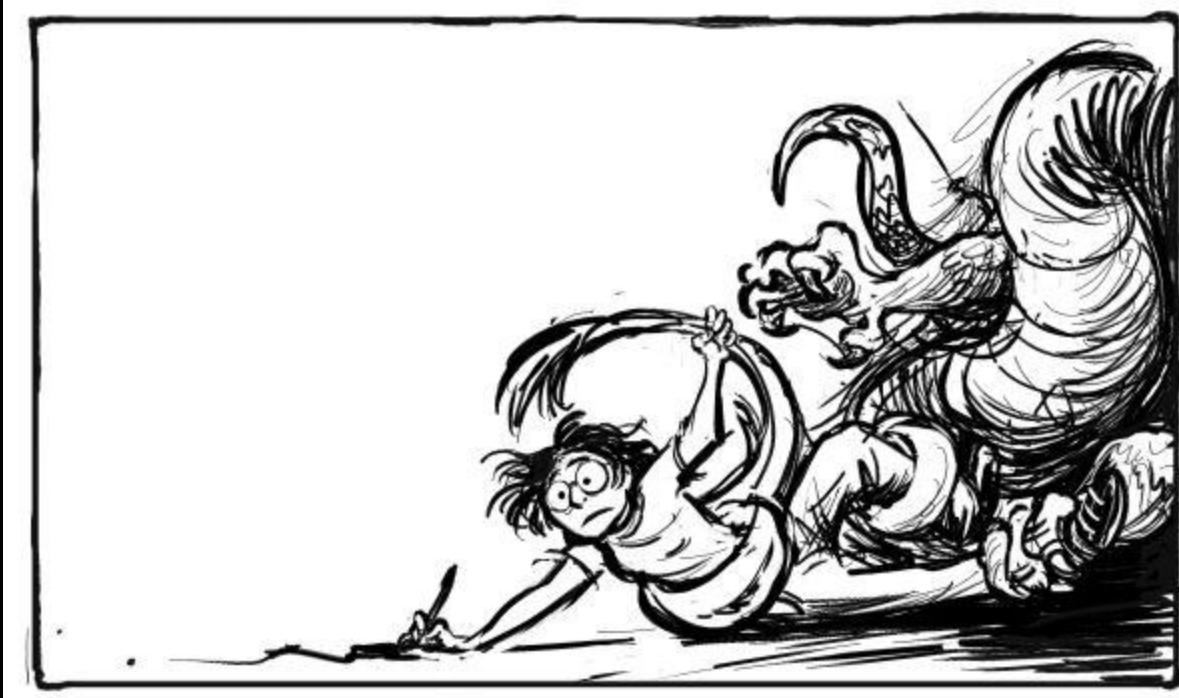
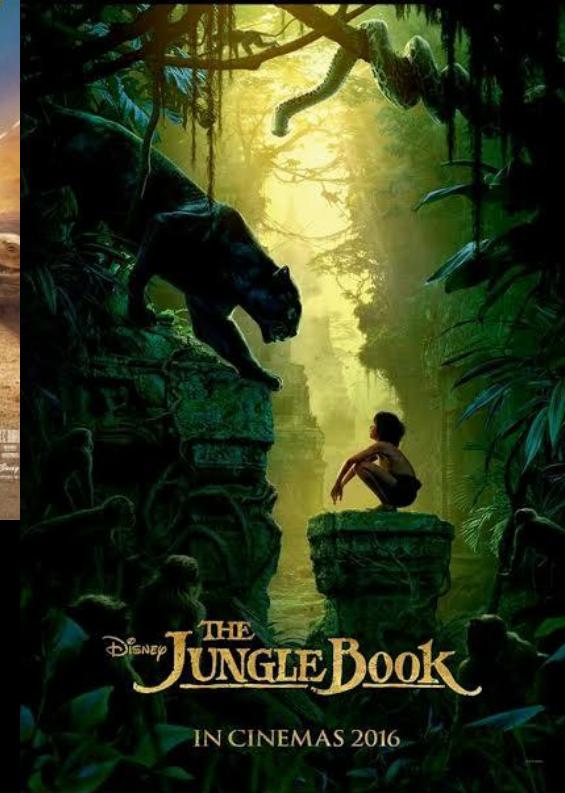
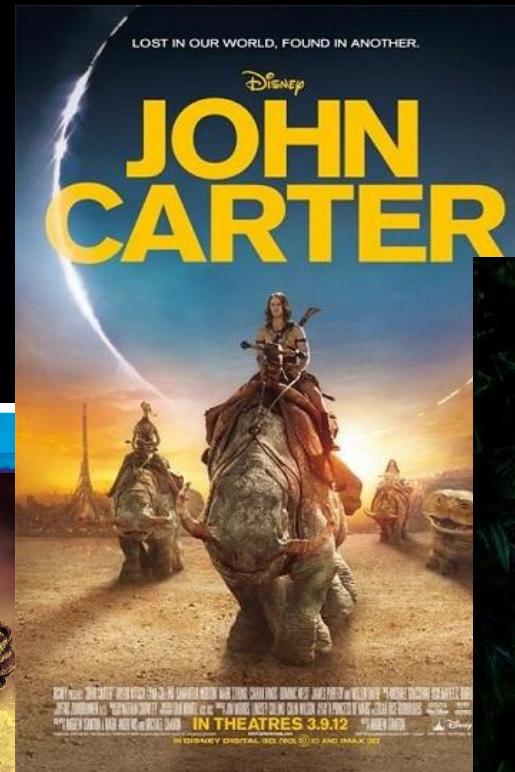
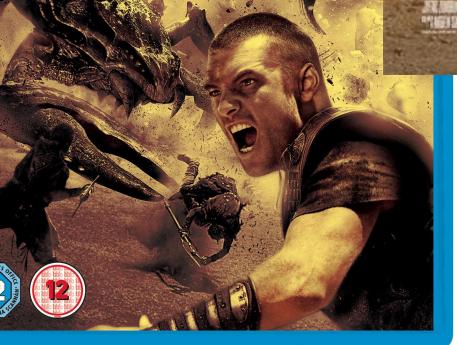
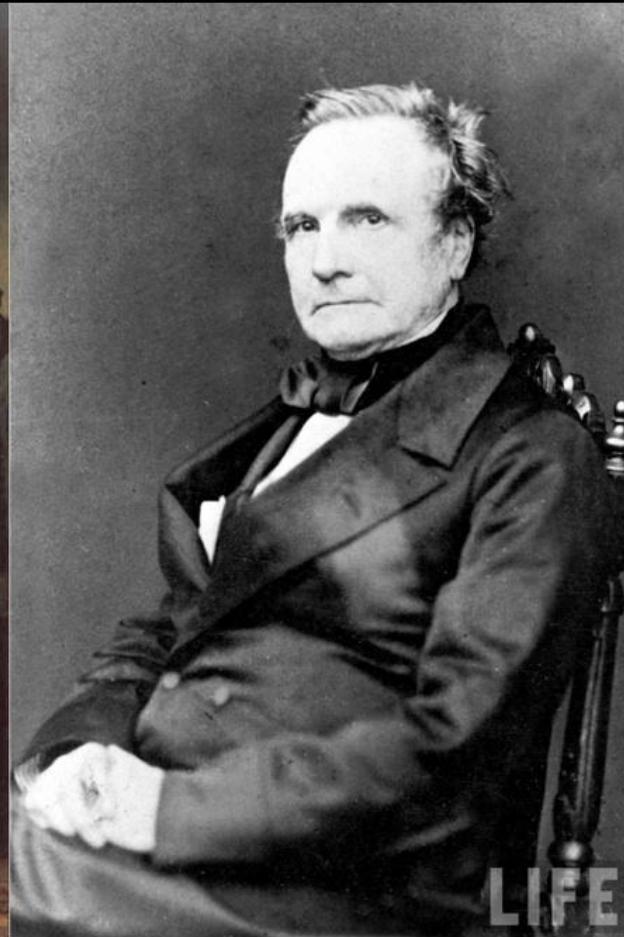


# **IMAGINARY ENGINES**

The Thrilling Adventures of  
**Lovelace and Babbage**







**A**DA was the daughter of "mad, bad, and dangerous to know" poet and nutcase Lord Byron.

Her mother Anabel fled the exploding-planet her husband but was afraid their daughter would inherit his **WILD BLOOD!!**

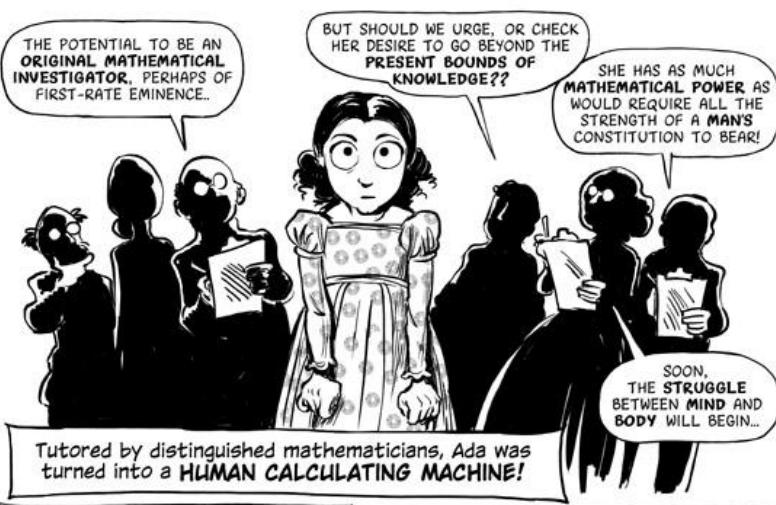


ADA  
MUST NEVER  
BECOME  
POETICAL!

