

The real Gantt Charts were smarter than you think

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Henry L. Gantt



Agenda

- The Myths
- The Facts
- Lessons from Gantt's Work

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Project Planning

- Effective planning has been done for 1000s years
 - China: Great Wall, Grand Canal, Beijing
 - Pyramids
 - Military campaigns
- Records are limited
- Amazing outcomes



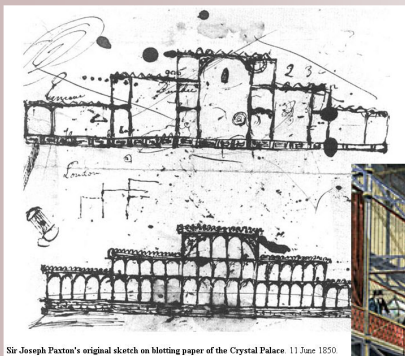
See: [http://en.wikipedia.org/wiki/Grand_Canal_\(China\)](http://en.wikipedia.org/wiki/Grand_Canal_(China))
The total length of the Grand Canal is 1,776 km

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Project Planning



Sir Joseph Paxton's original sketch on blotting paper of the Crystal Palace. 11 Jan 1850

The Crystal Palace is:
1848 feet [563.3 m] long,
408 ft [124.4 m] wide and
108 ft [32.9 m] high.
New technology -
Prefabricated cast iron was
used extensively

From a rough sketch on blotting paper to the Great Exhibition of 1851 – **How long?**

Royal patronage probably helped!!

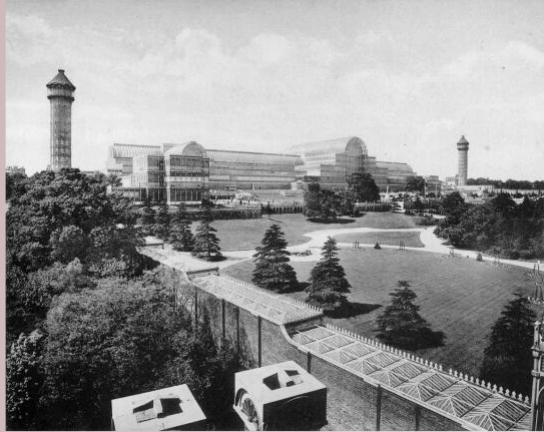


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Crystal Palace



How long does a modern shopping centre take to build?

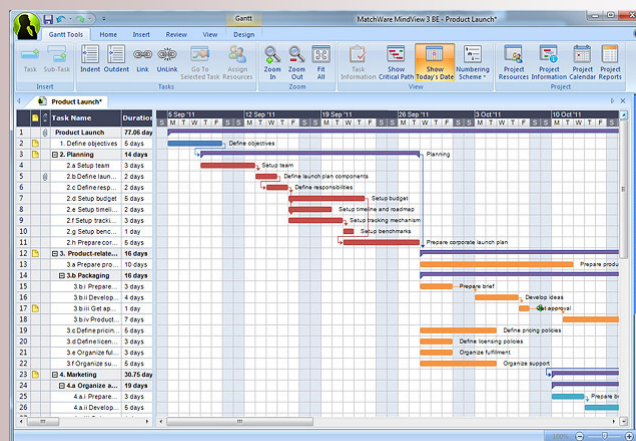
The Crystal Palace was built in eight and a half months starting on 15 July 1850, opening on 1st May 1851

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The Myth



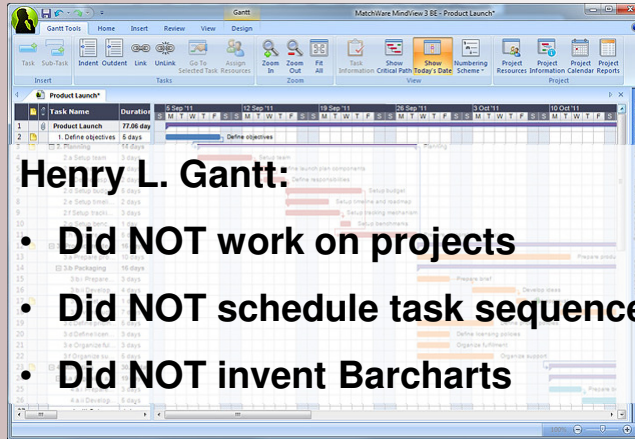
This is NOT a Gantt Chart!

