 1, item #1. Table 1 lists some fifty slide rules, most of which are from Clark’s collection [1]. Several models were produced from 1922 to 1942. The 1942 end date for serial number series A is based on the Cooke Radio 4139, item #50, serial number 852000, and item #53, serial number 980500, also a Cooke Radio, in Table 1. The Cooke models first appeared in the 1943 catalog and were certainly produced prior to the 1943 catalog date, probably in 1942. Item #50 does not have a model number and may be a pre-production slide rule. If K&E started producing the 4139 in 1942, a date of 1941 for the “pre-production” 4139 is reasonable. Richard has attempted to estimate production rates within the serial number series A as shown in

Table 1. Note the drastic decrease in the number of slide rules produced during the Great Depression, 1933 to 1937. Only models 4080/81/83 will be discussed in serial number series B, C, and D; there are insufficient examples of the other families for a thorough evaluation (see the appendix for a start on other models). Table 2 lists the 4080/81/83 models in serial number series A.

### **Serial Number Series B, 1942 to 1956; Table 3**

Another key slide rule for a 1942 date is the Cooke Radio (first mentioned in the 1943 catalog, but probably produced in 1942 as discussed earlier), model 4139, with a serial number 060729. The key to the 1956 end date for serial number series B is item #1, Table 4, a 4081-3, scale set 5 (which is first mentioned in the 1955 revised catalog, September 1955), serial number 4768, serial number series C, assuming an end date of 1956 is reasonable.

### **Serial Number Series C; 1956 to 1968; Table 4 and D; 1956 to 1968, Table 5**

Determining the earliest serial number for the introduction of the 68XXXX series is most important in determining the C/D rollover date, which in reality may be impossible to define exactly. However; I believe that a 500000 serial number is close. I believe our 1942 A/B and 1956 B/C rollover dates to be correct, so no further comments are provided.

The 68 XXXX slide rules can determine the C/D rollover date. One of the last K&E slide rules produced was Clark's 68 1210 serial number 490971 (Table 5, item #10); therefore, I will assume that the last serial number is 492000. Thus, any 68 XXXX slide rule with a serial number greater than 492000 is securely in series C. Some twenty-nine 68 XXXX slide rules have been studied (see Tables 4 and 5) with the serial numbers ranging from 110002, clearly in Series D (serial number less than 492000), to 991255, clearly in series C (serial number greater than 492000). After considerable thought and arithmetic I believe the lowest serial number for the 1962 68 XXXX slide rules is around 500000, which gives a C/D rollover date of 1968;  $500000 \text{ (slide rules produced from 1956 to 1962)} / 6 \text{ years} = 83,300$ ;  $C/D \text{ rollover} = 999999 \text{ (production from 1956 to C/D rollover)} / 83,300 = 12 + 1956 = 1968$ .

### **Serial Number Series D, 1968 to 1976; Table 5**

K&E stopped slide rule production in 1976. According to Clark, they manufactured the final 2,000 slide rules in 1976, note item #10 in Table 5, serial number 490971. A total production of 492,000 is assumed.

Table 6 shows the serial number series B, C, and D for Duplex slide rules (4080, 4081, and 4083), together with the catalog dates of their various scale sets. Several key attributes [2] that are important in the serial number sequencing and dating are also shown. A careful look at the attributes listed in tables 3 and 4 identify that not all attributes are permanent after their first appearance. This variation may be to allow an individual production station to complete their current work before adapting the new attribute. The sole exception appears to be the change from laminated to inlaid top/bottom; this occurred around 1951 (Table 3).

Determining the production dates for serial number series A, B, C, and D will now, finally, be discussed. As mentioned earlier, Mannheim type and plastic slide rules will not be presented.

### **Determining Slide Rule Production Dates; Tables 7, 8, and 9**

First we must determine the slide rule's serial number series A, B, C, or D; then determine the slide rule's scale set from Table 7 (see Table 1 for other slide rules in series A). Once knowing the scale set, you can determine the serial number series from Table 8. Knowing the serial number series and the serial number of your slide rule, the production date can be estimated using Table 9. You need a calculator, or for the purists a slide rule, to determine the production date. Table 10 lists several dating examples.

The appendix contains the basics of determining the serial number series for the 4070, 4071, and 4139 models. Not enough examples are available for a complete study, but the tables are a beginning. Also presented are the Surveyors Duplex (4102/N4102), Chemists Duplex (4160), and the Roylance (4133), an excellent Electrical Engineering slide rule.