ONLY ONE  
THING HAS THE  
POWER TO SUBDUE  
POETRY...

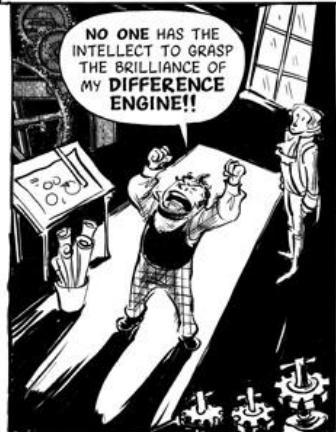
...MATHEMATICS!!





Tutored by distinguished mathematicians, Ada was turned into a **HUMAN CALCULATING MACHINE!**

MEANWHILE, in his secret laboratory, super-genius inventor CHARLES BABBAGE labours on the radical non-human calculating machine!





IT CAN TABULATE ACCURATELY AND TO AN UNLIMITED EXTENT, ALL SERIES WHOSE GENERAL TERM IS COMPRISED BY THE FORMULA  $\Delta^7 U_x = 0!!!$



INDEED, ALL OTHER SERIES WHICH ARE CAPABLE OF TABULATION BY THE METHOD OF DIFFERENCES!!



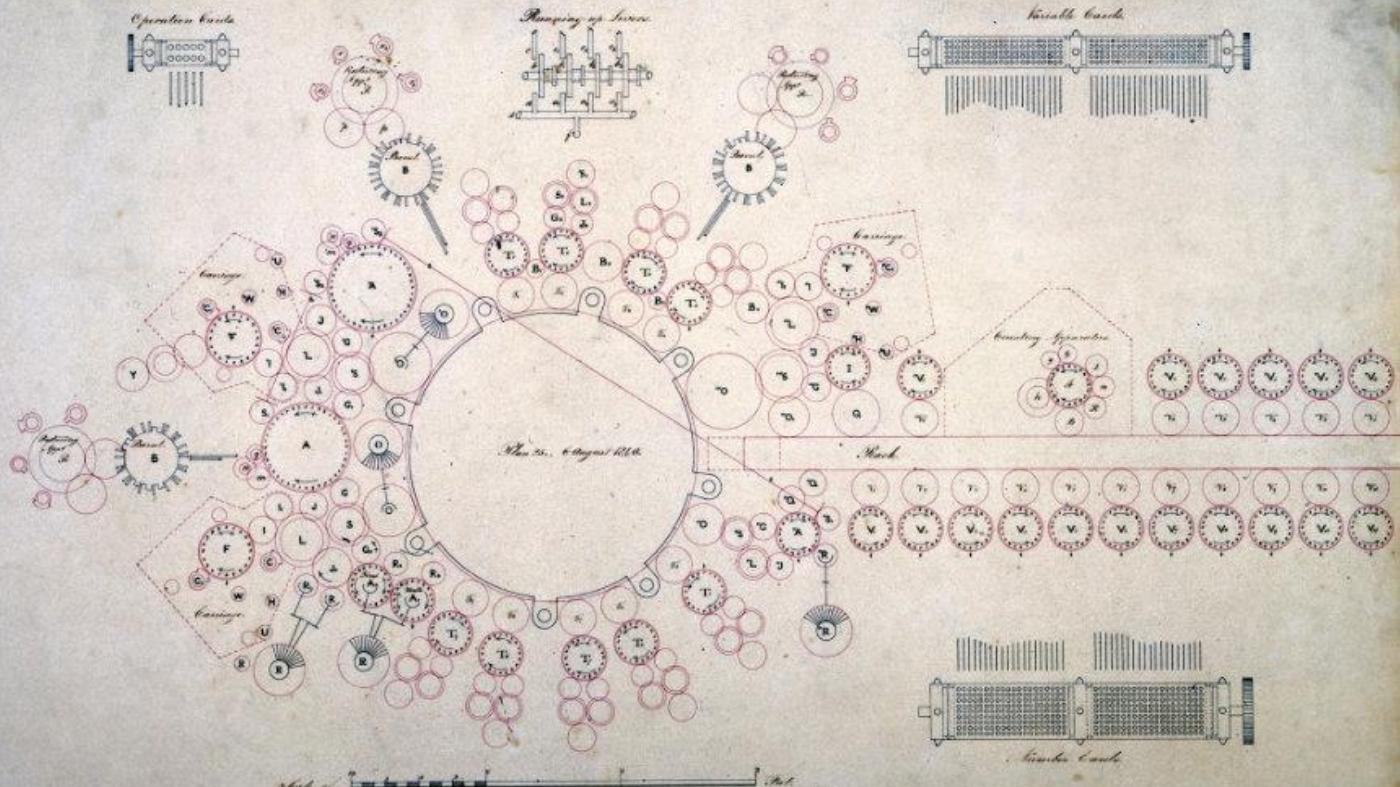
EXACTLY!



THIS MUST  
BE TWITTERED!

WAIT,  
THIS IS  
A FAN.

SUDDENLY,  
THERE IS A GAPPING  
HOLE IN MY LIFE  
OF WHICH  
I WAS HITHERTO  
UNAWARE.



The General Plan of  
Mr. Babbage's Great Calculating Engine.



In 1842, Ada Lovelace wrote the first paper on computer science, and published the first computer program, for Babbage's unbuilt design for a punchcard-run mechanical computer, the Analytical Engine.



highest temperature but of the lowest measure of violence in its evolution, movement, and finally decomposing before it disappears, to become.

Moreover, even, mapping into the regions of magnetism, we will mention a particular problem which occurs for us in this instance in being an apt illustration of the way in which such a region may be formed for determining that velocity which is to be given to the body to provide us with a maximum value. In the solution of the former, the basis of the latter studies, there are, not of about 1000 conditions of propagation given by M. Chauvin (Chauvin, *Sur la propagation des ondes magnétiques dans l'air et dans les fluides*, Paris, 1861) as the result of the calculations by Faraday, Maxwell, and others, but of over 10000, of which, however, only a small part, in the sense of their application to our case, and out of the complicated there are only 100 or so whose consideration I shall again postpone here, for they may be more useful. These conditions, which are generally called in science the "conditions of propagation," are those which are derived from the equations of motion, and which are called in mechanics the "equations of condition." They are also called from an analogous cause in optics the "equations of condition" in the interpretation of the problems, or from themselves in the data deduced from the interpretation of them, both in mechanics as in optics, and this the reader would naturally suppose.

"We can easily obtain from the equations of condition in mechanics, and set the engine to work upon them, and thus deduce the method which we ought not otherwise have thought of taking. But this would be of no use to us in practice or in problems of any great practical utility, or reduced to such higher dimensions as A.A.L.

of philosophical importance."

#### Source VI.—Page 100.

It is desirable to guard against the possibility of exaggerating this, that might arise as to the scope of the analytical Engine. It is evident, very few problems, above in complexity a certain point, for instance, what we find to be already common or conceivable, will, in reality, by a series of natural evolutions, become capable of solution; while, when the dimension does, our present labor, excepted from the same, will be insurmountable.

The Analytical Engine has no pretensions whatever to originality.

It can do what we desire him to do at no problem.

If it can do what we desire him to do at no problem, if it can do all that we desire him to do at no problem, in order to do anything we desire of him, he possesses in his power an amount of capacity we are already acquainted with. This is in reality, in other words, a very simple, though an enormous, function; for it is likely and indeed, of course, though we cannot yet conceive it, to suffice to obtain an instant and exactual knowledge of something that is another. For, as in the deciphering and reading of writing, we need the knowledge of words, so that their meaning need only set in addition to the mathematical meaning of that action as it is written and the nature of many subjects to that action are turned directly into new lights, and more particularly investigated. There is, doubtless, much more, and a somewhat operation, consisting of parts in common, with the engine, on general principles, but I do not know.

It is however pretty evident, on general principles, for

deciding for mathematical truths a few cases in which to start out.

These decisions, not for actual use, may be easily to be inferred,

which should again meet on the most theoretical plane of the subject.

