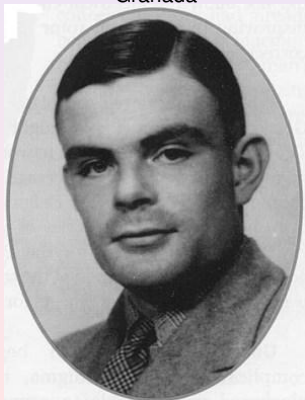


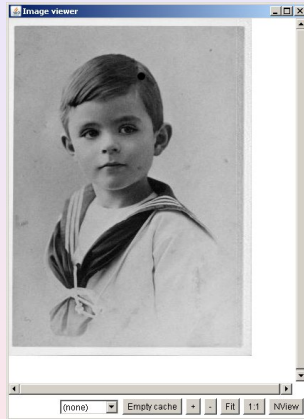
Alan Turing: el poder de la razón

Serafín Moral

ETSI Informática y Telecomunicaciones
Granada



Turing, 5 años



Turing, jugando al hockey



Natural Wonders Every Child Should Know (Edwin Brewster)



Turing, jugando al hockey



Natural Wonders Every Child Should Know (Edwin Brewster)



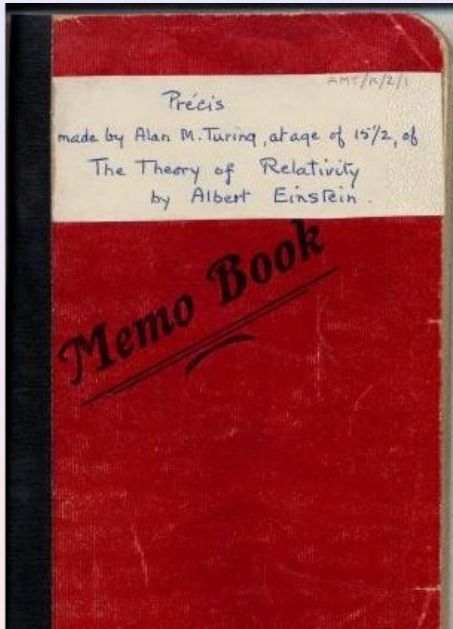
Turing con 3 amigos

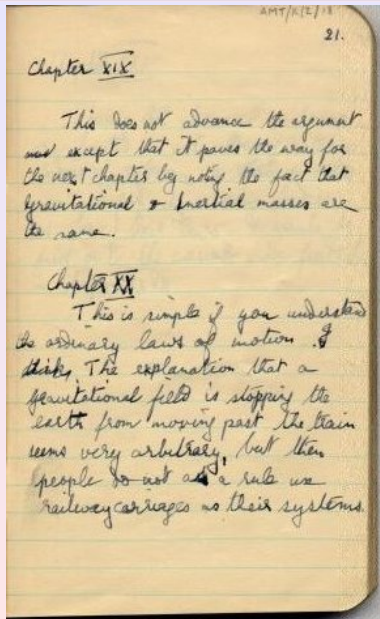


Sherborne

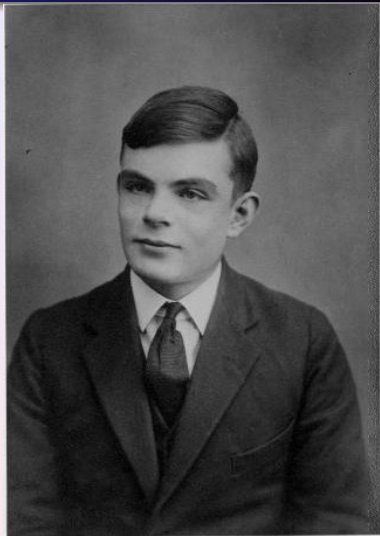


Estudio de la Teoría de la Relatividad



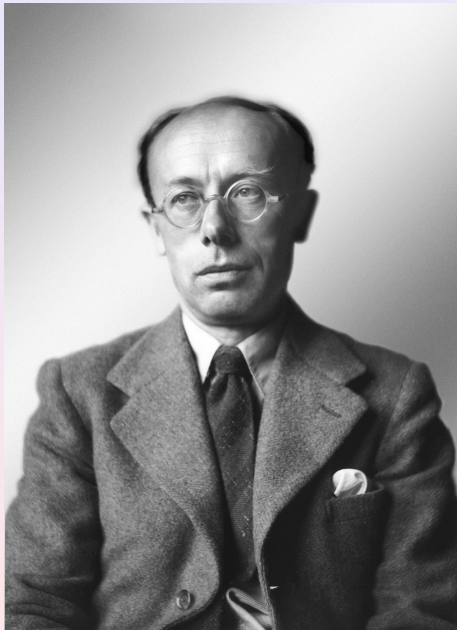


Christopher Morcom



King's College - Cambridge





Axiomatización de las Matemáticas:

- **Completa:** Todo teorema verdadero se puede demostrar a partir de los axiomas.
- **Consistente:** No se puede demostrar nada que sea falso.
- **Decidible:** Hay un procedimiento bien establecido que siguiendo sus reglas se puede determinar lo que es cierto y lo que es falso.



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A. M. TURING

[Nov. 12,

ON COMPUTABLE NUMBERS, WITH AN APPLICATION TO