We have made a good start; however, you may disagree with some of our conclusions; if so, please contact Richard at khepera@verizon.net or Clark, at clarkmccoy2@comcast.net with any questions, suggestions, and/or comments. Hopefully one of you will complete this "beginning".

"What I had to do, I did the best I could."

### **Acknowledgements**

This offering would not have been possible without that bible of all K&E slide rules, Clark McCoy's web site [1]. We are grateful to our Vector slide rule guru Bill Robinson and to Dick Rose for their comments, help, and support, and the cataloging of their extensive K&E collections.

### **References**

1. Clark McCoy's website [www.mccoys-kecatalogs.com](http://www.mccoys-kecatalogs.com).
2. Richard Smith Hughes, *The Evolution of K&E Slide Rules From 1922 to 1972*, Journal of the Oughtred Society, 19:2, Fall 2010.

Table 1

The K&E First Million, 1922 to 1942, Serial Number Series A; In Serial Number sequence

Note: Many models were produced from 1922 to 1942

#	Serial Number	Model Number	Type	Scale Set	Catalog Dates	Comments	Possible Production Dates
1	8041	4092-3	Log Log Duplex	1	1922 to 1925	Key to 1922 date. Catalog figure has a serial number	1922 to 1930  ( $\approx$ 50,000 per year)
2	13495	4092-3	Log Log Duplex	1	1922 to 1925		
3	29077	4088-5	Polyphase Duplex	2	1922 to 1939		
4	32088	4092-3	Log Log Duplex	1	1922 to 1925		
5	69727	4133	Roylance	1	1913 to 1925	N designation starts in 1925 catalog	
6	72158	4088-5	Polyphase Duplex	2	1922 to 1934		
7	104688	4102	Surveyor's Duplex		1922 to 1949	N designation starts in 1928 catalog	
8	106261	4088-1	Polyphase Duplex	2	1922 to 1939		
9	127931	4051	Mannheim		1922 to 1937		
10	130439	4095-1	Merchant's		1921 to 1942		
11	155828	N4133	Roylance	2	1925 to 1936		
12	162843	4088-3	Polyphase Duplex	2	1922 to 1939		
13	180236	4088-2	Polyphase Duplex	2	1922 to 1939		
14	183606	4160	Chemists		1922 to 1941		
15	183656	4160	Chemists		1922 to 1941		
16	261497	4092-3	Log Log Duplex	2	1925 to 1937		
17	323317	4095-3	Merchant's		1921 to 1942		
18	361316	N4135-5	Power Computing		1922 to 1937		
19	376272	4095-3	Merchant's		1921 to 1942		
20	388086	4093-3	Log Log Duplex Vector		1930 to 1937		
21	396126	4092-3	Log Log Duplex	2	1925 to 1937		
22	408133	4095-3	Merchant's Special		1921 to 1942		
23	422532	4088-3	Polyphase Duplex	2	1922 to 1939		
24	429671	4093-3	Log Log Duplex Vector		1930 to 1937		
25	429847	4093-3	Log Log Duplex Vector		1930 to 1937		
26	446002	4088-3	Polyphase Duplex	2	1922 to 1939		1930 to 1933 ( $\approx$ 23,300 per year)

Table 1 continued

#	Serial Number	Model Number	Type	Scale Set	Catalog Dates	Comments	Possible Production Dates
27	453902	4091-3	Log Log Decitrig	1	1933 to 1934		1933 to 1937 (≈ 15,000 per year)
28	455535	4090-3	Log Log Duplex.	1	1933		
29	460179	4091-3	Log Log Decitrig	1	1933 to 1934		
30	477301	4090-3	Log Log Duplex.	2	1934 to 1936		
31	487621	4091-3	Log log Decitrig	2	1934 to 1936		
32	489877	4093-3	Log Log Duplex Vector		1930 to 1937		
33	500807	4090-3	Log Log Duplex.	2	1934 to 1936		
34	503112	4090-3	Log Log Duplex.	2	1934 to 1936		
35	522055	4080-3	Log Log Trig	1	1937 to 1939		
36	523665	4092-3	Log Log Duplex	2	1925 to 1937		1937 to 1939 (≈ 65,000 per year)
37	538852	4091-3	Log Log Decitrig	2	1934 to 1936		
38	564602	4091-3	Special			Not in catalog (LC above L). The first of the Radio series	
39	583005	4093-3	Log Log Duplex Vector		1930 to 1937		
40	585532	4080-3	Log Log Trig	1	1937 to 1939		
41	591612	4081-3	Log Log Duplex Decitrig	1	1937 to 1939		
42	610206	4080-3	Log Log Trig	1	1937 to 1939		
43	659773	4138	Morrison Radio		1939		
44	689792	4081-3	Log Log Duplex Decitrig	2	1939 to 1947		
45	698763	4080-3	Log Log Trig	2	1939 to 1947		1939 to 1942 (≈ 120,000 per year)
46	706952	4070-3	Polyphase Duplex Trig		1939 to 1962		
47	772801	4110	Power Trig			Not in Catalog	
48	782951	4083-3	Log Log Duplex Vector	1	1939 to 1947		
49	789280	4110	Power Trig			Not in Catalog	
50	852000	"4139"	Cooke Radio <sup>1</sup>	1	1943 to 1956	No model number	
51	866637	4082-3	Radio Special			Not in catalog. F replacing K	
52	866823	4082-3	Radio Special			Not in catalog. F replacing K	
53	980500	4139	Cooke Radio	1	1943 to 1956		
54	991866	4083-3	Log Log Duplex Vector	1	1939 to 1947		