There are no all existence of human power, or addition to him-

Diagram for the computation by the Regions of the Numbers of Bernoulli. See Table II. (page 210 of my)

Region	Number of Regions	Regions										Number of Regions
		1	2	3	4	5	6	7	8	9	10	
1	1	1	1	1	1	1	1	1	1	1	1	1
2	2	1	2	1	2	1	2	1	2	1	2	1
3	3	1	2	3	1	2	3	1	2	3	1	2
4	4	1	2	3	4	1	2	3	4	1	2	3
5	5	1	2	3	4	5	1	2	3	4	5	1
6	6	1	2	3	4	5	6	1	2	3	4	5
7	7	1	2	3	4	5	6	7	1	2	3	4
8	8	1	2	3	4	5	6	7	8	1	2	3
9	9	1	2	3	4	5	6	7	8	9	1	2
10	10	1	2	3	4	5	6	7	8	9	10	1
11	11	1	2	3	4	5	6	7	8	9	10	11
12	12	1	2	3	4	5	6	7	8	9	10	11
13	13	1	2	3	4	5	6	7	8	9	10	11
14	14	1	2	3	4	5	6	7	8	9	10	11
15	15	1	2	3	4	5	6	7	8	9	10	11
16	16	1	2	3	4	5	6	7	8	9	10	11
17	17	1	2	3	4	5	6	7	8	9	10	11
18	18	1	2	3	4	5	6	7	8	9	10	11
19	19	1	2	3	4	5	6	7	8	9	10	11
20	20	1	2	3	4	5	6	7	8	9	10	11
21	21	1	2	3	4	5	6	7	8	9	10	11
22	22	1	2	3	4	5	6	7	8	9	10	11
23	23	1	2	3	4	5	6	7	8	9	10	11
24	24	1	2	3	4	5	6	7	8	9	10	11
25	25	1	2	3	4	5	6	7	8	9	10	11
26	26	1	2	3	4	5	6	7	8	9	10	11
27	27	1	2	3	4	5	6	7	8	9	10	11
28	28	1	2	3	4	5	6	7	8	9	10	11
29	29	1	2	3	4	5	6	7	8	9	10	11
30	30	1	2	3	4	5	6	7	8	9	10	11
31	31	1	2	3	4	5	6	7	8	9	10	11
32	32	1	2	3	4	5	6	7	8	9	10	11
33	33	1	2	3	4	5	6	7	8	9	10	11
34	34	1	2	3	4	5	6	7	8	9	10	11
35	35	1	2	3	4	5	6	7	8	9	10	11
36	36	1	2	3	4	5	6	7	8	9	10	11
37	37	1	2	3	4	5	6	7	8	9	10	11
38	38	1	2	3	4	5	6	7	8	9	10	11
39	39	1	2	3	4	5	6	7	8	9	10	11
40	40	1	2	3	4	5	6	7	8	9	10	11
41	41	1	2	3	4	5	6	7	8	9	10	11
42	42	1	2	3	4	5	6	7	8	9	10	11
43	43	1	2	3	4	5	6	7	8	9	10	11
44	44	1	2	3	4	5	6	7	8	9	10	11
45	45	1	2	3	4	5	6	7	8	9	10	11
46	46	1	2	3	4	5	6	7	8	9	10	11
47	47	1	2	3	4	5	6	7	8	9	10	11
48	48	1	2	3	4	5	6	7	8	9	10	11
49	49	1	2	3	4	5	6	7	8	9	10	11
50	50	1	2	3	4	5	6	7	8	9	10	11
51	51	1	2	3	4	5	6	7	8	9	10	11
52	52	1	2	3	4	5	6	7	8	9	10	11
53	53	1	2	3	4	5	6	7	8	9	10	11
54	54	1	2	3	4	5	6	7	8	9	10	11
55	55	1	2	3	4	5	6	7	8	9	10	11
56	56	1	2	3	4	5	6	7	8	9	10	11
57	57	1	2	3	4	5	6	7	8	9	10	11
58	58	1	2	3	4	5	6	7	8	9	10	11
59	59	1	2	3	4	5	6	7	8	9	10	11
60	60	1	2	3	4	5	6	7	8	9	10	11
61	61	1	2	3	4	5	6	7	8	9	10	11
62	62	1	2	3	4	5	6	7	8	9	10	11
63	63	1	2	3	4	5	6	7	8	9	10	11
64	64	1	2	3	4	5	6	7	8	9	10	11
65	65	1	2	3	4	5	6	7	8	9	10	11
66	66	1	2	3	4	5	6	7	8	9	10	11
67	67	1	2	3	4	5	6	7	8	9	10	11
68	68	1	2	3	4	5	6	7	8	9	10	11
69	69	1	2	3	4	5	6	7	8	9	10	11
70	70	1	2	3	4	5	6	7	8	9	10	11
71	71	1	2	3	4	5	6	7	8	9	10	11
72	72	1	2	3	4	5	6	7	8	9	10	11
73	73	1	2	3	4	5	6	7	8	9	10	11
74	74	1	2	3	4	5	6	7	8	9	10	11
75	75	1	2	3	4	5	6	7	8	9	10	11
76	76	1	2	3	4	5	6	7	8	9	10	11
77	77	1	2	3	4	5	6	7	8	9	10	11
78	78	1	2	3	4	5	6	7	8	9	10	11
79	79	1	2	3	4	5	6	7	8	9	10	11
80	80	1	2	3	4	5	6	7	8	9	10	11
81	81	1	2	3	4	5	6	7	8	9	10	11
82	82	1	2	3	4	5	6	7	8	9	10	11
83	83	1	2	3	4	5	6	7	8	9	10	11
84	84	1	2	3	4	5	6	7	8	9	10	11
85	85	1	2	3	4	5	6	7	8	9	10	11
86	86	1	2	3	4	5	6	7	8	9	10	11
87	87	1	2	3	4	5	6	7	8	9	10	11
88	88	1	2	3	4	5	6	7	8	9	10	11
89	89	1	2	3	4	5	6	7	8	9	10	11
90	90	1	2	3	4	5	6	7	8	9	10	11
91	91	1	2	3	4	5	6	7	8	9	10	11
92	92	1	2	3	4	5	6	7	8	9	10	11
93	93	1	2	3	4	5	6	7	8	9	10	11
94	94	1	2	3	4	5	6	7	8	9	10	11
95	95	1	2	3	4	5	6	7	8	9	10	11
96	96	1	2	3	4	5	6	7	8	9	10	11
97	97	1	2	3	4	5	6	7	8	9	10	11
98	98	1	2	3	4	5	6	7	8	9	10	11
99	99	1	2	3	4	5	6	7	8	9	10	11
100	100	1	2	3	4	5	6	7	8	9	10	11

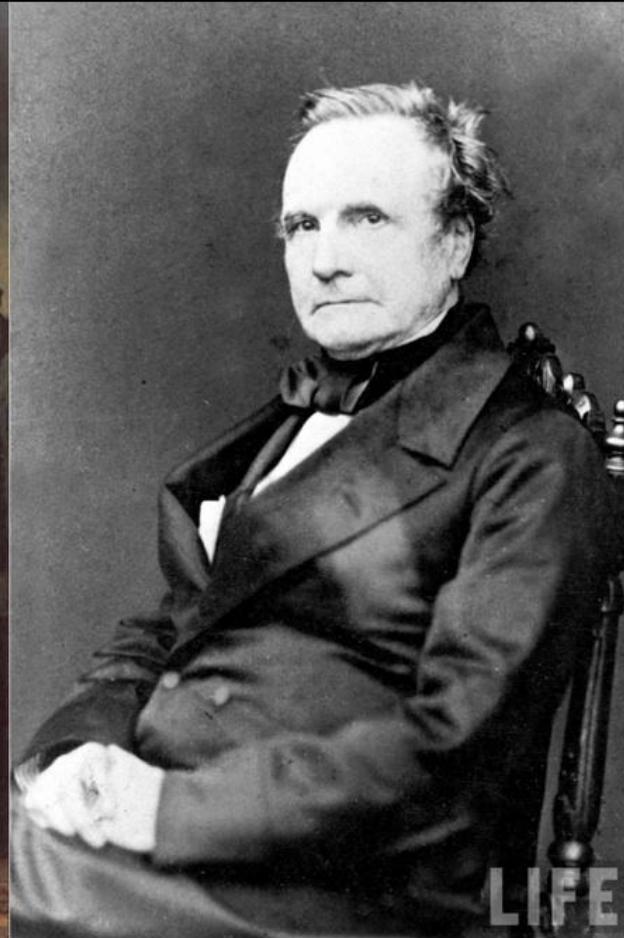


Ugh, that's a terrible ending! Actually what happened was, Lovelace and Babbage lived on and built a giant calculating Engine and used it to

**FIGHT CRIME and HAVE ADVENTURES!**







sydneypadua.com presents a hideous mutant offshoot

# 2D GOGGLES

dangerous experiments in comics



« Previous—

Next »

## Lovelace and Babbage Vs The Client Pt 3

Published at: 12:08 pm - Friday August 21 2009

My purpose in this episode is get all the computer gags out of the way.