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The Myth



Henry L. Gantt:

- Did NOT work on projects
- Did NOT schedule task sequences
- Did NOT invent Barcharts

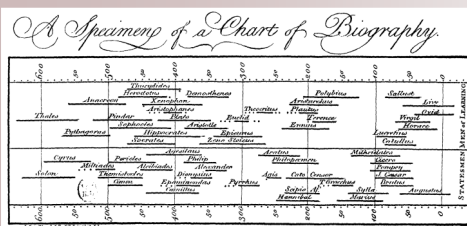
This is NOT a Gantt Chart!

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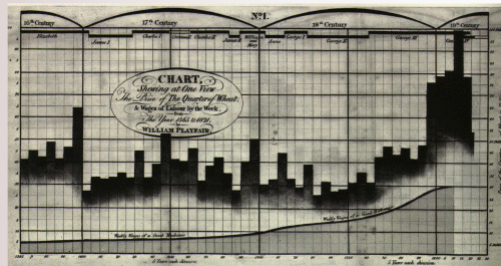
Barcharts



Joseph Priestley 1765

“...a longer or a shorter space of time may be most commodiously and advantageously represented by a longer or a shorter line.”

William Playfair (1759-1823) ‘Commercial and Political Atlas’ of 1786. Playfair is credited with developing a range of statistical charts including the line, bar (histogram), and pie charts.



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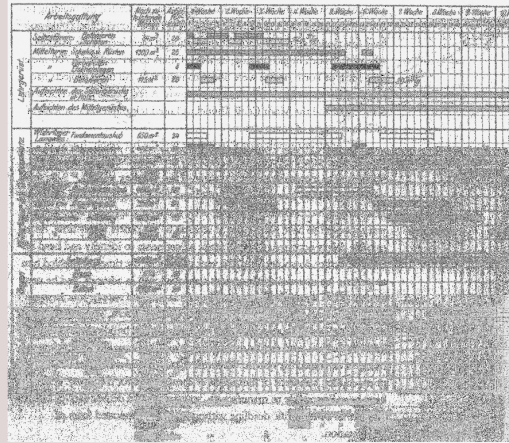
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Barcharts

time	From	-	-	-	A-1	B-1	...
To	A-2	B-2,C	D-2	A-3	E-1	...	
activity	A-1(4)	B-1(4)	D-1(2)	A-2(4)	B-2(3)	...	
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							

Karol Adamiecki 1896
Harmonogram or Harmonygraph



From Schurch 1916: p35
Project date 1912

**Henry Gantt published:
Work, Wages, & Profits
in 1910**

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Gantt's Contributions

- Motivation and organisation
- Visual display of complex data

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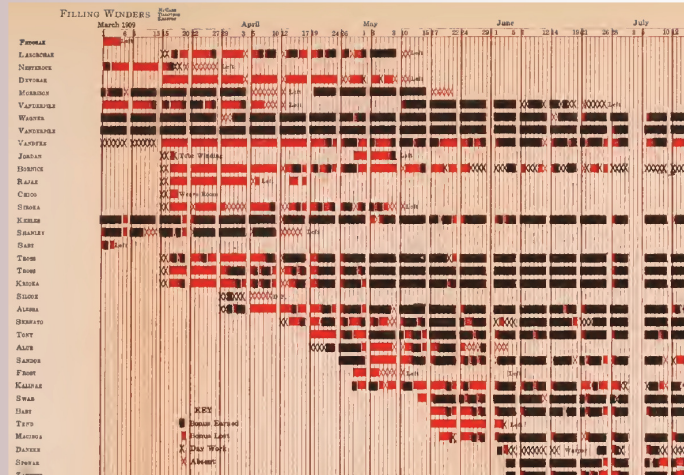
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Motivation

- Incentives over Penalties

The earning of a bonus becomes 'normal'