<sup>1</sup> The Cooke Radio first appears in the 1943 catalog (and the Jan. 1943 price list). Serial number 852,000 does not have a model number (4139) and may be a trial examination piece. See text; Serial number series A.

Table 2  
 K&E 4080/81/83 Serial Number Series A; 1937 to 1942

#	Model	Serial Number	Scale Set	Front			Top				Back	Proposed Production Dates
				K+E Logo Without ©	K+E Logo With ©	Allen Screw Brackets	Laminated Inlayed	Model On Top	With N	With ®	Scale Limits	
<b>Serial Number Series A; 1937 to 1942</b>												
1	4080-3	522055	1				L					1937 to 1939 (≈ 65,000 per year)
2	4081-3	554255	1				L					
3	4080-3	567095	1				L					
4	4080-3	585532	1				L					
5	4081-3	589217	1				L					
6	4081-3	591612	1				L					
7	4081-3	689792	2				L					1939 to 1942 (≈ 120,000 per year)
8	4080-3	698763	2				L					
9	4080-3	699605	2				L					
10	4083-3	709906	1				L					
11	4080-3	729424	2				L					
12	4083-3	752651	1				L					
13	4083-3	752941	1				L					
14	4083-3	753133	1				L					
15	4080-3	762700	2				L					
16	4083-3	787992	1				L					
17	4083-3	788929	1				L					
18	4081-3	820171	2				L					
19	4083-5	847800	1				L					
20	4080-3	900582	2				L					
21	4083-3	911866	1				L					
22	4083-3	912088	1				L					
23	4080-5	923589	2				L					
24	4083-3	940499	1				L					
25	4081-3	961228	2				L					
26	4080-3	964147	2				L					
27	4081-3	991866	1				L					

Table 3  
K&E 4080/81/83 Serial Number Series B; 1942 to 1956

#	Model	Serial Number	Scale Set	Front			Top				Back	Proposed Production Dates
				K+E Logo Without ©	K+E Logo With ©	Allen Screw Brackets	Laminated Inlayed	Model On Top	With N	With ®	Scale Limits	
<b>Serial Number Series B; 1942 to 1956</b>												
1	4080-3	009601	2				L					1942 to 1947 (≈ 84,000 per year)
2	4083-3	029106	1				L					
3	4081-3	068463	2				L					
4	4083-3	099986	1				L					
5	4083-3	100170	1				L					
6	4080-3	141247	2				L					
7	4081-3	184288	2				L					
8	4080-3	191909	2				L					
9	4080-3	200518	2				L					
10	4083-3	215712	1				L					
11	4083-3	215935	1				L					
12	4083-3	217650	1				L					
13	4080-3	264878	2	√			L					
14	4083-3	298701	1	√			L					
15	4083-3	341539	1	√			L					
16	4081-3	402628	2	√			L					
17	4080-3	405094	2				L					
18	4083-3	420158	1	√			L					
19	4083-3	421175	1	√			L				?	1947 to 1956 (≈ 64,500 per year)
20	4081-3	438712	3	√			L				√	
21	4081-3	454836	3	√			L	√			√	
22	4083-3	483366	2		√		L	√	√			
23	4083-3	484992	2	√			L				√	
24	4081-3	498486	3	√			L	?	?		√	
25	4083-3	535366	2		√		L	√	√		√	
26	4081-3	567943	3	√			L	√	√		√	
27	4083-3	588203	2		√		L	√	√		√	
28	4080-3	592267	3	√			L	√	√		√	
29	4080-3	594863	3	√			L	√	√		√	
30	4083-3	607059	2		√		L	√	√		√	