Subscribe in a reader

### Pages

[FAQ](#)

[The Complete Lovelace and Babbage](#)

### Categories

[Economic Model](#)

[Meanwhile..](#)

[The Client](#)

[The Organist](#)

[Uncategorized](#)

### My Other Sites

[Shop](#)

[sydneypadua.com](#)

[The Natural History of Selborne](#)

### Resources

[Blambot Comic Fonts](#)

[Primary Documents- Annotated](#)

[Links](#)

### Twitter Feed



THINK OF  
SOMETHING!!

YOU  
THINK OF  
SOMETHING,  
GENIUS!

IN THE NEXT  
THRILLING EPISODE OF LOVELACE AND BABBAGE!



PRECIOUS, PRECIOUS NOTSES!

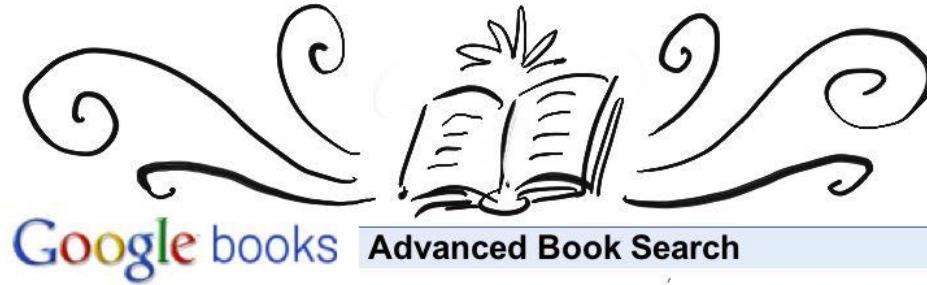
— not a whole lot of notes for the first part, though if you want to read the actual training methods of Victorian Organ Grinder's monkeys **this is fairly horrifying**. So, historical accuracy on the psycho monkeys.

— mostly this episode (this whole story, really) is grown from a spore that implanted itself in my brain from **The Ninth Bridgewater Treatise**. It's a bit hard to explain what this is.. let's turn to the ever-invaluable Google Books, shall we?

First, the Bridgewater Project:

THE series of Treatises, of which the present is one, is published under the following circumstances :

The RIGHT HONOURABLE and REVEREND FRANCIS HENRY, EARL of BRIDGEWATER, died in the month of February, 1829 ; and by his last Will and Testament, bearing date the 25th of February, 1825, he directed certain Trustees therein named to invest in the public funds the sum of Eight thousand pounds sterling ; this sum, with the accruing dividends thereon, to be held at the disposal of the President, for the time being, of the Royal Society of London, to be paid to the person or persons nominated by him. The Testator further directed, that the person or persons selected by the said President should be ap-



Google books

Advanced Book Search

Find results

with **all** of the words

with the **exact phrase**

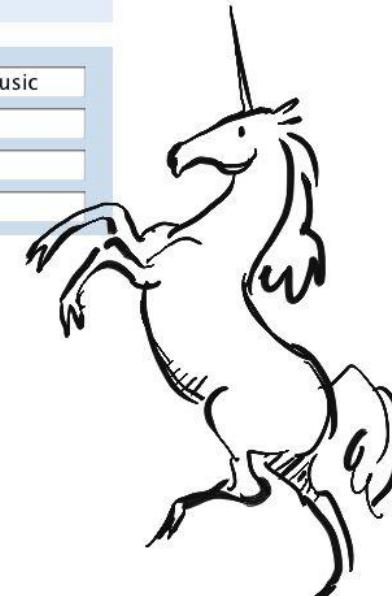
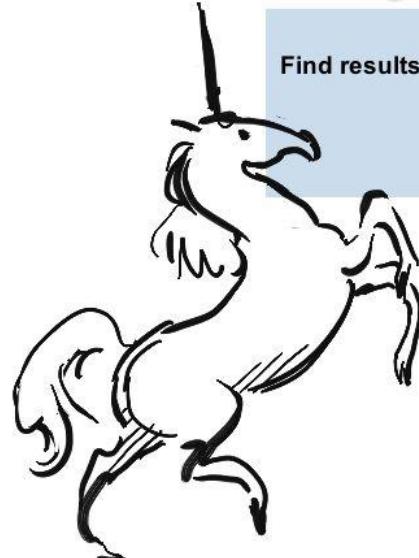
with **at least one** of the words

**without** the words

Babbage street music

1830 and  1870

e.g. 1999 and 2000, or Jan 1999 and Dec 2000



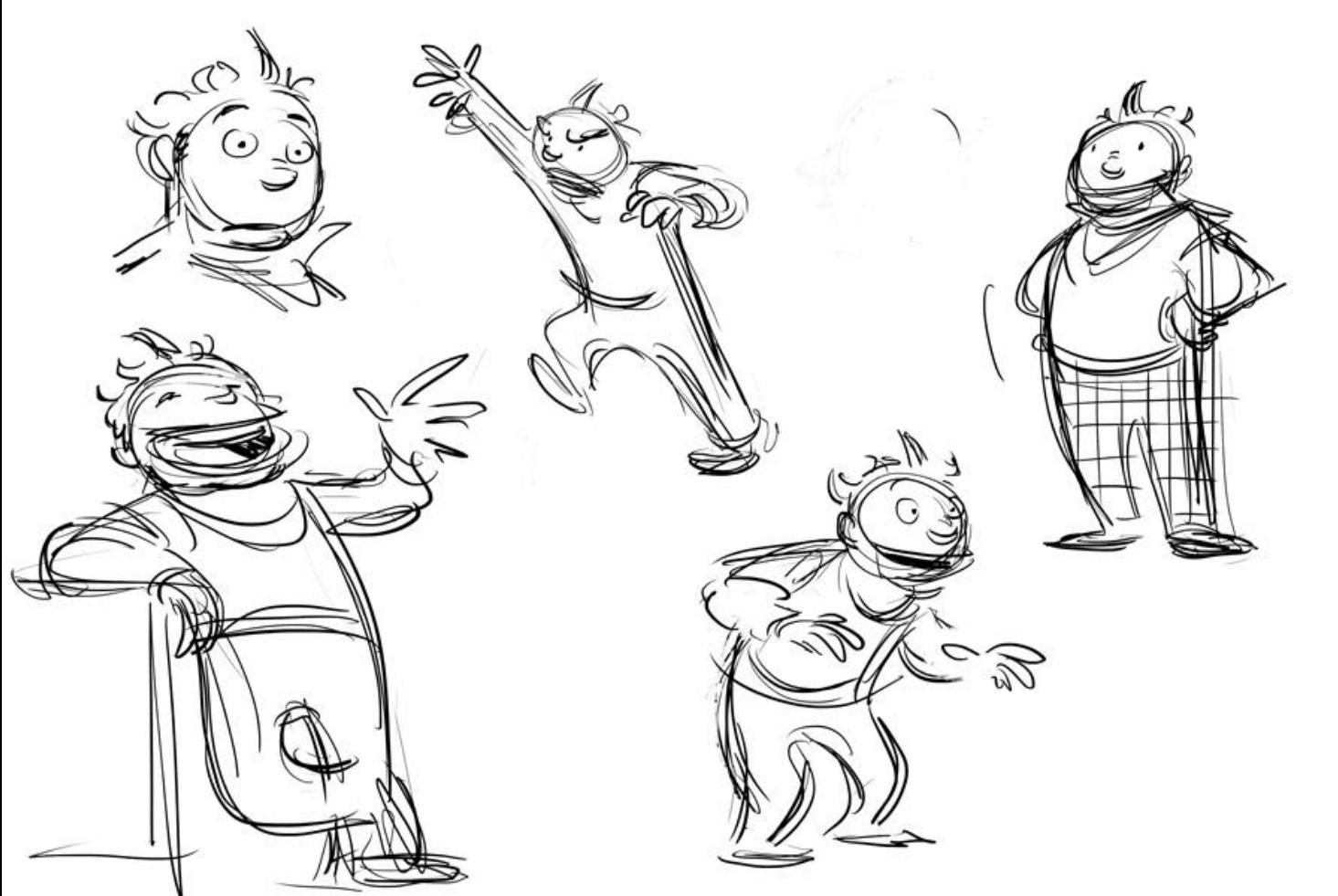
Y!!

partments and in their provinces, has become  
eminent, so as to deserve the title of Lions.

Cambridge was strongly, worthily, and ably  
represented in the persons of Airy the astro-  
nomer, Whewell the mathematician and mine-  
ralogist, Sedgwick the renowned champion of  
geology, Babbage the logarithmetical Frank-  
enstein. Each Society of London had sent forth  
its deputies; Davies Gilbert and children from  
the Royal Society, - Brown the boast of the  
Linnean, Murdoch, Fitton, and Greenwich

electrical experiments. Kenyon acknowledged Lady Lovelace to be a woman of remarkable intellect, but she was too mathematical for his taste. "Our family are an alternate stratification of poetry and mathematics," Lady Lovelace used to say. Babbage thought that if he was blind he could write poetry; "and I should take for my subject the description of an intellectual inferno," he said. It was difficult to associate poetry in any form with Babbage—he was so eminently practical. He told me that he never allowed himself to lose any time.