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Motivation

- Training
- Standardisation
- Problem solving
- Preparation

CLASS OF WORK		STANDING ORDER	ORDER NUMBER
Laths		460	16637
MACHINE NUMBER	TOOL	CLASS OF METAL	FORGING NUMBER
59	14	14	22706 B. F.
MAN'S NAME		SPEED BOSS	
DESCRIPTION OF OPERATION		SHAFT OF TOOL	CUT FEED SPEED TIME WOOD TAKE RATE
Change Machine		20 Min	(Per lot one only)
1	Chuck for turning webs		12
2	Turn webs	PRL 3cutts E	4AP 1:45
3	Change to pin centers		10
4	Rough pin to 4 1/2" dia	PSR	005 5AP 2:10
5	Rough face webs use end	1001 2cutts	4AP 1:40
6	Fin. " " " "	1cutt H	" 5.0
7	Fin. turn pin & cut fillets	E	2AP 2:00
8	File pin round		1:10
9	Polish pin	2BP	40
10	Inspect		15
11	Remove crank		5
12			10:52 10:55
13	Pin is "1 finish, webs are "3 finish.		
14	(Bonus earned)		
15			
16			
17			
18			
19			
20			
21			
22			
23	Previous time	54 hours	
Stockton Cast. Co. S&W Detroit Mich. S.S.C. Co. in Ill.		MONTH	DAY YEAR SIGNED
4811 PCMB		23194: A	7 17 01 Buckley

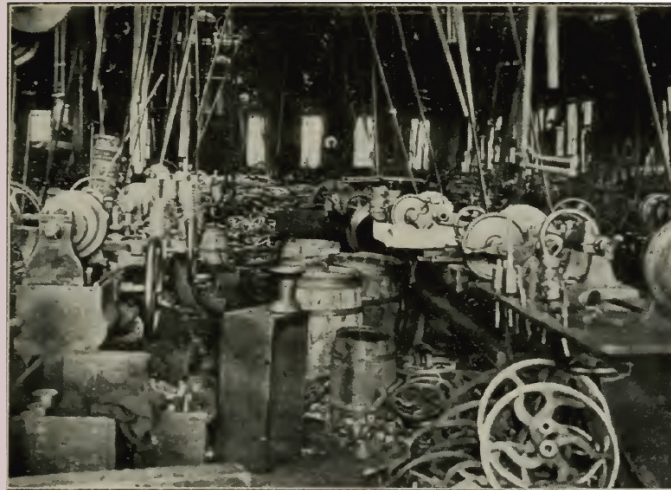
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Organisation

**Allowing
workers to
be
successful**



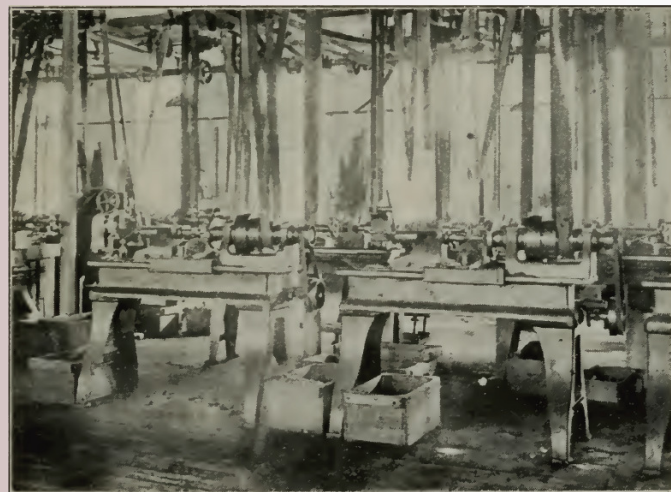
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Organisation

**Allowing
workers to
be
successful**



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Motivation

- Time and sequence mattered!
- But had to be realistic!!