Table 3 continued

#	Model	Serial Number	Scale Set	Front			Top				Back	Proposed Production Dates
				K+E Logo Without ©	K+E Logo With ©	Allen Screw Brackets	Laminated Inlayed	Model On Top	With N	With ®	Scale Limits	
<b>Serial Number Series B Continued; 1942 to 1956</b>												
31	4083-3	607320	2	√			L	√	√		√	1947 to 1956 (≈ 64,400 per year)
32	4083-3	618203	2		√		L	√	√		√	
33	4083-3	620423	2		√		L	√	√		√	
34	4083-3	634459	2	√			L	√	√		√	
35	4083-3	697654	2		√		I <sup>1</sup>	√	√		√	
36	4083-5	710955	2		√		I	√	√		√	
37	4083-3	738486	2		√		I	√	√		√	
38	4080-3	759186	3		√		I	√	√		√	
39	4083-3	768968	3		√		I	√	√		√	
40	4081-3	793429	3		√		I	√	√		√	
41	4083-3	799959	3		√		I	√			√	
42	4083-3	800125	3		√		I	√			√	
43	4083-3	831213	3		√		I	√			√	
44	4083-3	832478	3		√		I	√			√	
45	4083-3	833162	3		√		I	√			√	
46	4083-3	849187	3		√		I	√			√	
47	4083-3	882167	3		√		I	√			√	
48	4083-3	883783	3		√		I	√			√	
49	4083-3	915128	3		√		I	√			√	
50	4081-3	926572	4		√		I	√			√	
51	4083-3	947136	4		√		I	√			√	
52	4083-3	947139	4		√		I	√			√	
53	4083-3	948497	4		√		I	√			√	
54	4080-3	955463	4		√		I	√			√	
55	4081-3	981399	5		√	√	I	√		√	√	
<sup>1</sup> The serial numbers on the top left and the left back slide appear on slide rules with laminated top/bottom's. With the introduction of the inlayed top/bottom's, the serial number placement, with few exceptions, were on the left back top/bottom, with the last three digits of the serial number, and the left back slide containing the full six digit serial number.												

Table 4  
 K&E 4080/81/83 Serial Number Series C; 1956 to 1968  
 Assuming 68XXXX (1962 catalog) serial numbers start at 500000

#	Model	Serial Number	Scale Set	Front			Top				Back	Proposed Production Dates
				K+E Logo Without ©	K+E Logo With ©	Allen Screw Brackets	Laminated Inlayed	Model On Top	With N	With ®	Scale Limits	
<b>Serial Number Series C; 1956 to 1968</b>												
1	4081-3	4768	5		√		I	√			√	1956 to 1968 (≈ 83,300 per year)
2	4081-3	022851	5		√	√	I	√		√	√	
3	4083-3	032674	4		√		I	√			√	
4	4083-3	080469	4		√	√	I	√		√	√	
5	4083-3	080501	4		√	√	I	√		√	√	
6	4083-3	082875	4		√	√	I	√		√	√	
7	4081-3	101940	5		√	√	I	√		√	√	
8	4083-3	130064	4		√		I	√			√	
9	4083-3	232258	4		√		I	√		√	√	
10	4083-3	234182	4		√		I	√		√	√	
11	4081-3	251770	5		√	√	I	√		?	√	
12	4081-3	280914	5		√	√	I	√		√	√	
13	4081-3	283524	4		√	√	I	√		√	√	
14	4083-3	288155	4		√		I	√		√	√	
15	4083-3	345987	4		√		I	√			√	
16	4083-3	346356	4		√	√	I	√		√	√	
17	4081-3	366505	5		√	√	I	√		?	√	
18	4083-3	382359	4		√	√	I	√		√	√	
19	4080-3	410613	4		√	√	I	√		?	√	
20	4083-5	440034	4		√	√	I	√		√	√	
21	4083-3	476129	4		√	√	I	√		√	√	
22	681210	520234	5		√	√	I	√		√	√	
23	681210	530371	5		√	√	I	√		√	√	
24	681210	530446	5		√	√	I	√		√	√	
25	681210	560888	5		√	√	I	√		√	√	
26	4081-3	580374	5		√	√	I	√		?	√	
27	681210	580519	5		√	√	I	√		√	√	
28	681210	580764	5		√	√	I	√		√	√	
29	4081-3	581497	5		√	√	I	√		√	√	
30	681210	590255	5		√	√	I	√		√	√	