B  
B  
B  
E  
I  
L  
L  
L  
M  
P  
R  
R  
R  
R

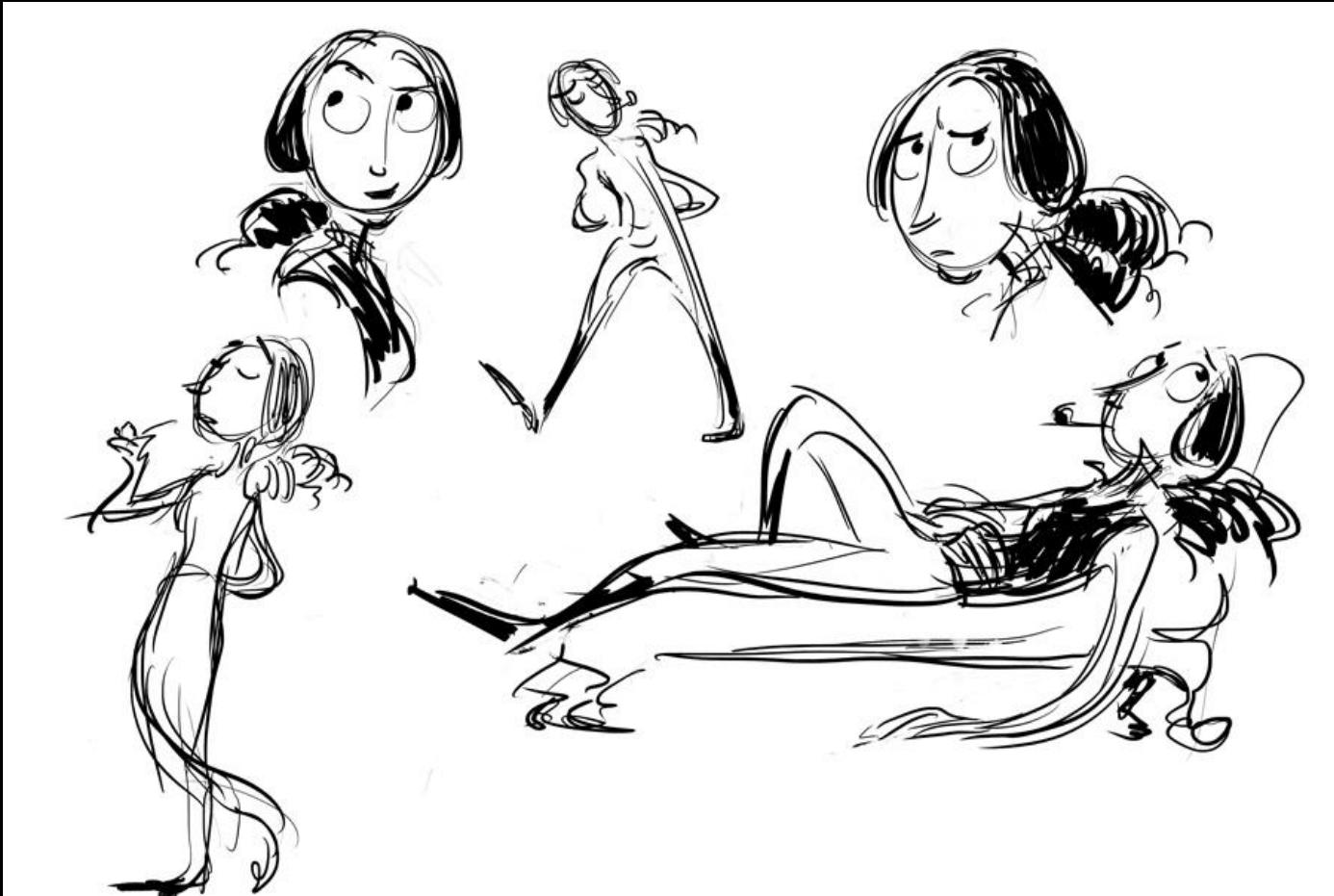




No. XXIV.

FANCY PORTRAIT OF THE GENTLEMAN WHO HAS BEEN  
HONOURABLY MENTIONED BY PRINCE ALBERT!

"HONOURABLY MENTIONED, INDEED! IS THAT ALL? SCANDALOUS!"



"YOU DON'T SAY SO!"—Mr. Nazro has concluded to give lessons in biblical elocution hereafter, at the reduced price of ten thousand dollars per annum!

ON FIRE!—It is said, that Ada Byron, the sole daughter of the "noble bard," is the most coarse and vulgar woman in England!

"ANOTHER—AND YET ANOTHER!"—A new monthly magazine is in contemplation, under the editorial direction of Charles Hoffman.

JAM JEHAN NIMS.—John Howard Payne is in New-Orleans, collecting subscribers for his contemplated periodical.

DIVORCES.—An Albany paper says that the number of divorcees in the United States amount to two thousand a year!

the same process would be repeated. If, however, any mistake had been made by the attendant, and a wrong logarithm had been accidentally given to the engine, it would have discovered the mistake, and have rung a louder bell to call the attention of its guide, who on looking at the proper place, would see a plate above the logarithm he had just put in with the word "*wrong*" engraved upon it.

By such means it would be perfectly possible to make all calculations requiring tabular numbers, without the chance of error.

number of that card by the number of the card which it demanded. The Engine will always reject a wrong card by continually ringing a loud bell and stopping itself until supplied with the precise intellectual food it demands.

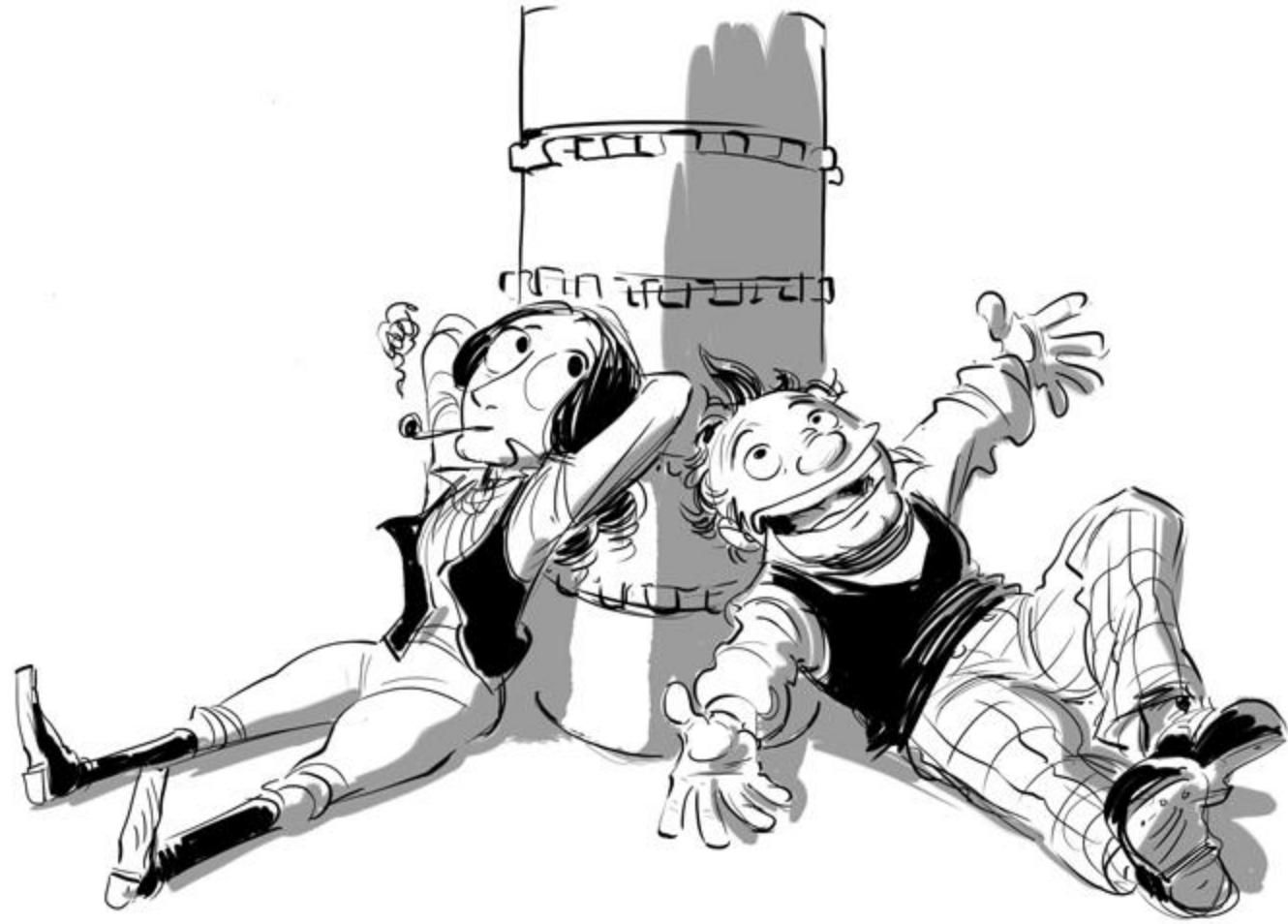
It will be an interesting question, which time only can solve.