A. L. CO. PRODUCTION SHEET, SCHEENECTADY WORKS											
PART		FRAMES									
BUR. ORD SKETCH, PAT. OR CARD NO.		REC'D	PLANED	SLOTTED	DRILLED	ASSEM'D					
TO BE BEGUN											
TO BE FINISHED											
NUMBER WANTED		15	15	15	15	15					
NUMBER FINISHED		DAILY	TOTAL	DAILY	TOTAL	DAILY	TOTAL	DAILY	TOTAL	DAILY	TOTAL
1903											
JAN	20	2	2	2	2						
	31	2	4	2	4						
	30	1	5	2	6						
	29	2	7	3	9						
	28	4	11	5	14						
	27	1	12	2	16						
	26	2	14	3	19	2	2				
	25	2	16	4	23	1	8				
	24	3	19	5	28	1	10				
	23	1	20	3	31	1	11				
FEB	31	2	22	5	36	1	12				
	30	1	23	4	40	1	13				
	29	2	25	5	45	2	15				
	28	3	28	8	53	2	17				
	27	4	32	12	65	3	20				
	26	5	37	17	82	4	24				
	25	6	43	23	105	5	29				
	24	7	50	30	135	6	35				
	23	8	58	38	173	7	42				
	22	9	67	47	220	8	50				
	21	10	77	57	277	9	59				
	20	11	88	68	345	10	69				
	19	12	100	80	425	11	80				
	18	13	113	93	518	12	92				
	17	14	127	107	625	13	105				
	16	15	142	122	747	14	119				
	15	16	158	138	885	15	134				
	14	17	175	155	1039	16	150				
	13	18	193	173	1210	17	167				
	12	19	212	192	1400	18	185				
	11	20	232	212	1610	19	204				
	10	21	253	233	1840	20	224				
	9	22	275	255	2090	21	245				
	8	23	298	278	2360	22	267				
	7	24	322	302	2650	23	290				
	6	25	347	327	2960	24	314				
	5	26	373	353	3290	25	339				
	4	27	400	380	3640	26	365				
	3	28	428	408	4010	27	392				
	2	29	457	429	4400	28	420				
	1	30	487	450	4810	29	449				
		31	518	472	5240	30	479				
			550	495	5690	31	510				
			583	519	6160	32	542				
			617	544	6650	33	575				
			652	569	7160	34	609				
			688	595	7690	35	644				
			725	622	8240	36	680				
			763	650	8810	37	717				
			802	678	9400	38	755				
			842	707	10010	39	794				
			883	737	10640	40	834				
			925	767	11290	41	875				
			968	798	11960	42	917				
			1012	830	12650	43	960				
			1057	863	13360	44	1004				
			1103	897	14090	45	1049				
			1150	932	14840	46	1095				
			1198	968	15610	47	1142				
			1247	1005	16400	48	1190				
			1297	1043	17210	49	1239				
			1348	1082	18040	50	1289				
			1400	1122	18890	51	1340				
			1453	1163	19760	52	1392				
			1507	1205	20650	53	1445				
			1562	1248	21560	54	1499				
			1618	1292	22490	55	1554				
			1675	1337	23440	56	1610				
			1733	1383	24410	57	1667				
			1792	1430	25400	58	1725				
			1852	1478	26410	59	1784				
			1913	1527	27440	60	1844				
			1975	1577	28490	61	1905				
			2038	1628	29560	62	1967				
			2102	1680	30650	63	2030				
			2167	1733	31760	64	2094				
			2233	1787	32890	65	2159				
			2300	1842	34040	66	2225				
			2368	1898	35210	67	2292				
			2437	1955	36400	68	2360				
			2507	2013	37610	69	2429				
			2578	2072	38840	70	2499				
			2650	2132	40090	71	2570				
			2723	2193	41360	72	2642				
			2797	2255	42650	73	2715				
			2872	2318	43960	74	2789				
			2948	2382	45290	75	2864				
			3025	2447	46640	76	2940				
			3103	2513	48010	77	3017				
			3182	2580	49400	78	3095				
			3262	2648	50810	79	3174				
			3343	2717	52240	80	3254				
			3425	2787	53690	81	3335				
			3508	2858	55160	82	3417				
			3592	2930	56650	83	3499				
			3677	3003	58160	84	3582				
			3763	3077	59690	85	3666				
			3850	3152	61240	86	3751				
			3938	3228	62810	87	3837				
			4027	3305	64400	88	3924				
			4117	3383	66010	89	4012				
			4208	3462	67640	90	4101				
			4300	3542	69290	91	4191				
			4393	3623	70960	92	4282				
			4487	3705	72650	93	4374				
			4582	3788	74360	94	4467				
			4678	3872	76090	95	4561				
			4775	3957	77840	96	4656				
			4873	4043	79610	97	4752				
			4972	4130	81400	98	4849				
			5072	4218	83210	99	4947				
			5173	4307	85040	100	5046				