Table 4 continued

#	Model	Serial Number	Scale Set	Front			Top				Back	Proposed Production Dates
				K+E Logo Without ©	K+E Logo With ©	Allen Screw Brackets	Laminated Inlayed	Model On Top	With N	With ®	Scale Limits	
<b>Serial Number Series C continued; 1956 to 1968</b>												
31	681210	610001	5		√	√	I	√		√	√	1956 to 1968 (≈ 83,300 per year)
32	681210	620068	5		√	√	I	√		√	√	
33	681210	630559	5		√	√	I	√		√	√	
34	681210	650852	5		√	√	I	√		√	√	
35	681210	650904	5		√	√	I	√		√	√	
36	4083-3	670109	4		√	√	I	√		√	√	
37	681434	672175	4		√	√	I	√		√	√	
38	681210	790558	5		√	√	I	√		√	√	
39	681210	850691	5		√	√	I	√		√	√	
40	681210	931335	5		√	√	I	√		√	√	
41	681434	970843	4		√	√	I	√		√	√	
42	681210	991255	5		√	√	I	√		√	√	

Table 5

K&E 4080/81/83 Serial Number Series D; 1968 to 1976  
 Assuming 68XXXX (1962 catalog) serial numbers start at 500000

#	Model	Serial Number	Scale Set	Front			Top				Back	Proposed Production Dates <sup>2</sup>
				K+E Logo Without ©	K+E Logo With ©	Allen Screw Brackets	Laminated Inlayed	Model On Top	With N	With ®	Scale Limits	
<b>Serial Number Series D; 1968 to 1976</b>												
1	681210	110002	5		√	√	I	√		√	√	1968 to 1974 (≈ 70,000 per year)
2	681210	112229	5		√	√	I	√		√	√	
3	681318	160646	4		√	√	I	√		√	√	
4	681434	180069	4		√	√	I	√		√	√	
5	681434	180795	4		√	√	I	√		√	√	
6	681318	360700	4		√	√	I	√		√	√	
7	681434	460231	4		√	√	I	√		√	√	1974 to 1976 (≈ 36,000 per year)
8	681434	460310	4		√	√	I	√		√	√	
9	681210	490962	5		√	√	I	√		√	√	
10	681210	490971 <sub>1</sub>	5		√	√	I	√		√	√	
<p><sup>1</sup> The last production run was in 1976. This slide rule, 490971, was part of the last K&amp;E slide rule run. Some 2,000 were manufactured. Assuming a serial number series from 1968 to 1976, and a production of 492,000, is reasonable. The HP35 was introduced in 1972 and K&amp;E probably drastically reduced slide rule production from 1974 to 1976.</p> <p><sup>2</sup> I assume that the production rate decreased from 1968 to 1974, with respect to 1956 to 1968, due to the competition. Production also probably decreased from 1974 to the end of production due to the HP35. Assuming the last serial number is 492000;                  X = production rate from 1968 to 1974, Y = production rate from 1974 to 1976                  Y = 492,000 - 6X</p>												

Table 6

K&E 4080/81/83 Serial Number Series B (1942 to 1956), C (1956 to 1968), and D (1968 to 1976), Scale Sets (Catalog Dates), and Attributes