computed and punched by itself. The first computes and punches others. These are brought to it by led. But the engine itself takes ; brought to it by verifying the

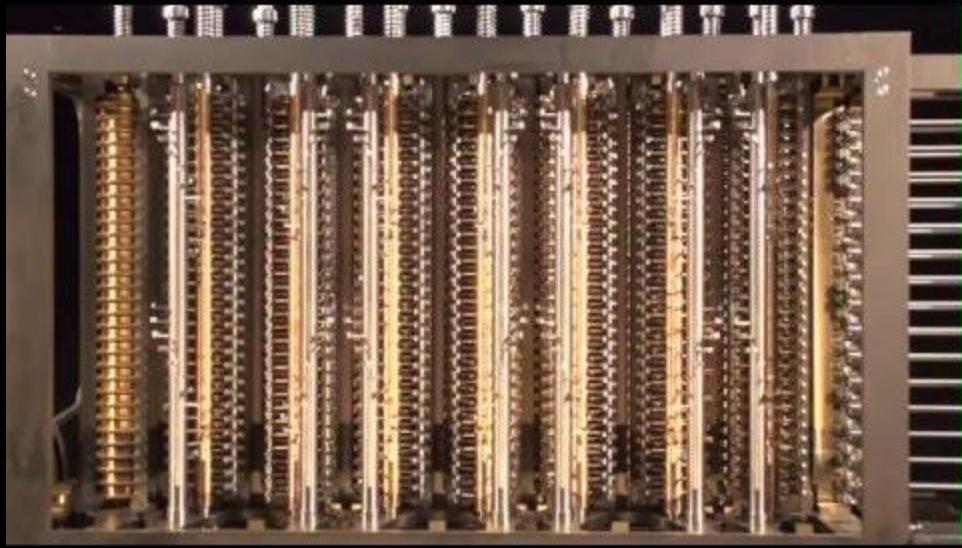


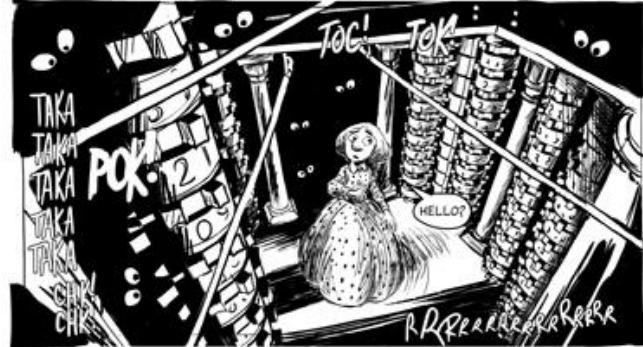


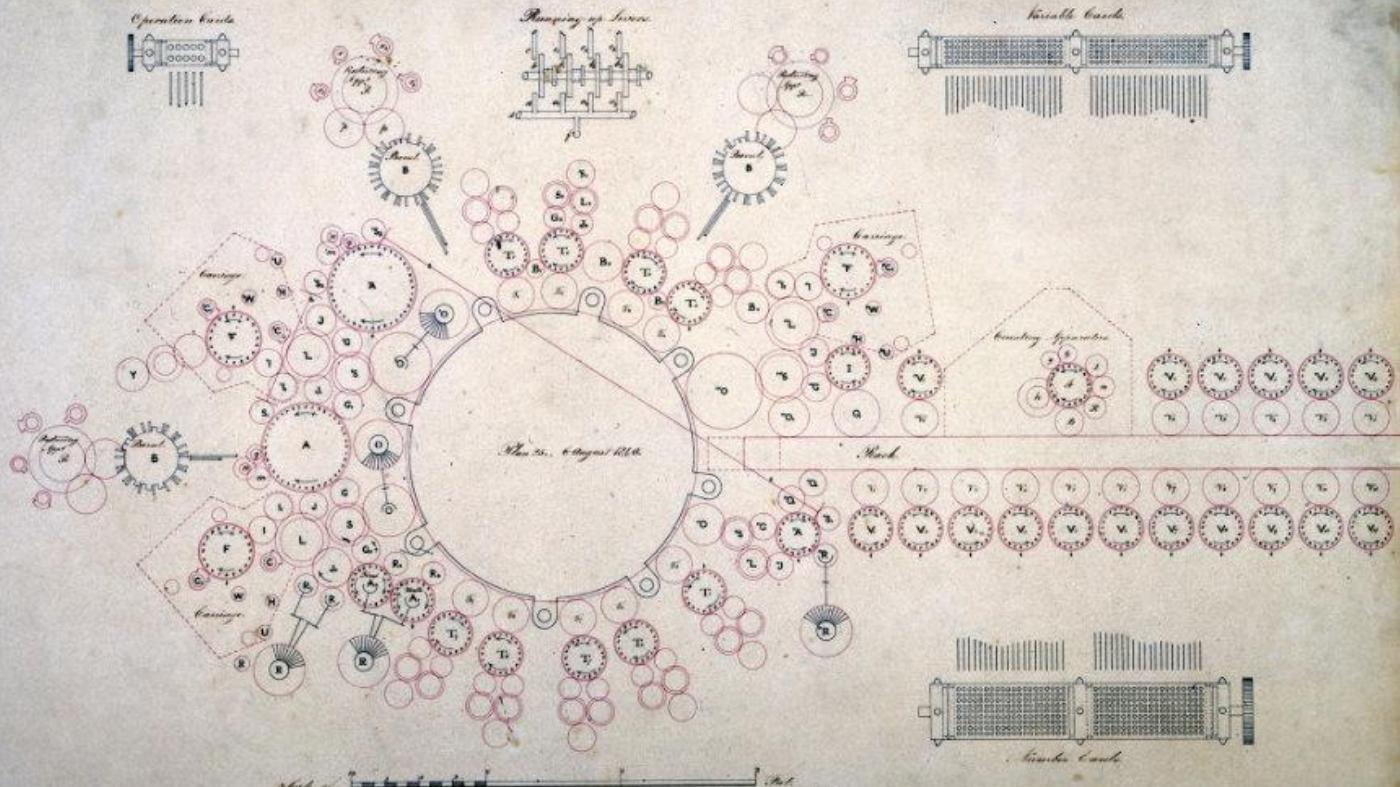
After he got up to go, by some chance of conversation the late Lady Lovelace's name (Lord Byron's daughter 'Ada') was mentioned ; he knew her intimately and spoke highly of her mathematical powers, and of her peculiar capability—higher he said than of any one he knew, to prepare (I believe it was) the descriptions connected with his calculating machine. (I fear I am not expressing myself rightly here as to the precise nature of the subject he mentioned) :



# The Analytical Engine







The General Plan of  
Mr. Babbage's Great Calculating Engine.

Sheet 1

Trains on "F" and "I" during Operations in Mill

Addition No. 132 1/1

Give P from Stock to Signer Wh. 1 Card puts A<sub>1</sub> sign on sign wh. of F

Transfer sign of P to sign wh. of F

Give Q from Stock to Signer Wh. 2 Card puts A<sub>2</sub> sign on sign wh. of F

Transf. P from Signer wh. 1 to Central. Transfer sign of Q to sign wh. of F

Transf. Q from Signer wh. 2 to Central

Reduce I to zero

Reduce F to minus zero

Subtract which is now A from "F" Reduce Signer Wh. 1 to zero

Reduce "F" to minus zero

The above trains include all occurring in the six standard cases of Add.

All the Trains in Add. 135 Add. are included in Add. 132

Multiplication (Standard)