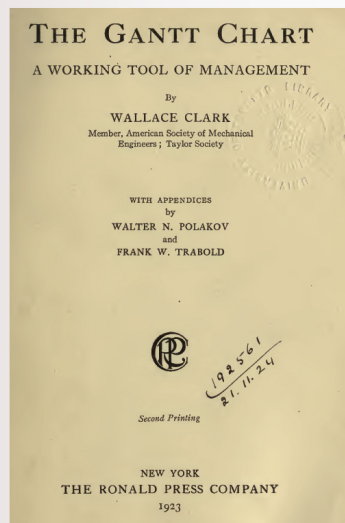
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The Gantt Chart

- Written after Gantt's death
- Published 1922



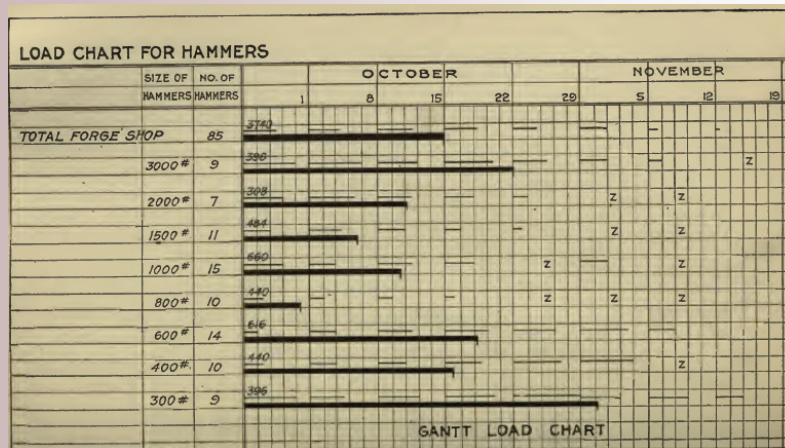
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The Gantt Chart(s)

- Load charts



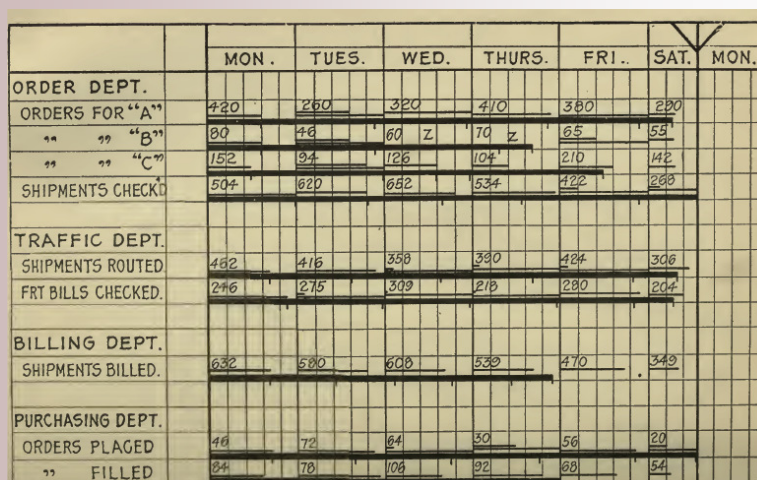
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The Gantt Chart(s)

- Performance charts



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The Gantt Chart(s)

- Planned, cumulative, daily total and actual – all in one chart

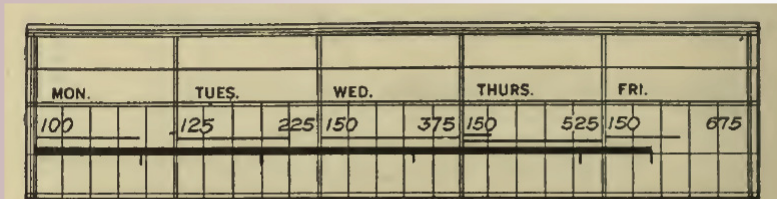


FIGURE 3. GANTT CHART SHOWING THE CUMULATIVE SCHEDULE AND THE CUMULATIVE WORK DONE

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The Gantt Chart(s)

- Barcharts pre-date Gantt by 100+ years
- Gantt's charts focused on production
- Are the forerunner to Earned Value
- But quickly declined in use
"managers would rather show what they had done rather than consider what could have been achieved"

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Resources

- Gantt's books:

<https://mosaicprojects.com.au/PMKI-ZSY-025.php#Process1>

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Questions Please



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Mosaic's Scheduling home Page

<https://mosaicprojects.com.au/PMKI-SCH.php>

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