Reference Date	<-----1942 to 1950----->	<-----1950 to 1960----->	<-----1960 to 1976----->
<b>Serial number series</b>	B <-----1942 to 1956----->		C <-----1956 to 1968----->
	D <1968/1976>		
<b>Scale Sets</b>	<b>4080</b>	2 <-----1939 to 1947----->	3 <-----1947 to 1954----->
		4 <-----1954 to 1967----->	
	<b>4081</b>	2 <-----1939 to 1947----->	3 <-----1947 to 1954----->
		4 <54/56>	5 <-----1956 to 1972----->
	<b>4083</b>	1 <-----1939 to 1947----->	2 <-----1947 to 1954----->
		3 <54/56>	4 <-----1956 to 1967----->
<b>Key Attributes</b>	<b>Approximate Attribute Evolution</b>		
Laminated top/bottom	<-----1937 to 1951----->		
Inlayed top/bottom	<-----1951 to 1976----->		
Serial # from T/S to 3/6/3 <sup>1</sup>	<-----1951 to 1976----->		
K + E logo without © on slide	<-----1945/1951----->		
Laminated top/bottom with N model	<----1947 /51---->		
Inlayed top/bottom with N model	<1951/53>		
K + E with © logo on slide	<-----1948 to 1976----->		
Scale limits	<-----1948 to 1976----->		
Inlayed top/bottom with ®	<-----1955 to 1976----->		
Allen screw end brackets	<-----1956 to 1976----->		
Model number 68 XXXX	<-----1962 to 1976----->		
<b>Serial number series</b>	B <-----1942 to 1956----->		C <-----1956 to 1968----->
			D <1968--76>
<b>Approximate serial number evolution</b>	0	250,000	500,000
	750,000	10 <sup>6</sup>	0
	250,000	500,000	750,000
	10 <sup>6</sup>	0---	500,000
<b>Reference date</b>	<-----1942 to 1950----->	<-----1950 to 1960----->	<-----1960 to 1976----->

<sup>1</sup> The serial number placement changes from the top left/left back slide to the back top/bottom (last three numbers only) and back left slide (the full six digit serial number), with few exceptions, with the introduction of the inlayed wood top/bottom around 1951.

Table 7  
K&E 4080/81/83 Scale Sets

<b>4080</b>	
<b>68 1318 (4080-3)</b>	
1 1937 / 1939	L/LL1/DF//CF/CIF/CI/C//D/LL3/LL2 LL00/LL0/A//B/T/ST/S//D/DI/K
2 1939 / 1947	L/LL1/DF//CF/CIF/CI/C//D/LL3/LL2 LL0/LL00/A//B/T/ST/S//D/DI/K
3 1947 / 1954	LL02/LL03/DF//CF/CIF/CI/C//D/LL3/LL2 LL01/K/A//B/T/ST/S//D/L/LL1
4 1954 / 1967	LL02/LL03/DF//CF/CIF/CI/C//D/LL3/LL2 LL01/L/K/A//B/T/ST/S//D/DI/LL1
<b>4081</b>	
<b>68 1210 (4081-3) and 68 1200 (4081-5)</b>	
1 1937 / 1939	L/LL1/DF//CF/CIF/CI/C//D/LL3/LL2 LL00/LL0/A//B/T/ST/S//D/DI/K
2 1939 / 1947	L/LL1/DF//CF/CIF/CI/C//D/LL3/LL2 LL0/LL00/A//B/T/ST/S//D/DI/K
3 1947 / 1954	LL02/LL03/DF//CF/CIF/CI/C//D/LL3/LL2 LL01/K/A//B/T/ST/S//D/L/LL1
4 1954 / 1956	LL02/LL03/DF//CF/CIF/CI/C//D/LL3/LL2 LL01/L/K/A//B/T/ST/S//D/DI/LL1
5 <sup>1</sup> 1956 / 1972	LL02/LL03/DF//CF/CIF/CI/C//D/LL3/LL2 LL01/L/K/A//B/T/SRT/S//D/DI/LL1
<b>4083</b>	
<b>68 1434 (4083-3)</b>	
1 1939 / 1947	L/LL1/DF//CF/CIF/CI/C//D/LL3/LL2 LL0/LL00/A//B/T/ST/S//D/Th/Sh2/Sh1
2 1947 / 1954	LL02/LL03/DF//CF/CIF/CI/C//D/LL3/LL2 L/LL01/LL1/A//B/T/ST/S//D/Th/Sh2/Sh1
3 1954 / 1956	LL02/LL03/DF//CF/CIF/CI/C//D/LL3/LL2 Sh1/Sh2/Th/A//B/T/ST/S//D/DI/LL01/LL1
4 <sup>1</sup> 1956 / 1967	LL02/LL03/DF//CF/CIF/CI/C//D/LL3/LL2 Sh1/Sh2/Th/A//B/T/SRT/S//D/DI/LL01/LL1
<sup>1</sup> The SRT scale replaces the ST in the revised 1955 catalog in Sept. 1955.	