A

Rk Q ^  
I

^ ^ ^ ^ ^ ^  
"θ" S "L" I F "C" L" I F

Card puts ± on F

B

Rk Q ^  
I

^ ^ ^ ^ ^ ^  
I G S O C "θ" S "L" I F "C" L" I F

Card puts ± on F

C

^ ^ ^ ^ ^  
I G S O C

^  
I = 0

D

"F = - 0

E

^ ^ ^ ^ ^ ^  
C "O" S "L" I I F

^ ^ ^ ^ ^ ^  
"C" L" S "O C "L" I I F

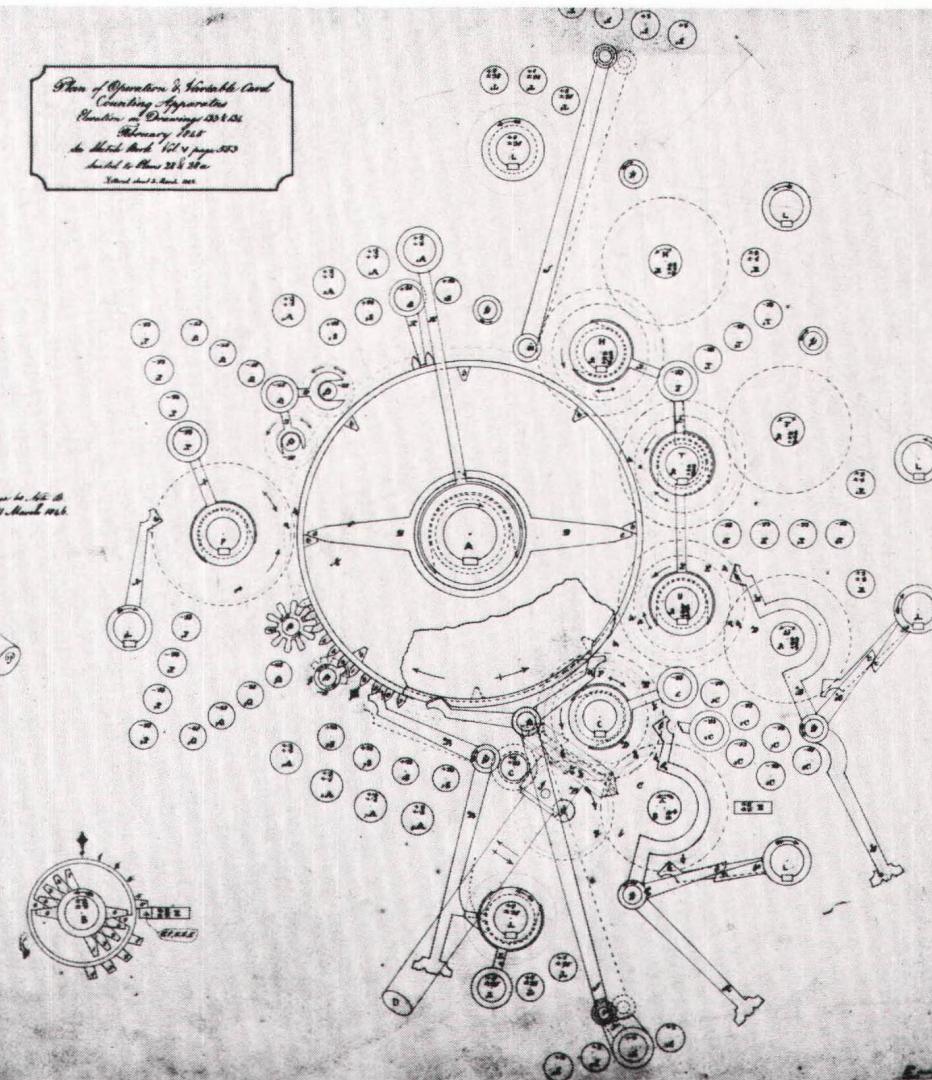
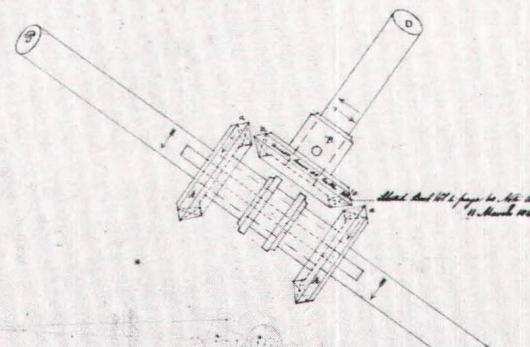
^ ^ ^ ^ ^ ^  
I = 0

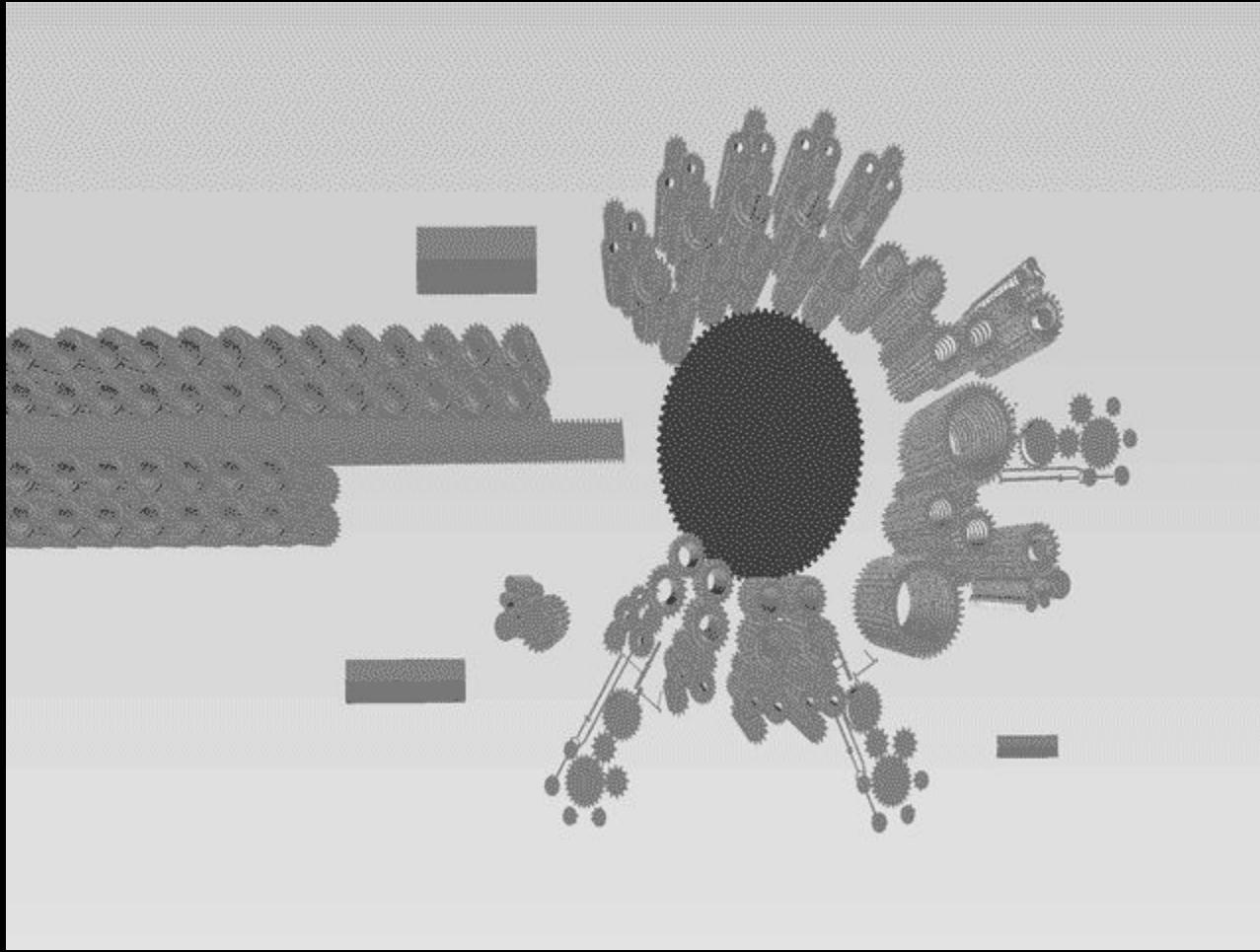
F

1

Plan of Operation of Variable Card  
 Counting Apparatus  
 Function of Drawings 133 & 134  
 January 1915  
 In Watch Book Vol 4 page 553  
 Lent to Bureau 28 & 28a  
 Used until 2 June 1915