THE ENTSCHIEDUNGSPROBLEM

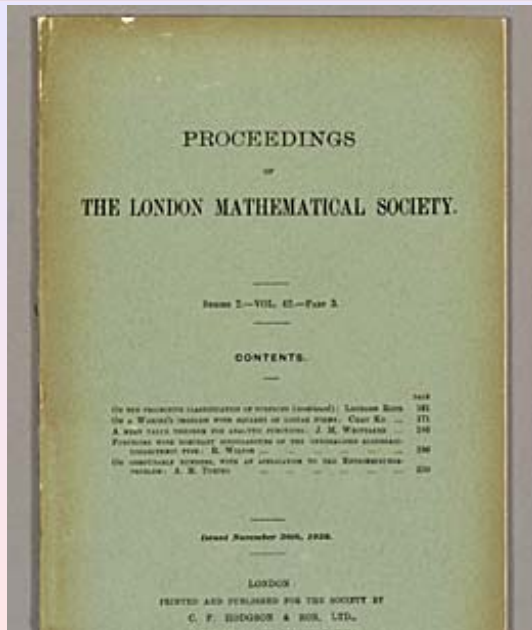
By A. M. TURING.

[Received 28 May, 1936.—Read 12 November, 1936.]

The “computable” numbers may be described briefly as the real numbers whose expressions as a decimal are calculable by finite means. Although the subject of this paper is ostensibly the computable *numbers*, it is almost equally easy to define and investigate computable functions of an integral variable or a real or computable variable, computable predicates, and so forth. The fundamental problems involved are, however, the same in each case, and I have chosen the computable numbers



On Computable Numbers



On Computable Numbers

- **Máquinas de Turing:** Formalización matemática del concepto de algoritmo.
- **Máquinas Universales:** Una única máquina puede hacer lo que cualquier otra.
- **Problemas Indecible:** Hay problemas que no pueden resolverse mediante máquinas (algoritmos).
- **Entscheidungsproblem:** La demostrabilidad de teoremas es uno de esos problemas irresolubles.



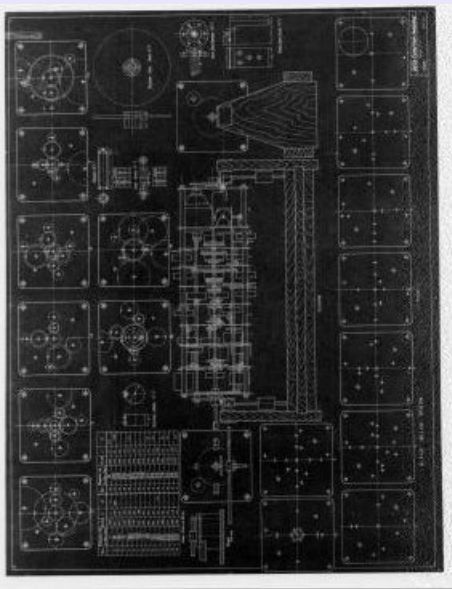
Institute for Advanced Studies, Princeton