Table 8  
K&E 4080/81/83 Serial Number Series Determination

<b>4080</b> <b>68 1318 (4080-3)</b>	
A	a) Scale set 1 b) Scale set 2 with serial number > 600000
B	a) Scale set 2 with serial number < 500000 b) Scale set 3 c) Scale set 4 without model 68 XXXX and with serial number > 750000
C	a) Scale set 4 without model 68 XXXX and with serial number < 700000 b) Scale set 4 with model 68 XXXX and with serial number > 500000
D	Scale set 4 with model 68 XXXX and with serial number < 492000
<b>4081</b> <b>68 1210 (4081-3) and 68 1200 (4081-5)</b>	
A	a) Scale set 1 b) Scale set 2 with serial number > 600000
B	a) Scale set 2 with Serial number < 500000 b) Scale set 3 c) Scale set 4 with serial number >700000 d) Scale set 5 without model 68 XXXX and with serial number >700000
C	a) Scale set 4 with serial number < 250000 b) Scale set 5 without model 68 XXXX and with serial number < 700000 c) Scale set 5 with model 68 XXXX and serial number >500000
D	Scale set 5 with model 68 XXXX and with serial number < 492000
<b>4083</b> <b>68 1434 (4083-3)</b>	
A	Scale set 1 with serial number > 600000
B	a) Scale set 1 with serial number < 500000 b) Scale set 2 c) Scale set 3 with serial number > 700000 d) Scale set 4 without model 68 XXXX and with serial number > 600000
C	a) Scale set 3 with serial number < 250000 b) Scale set 4 without model 68 XXXX and with serial number < 700000 c) Scale set 4 with model 68 XXXX and serial number > 500000
D	Scale set 4 with model 68 XXXX and with serial number < 492000

Table 9

K&E Slide Rule Production Dates For Serial Number Series A, B, C, and D  
 See table 5 to determine the slide rule serial number series

Serial Number Series	Serial Numbers	Proposed Dates
A (1922 to 1942)	0 to 380,000 (1922 to 1930)	Date $\approx$ 1922 + Serial Number / 50,000
	380,000 to 450,000 (1930 to 1933)	Date $\approx$ 1930 + (Serial Number - 380,000) / 23,300
	450,000 to 510,000 (1933 to 1937)	Date $\approx$ 1933 + (Serial Number - 450,000) / 15,000
	510,000 to 640,000 (1937 to 1939)	Date $\approx$ 1937 + (Serial Number - 510,000) / 65,000
	640,000 to 999,999 (1939 to 1942)	Date $\approx$ 1939 + (Serial Number - 640,000) / 120,000
B (1942 to 1956)	0 to 420,000 (1942 to 1947)	Date $\approx$ 1942 + (serial number) / 84,000
	420,000 To 999,999 (1947 to 1956)	Date $\approx$ 1947 + (Serial Number - 420,000) / 64,400
C (1956 to 1968)	0 to 999,999 (1956 to 1968)	Date $\approx$ 1956 + (Serial Number) / 83,300
D <sup>1</sup> (1968 to 1976)	0 to 420,000 (1968 to 1974)	Date $\approx$ 1968 + (serial number) / 70,000
	420,000 to 492,000 (1974 to 1976)	Date $\approx$ 1974 + (serial number - 420,000) / 36,000
<p><sup>1</sup> The last production run was in 1976. This slide rule, 490971, was part of the last K&amp;E slide rule run. Some 2,000 were manufactured. Assuming a serial number series from 1968 to 1976, and a production of 492,000, is reasonable. The HP35 was introduced in 1972 and K&amp;E probably drastically reduced slide rule production from 1974 to 1976.</p> <p>I assume that the production rate decreased from 1968 to 1974, with respect to 1956 to 1968, due to the competition. Production also probably decreased from 1974 to the end of production due to the HP35. Assuming the last serial number is 492000;</p> <p>X = production rate from 1968 to 1974, Y = production rate from 1974 to 1976</p> <p>Y = 492,000 - 6X</p>		

Table 10  
K&E Dating Examples

Model	Scale Set	Serial Number	Primary Attributes Table 6	Serial Number Sequence (Table 8)	Production Date (Table 9)
4102		104688	See Table 1 #7	A	1924
4092-3	2	261497	See Table 1 #16	A	1927
4093-3		429847	See Table 1 #25	A	1932
4070-3		647109	Laminated top/bottom No scale limits	A	1939
4138		659773	See Table 1 #43	A	1939
4080-3	2	699605	Laminated top/bottom	A	1940
4083-3	1	991866	Laminated top/bottom Table 1 #54	A	1942
4080-3	2	191909	Table 3, number 8 Laminated top/bottom	B (a)	1944
4080-3	4	955463	Table 3, number 54 Without model 68 XXXX	B (c)	1955
4081-3	5	581497	Table 4, number 29 Without model 68 XXXX	C (b)	1963
681497 (4071-3)	2	720024	Appendix Model 68 XXXX	See Appendix C (c)	1965
68 1434 (4083-3)	4	180069	Table 5, number 5 Model 68 XXXX	D	1971
68 1210 (4081-3)	5	490971	Table 5, number 10 Model 68 XXXX	D	1976