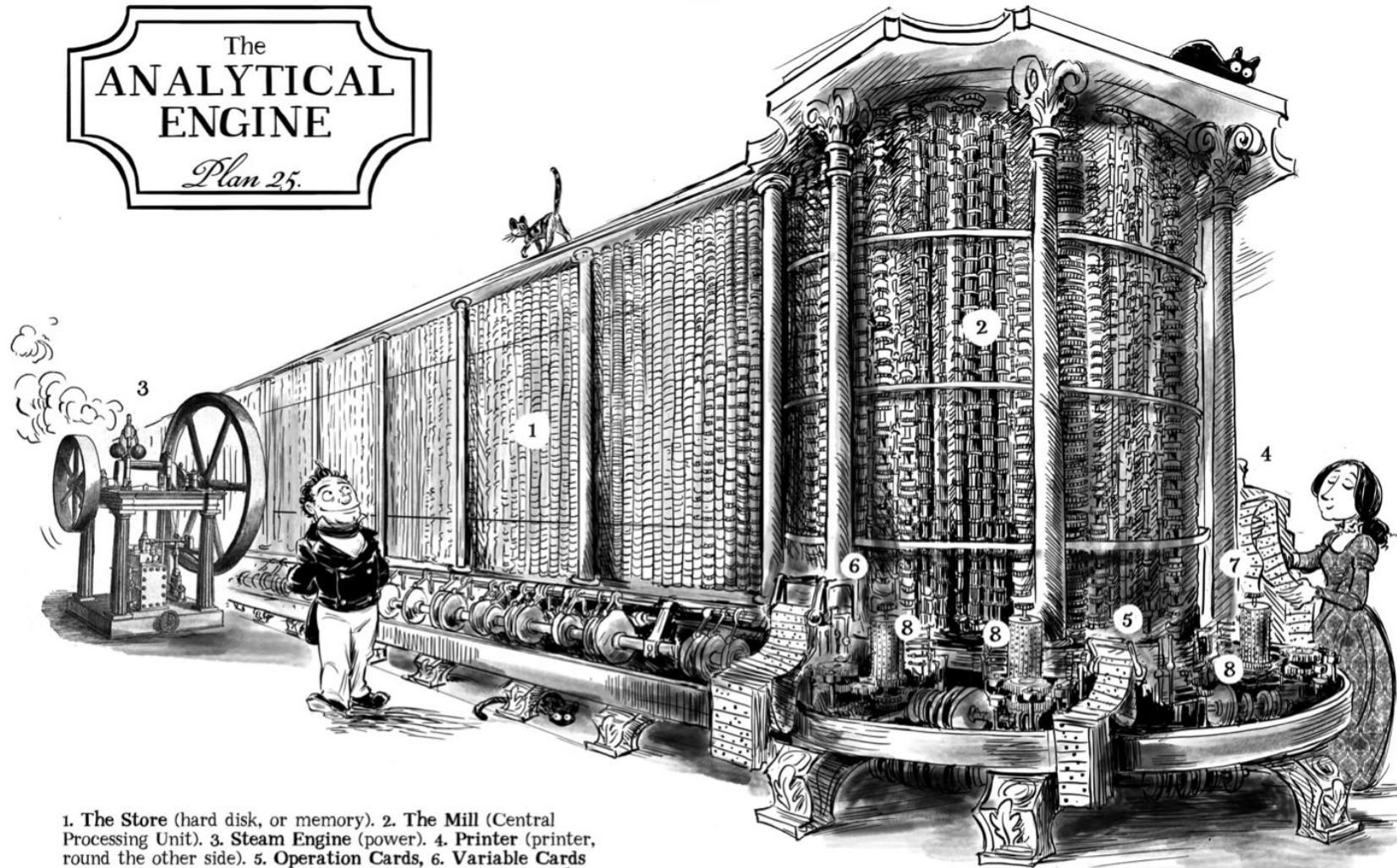
C. Case V be used for counting off instead of C. 1 If at one  
 time bands to direct, the specimen open C may be used  
 by chart A.





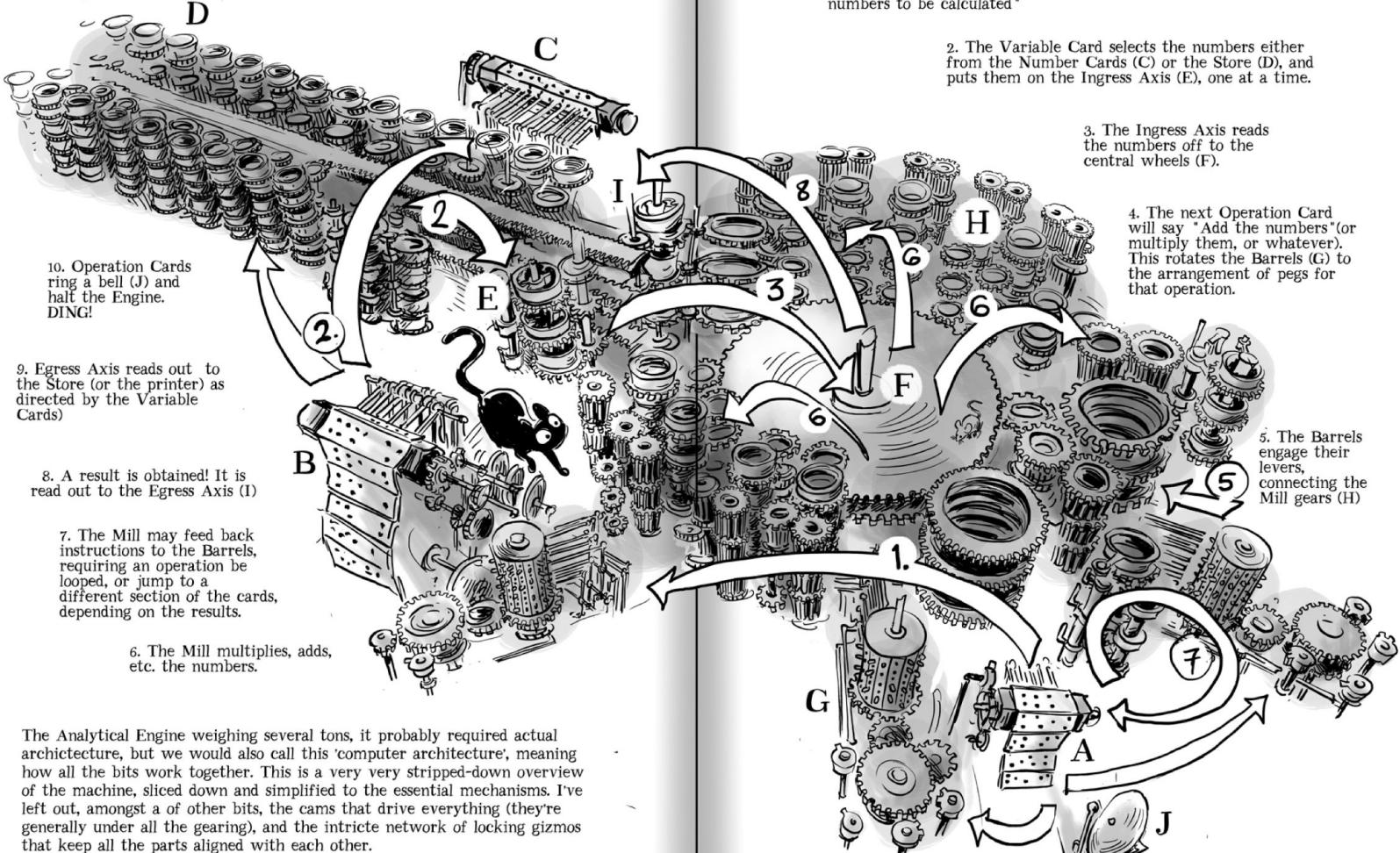
# The ANALYTICAL ENGINE

*Plan 25.*



1. The Store (hard disk, or memory).
2. The Mill (Central Processing Unit).
3. Steam Engine (power).
4. Printer (printer, round the other side).
5. Operation Cards.
6. Variable Cards.
7. Number Cards, (together making up the software).
8. The Barrel Controllers (microprograms).

The Analytical Engine is, at heart, an adding machine eating its own tail-- the circle of big wheels on the end do the sums, controlled by the cards and barrels, and feed the numbers on and off the 'Store' at the other end-- what we'd call the Memory. I'll go over them bit by bit but this is how they all work together:





and A in which B is the subject. Thus neither of the four following lines is inconsistent with itself.

Some A is not B and Every B is A  
 Some A is not B and No B is A  
 Some A is not B and Some B is A  
 Some A is not B and Some B is not A.

We find then, including converses, which are not identical with their direct propositions, six different ways of asserting or denying, with respect to agreement or non-agreement, total or partial, between A and, say X: these we write down, designating the additional assertions by U and Y.

A	Every A is X	Identical.	Identical.	O	Some A is not X
U	Every X is A	E {No A is X}	I {Some A is X}	Y	Some X is not A

We shall now repeat and extend the table of page 8 (A), &c., meaning, as before, the denial of A, &c.

From A or (O) follow	A, (E), I (O)
From E or (I) .....	(A), E, (I), O, (U), Y
From I or (E) .....	(E) I
From O or (A) .....	(A), O
From U or (Y) .....	(E) I, U (Y)
From Y or (U) .....	(U) Y

Having thus discussed the principal points connected with the simple

perhaps (I speak doubtfully) Maria Agnesi, has wrestled with difficulties and shown a man's strength in getting over them. The reason is obvious: the very great tension of mind which they require is beyond the strength of a woman's physical power of application. Lady L. has unquestionably as much power as would require all the strength of a man's constitution to bear the fatigue of thought to which it will unquestionably lead her. It is very well now, when the subject has not entirely engrossed her attention; by-and-bye when, as always happens, the whole of the thoughts are continually and entirely concentrated upon them, the struggle between the mind and body will begin.

Perhaps you think that Lady L. will, like Mrs. Somerville, go on

idea of applying the cards had occurred ; and the Analytical Engine does not occupy common ground with mere " calculating machines." It holds a position wholly its own ; and the considerations it suggests are most interesting in their nature. In enabling mechanism to combine together *general* symbols, in successions of unlimited variety and extent, a uniting link is established between the operations of matter and the abstract mental processes of the *most abstract* branch of mathematical science. A new, a vast, and a powerful language is developed for the future use of analysis, in which to wield its truths so that these may become of more speedy and accurate practical application for the purposes of mankind than the means hitherto in our possession have rendered possible. Thus not only the mental and the material, but the theoretical and the practical in the mathematical world, are brought into more intimate and effective connexion with each other. We are not aware of its being on record that anything partaking in the nature of what is so well designated the *Analytical* Engine has been hitherto proposed, or even thought of, as a practical possibility, any more than the idea of a thinking or of a reasoning machine.

We will touch on another point which constitutes an important distinction in the modes of operating of the Difference and Analy-