John Von Neumann



La función Z de Riemann



Submarinos



Bletchley Park



Bletchley Park



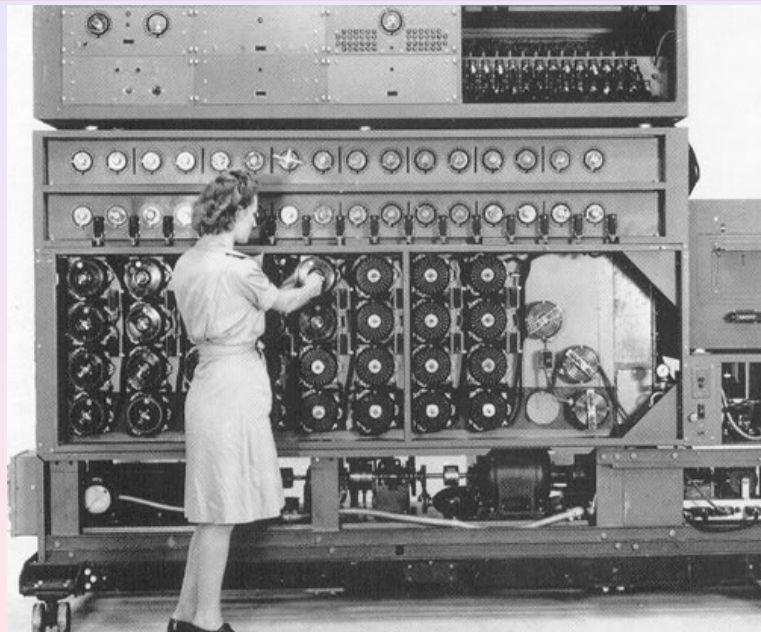
Enigma



La Nave 8



La Bomba





I.J. Good

(1979). "Studies in the History of Probability and Statistics. XXXVII A. M. Turing's statistical work in World War II".
Biometrika 66



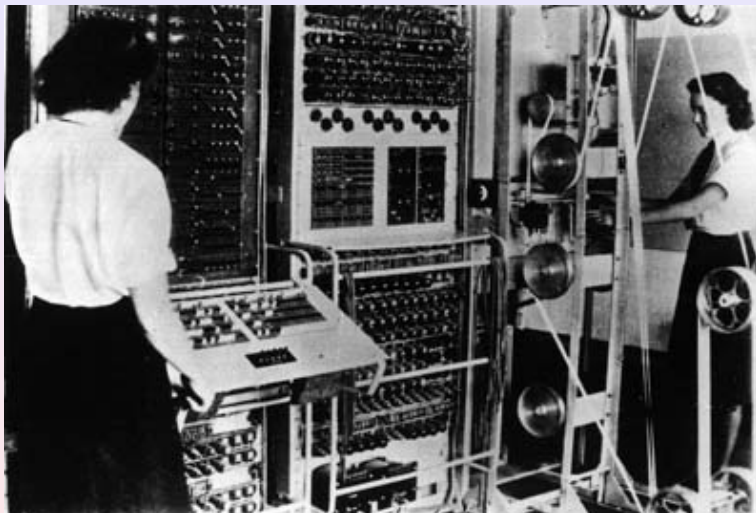


I.J. Good

(1979). "Studies in the History of Probability and Statistics. XXXVII A. M. Turing's statistical work in World War II".
Biometrika 66



Colossus



Informe Visita National Cash Register

Libe Am...

SECRET

Dec 1942

VISIT TO NATIONAL CASH REGISTER CORPORATION of DAYTON, OHIO

On December 21st I visited the works at Dayton, Ohio, where the Bombes are being made, with Commander Wenger, Lieutenant-Commander Engstrom, Lieutenant-Commander ~~McLaur~~ ^{McGarr}, Lieutenant(jg) Eachus and Major Stevens. The weather held up our train and we arrived six hours late at 2 p.m. so that we did not have quite so long there as we might have had, but probably sufficient.

The plans for the Bombes are on the whole essentially the same as ours, but there are a number of minor differences which should be noted.

(A) As mentioned in my previous report the machine is intended to stop and reverse whenever there is a "stop", and go back to the position of the stop, and there do further twisting. Engstrom and I are still both rather unhappy about this idea. We were given a demonstration of how the motor was able to reverse and be going full speed in the reverse direction in a fraction of a second, with the full load; however this seems to me hardly to prove that all will be well when one tries to reverse the Bombe itself, e.g. the gears might get distorted under the strain.