## Appendix

Determining the serial number series for K&E 4070, 4071, and 4139

### Scale Sets

Scale Set	Scales
<b>4070</b>	
1939 / 1962	DF//CF/CIF/C//D/L K/A//B/T/ST/S//D/DI
<b>4071</b> <b>68 1497 (4071-3)</b>	
1 1939 / 1956	DF//CF/CIF/C//D/L K/A//B/T/ST/S//D/DI
2 1956 / 1962	DF//CF/CIF/C//D/L K/A//B/T/SRT/S//D/DI
<b>4139</b> <b>68 1460 (4139-3)</b>	
1 1943 / 1956	L/DF//CF/CIF/C//D/2 $\pi$ LC/A//B/T/ST/S//D/DI
2 1956 / 1962	L/DF//CF/CIF/C//D/2 $\pi$ LC/A//B/T/SRT/S//D/DI

Determining the serial number series for 4070, 4071, and 4139

Only a few examples were available for study. This should be considered a start in the right direction.

See Table 9 to determine the production date

Series	Determinants
<b>4070</b>	
A	Laminated top/bottom, no scale limits and serial number > 550,000
B	a) Laminated top/bottom, no scale limits and serial number < 500,000 b) Laminated top/bottom with L&E logo on the slide c) Inlayed top/bottom without model 68 XXXX and serial number > 575,000
C	a) Inlayed top/bottom with serial number < 575,000 b) Model 68 XXXX
<b>4071</b>	
<b>68 1497 (4071-3)</b>	
A	Scale set 1 with laminated top/bottom, no scale limits and serial number > 550,000
B	a) Scale set 1 with laminated top/bottom, no scale limits and serial number < 500,000 b) Scale set 1 with laminated top/bottom with L&E logo on the slide c) Scale set 1 with inlayed top/.bottom with serial number > 575,000 d) Scale set 2 without model 68 XXXX and serial number > 700,000
C	a) Scale set 1 with scale limits and serial number < 250,000 b) scale set 2 with serial number < 250,000 b) Scale set 2 without model 68 XXXX and serial number < 650,000 c) Model 68 XXXX
<b>4139 Cooke Radio</b>	
<b>68 1460 (4139-3)</b>	
A	Scale set 1 with laminated top/bottom, no scale limits and serial number > 800,000
B	a) Scale set 1 with laminated top/bottom, no scale limits and serial number < 500,000 b) Scale set 1 with laminated top/bottom with L&E logo on the slide c) Scale set 1 with inlayed top/.bottom with serial number > 575,000 d) Scale set 2 without model 68 XXXX and serial number > 700,000
C	a) Scale set 1 with scale limits and serial number < 250,000 b) scale set 2 with serial number < 250,000 b) Scale set 2 without model 68 XXXX and serial number < 650,000 c) Model 68 XXXX

Determining K&E 4102, 4160 and 4133 Serial Number Series  
 See Table 9 to determine dates

Serial Number Series	Determinants
<b>4102 Surveyors Duplex 1922 to 1941</b>	
A	a) 4102 b) N4102 with serial number > 200,000
B	N4102 with serial number < 200,000
<b>4160 Chemists (Duplex) 1922 to 1941</b>	
A	a) All glass cursor b) Metal rimmed cursor with serial number > 200,000
B	Metal rimmed cursor with serial number < 200,000
<b>4133 Roylance Electro (Mannheim body) 1922 to 1949</b>	
A 1922 to 1925	4133 Scale set 1 A//B/C//D //S/L/T// B&S wire gauge marks on bottom end
A 1925 to 1936	N4133 Scale set 2 A//B/CI/C//D //S/L/T// B&S wire gauge marks on bottom end
A <sup>1</sup> 1939 to 1942	N4133 Scale set 3 A//B/CI/C//D/K //S/L/T// B&S wire gauge marks on bottom end With serial number > 500,000
B <sup>1</sup> 1942 to 1949	N4133 Scale set 3 With serial number < 500,000
<sup>1</sup> Without further attribute research, determining the production dates for serial numbers from 500,000 to 600,000 is not possible.	