/ They say..

*part of Dr. Turing
of G.C. & C.S.*

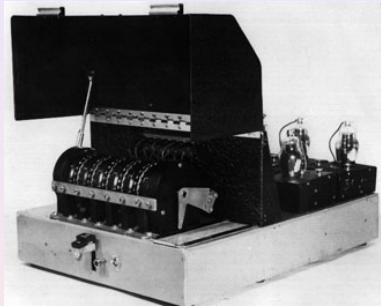
SECRET



Hanslope Park



Máquina Delilah



NPL - Teddington. Casa de Turing



Orden del Imperio Británico (1945)



Informe ACE (Automatic Computing Engine)

- 1 -

PART I.

DESCRIPTIVE ACCOUNT.

	<u>Page No.</u>
1. Introductory	2
2. Composition of the Calculator	3
3. Storages	4
4. Arithmetical Considerations	5
5. Fundamental Circuit Elements	8
6. Outline of Logical Control	11
7. External Organs	12
8. Scope of the Machine	14
9. Checking	16
10. Time-table, Cost, Nature of Work, Etc.	17

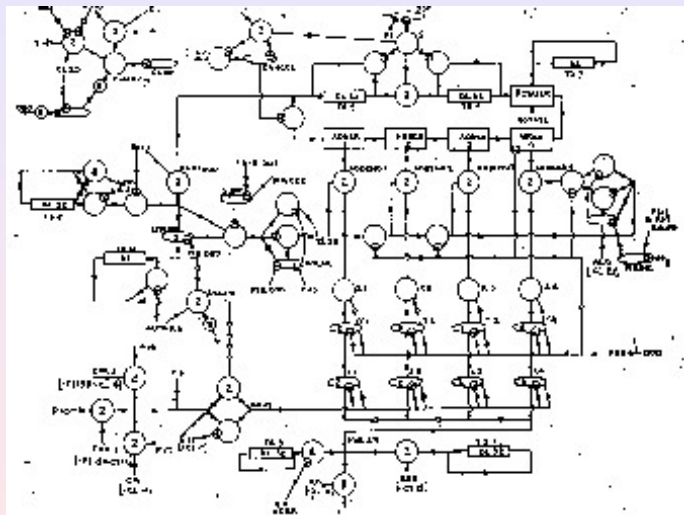
PART II.

TECHNICAL PROPOSALS.

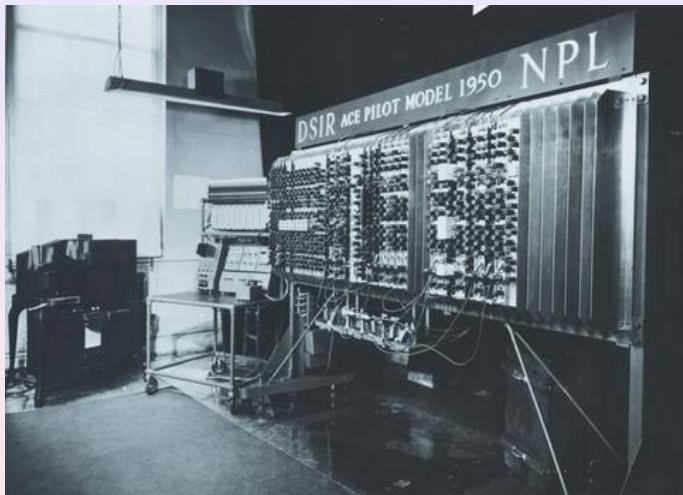
11. Details of Logical Control	20
12. Detailed Description of the Arithmetic Part (CA) ...	23
13. Examples of Instruction Tables	27
14. The Design of Delay Lines	32
15. The Design of Valve Elements	43
16. Alternative Forms of Storage	46



Diseño Circuito ACE



Pilot ACE



Turing y el deporte



Turing y el deporte



Redes de neuronas:

- **Tipo A:** Las redes eran circuitos booleanos con unas conexiones fijas.
- **Tipo B:** Las redes eran circuitos booleanos, pero con conexiones variables. Estas empezaría con una estructura aleatoria y se van modificando para adaptarse al entorno de acuerdo con un algoritmo evolutivo. **Redes neuronales y computación evolutiva.**
- **Tipo P:** Las neuronas eran máquinas de estado finito con una función de transición incompleta y tenía dos líneas de entrada: placer y dolor. La máquina debería de aprender su función de transición en función de estas entradas. **Aprendizaje por refuerzo.**

Publicado en 1968.



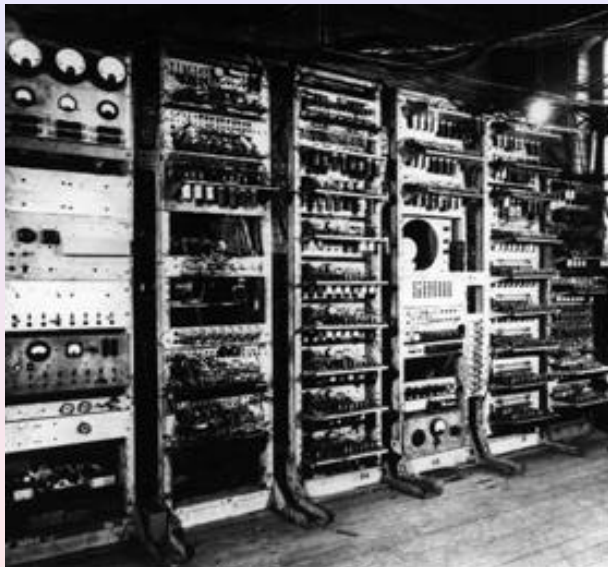
Redes de neuronas:

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Publicado en 1968.



El Ordenador de Manchester



El Test de Turing



El Premio Loebner

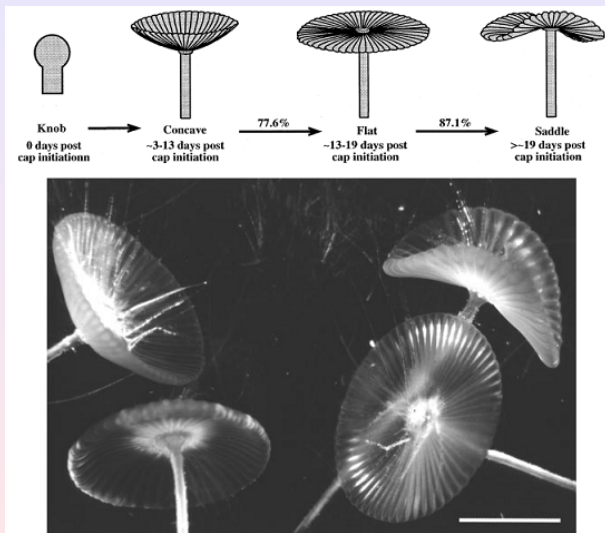


El club de la razón (Ratio Club), 1951



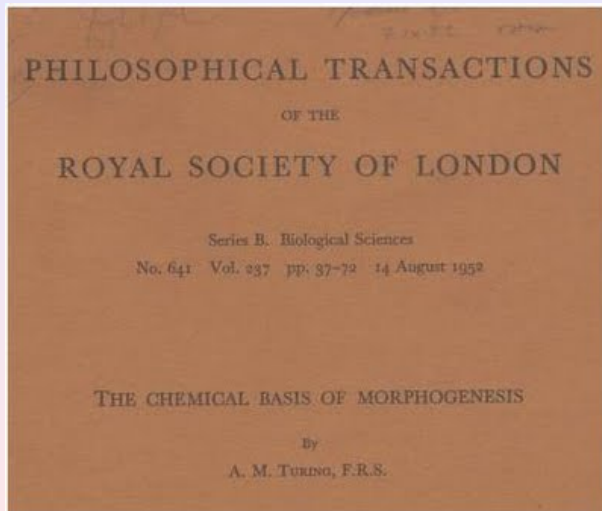
Harold Shipton. John Bates. W.E. Hick. John Pringle. Donald Sholl. John Westcott. Donald Mackay.
Giles Brindley. Tom McLardy. Ross Ashby. Thomas Gold. Albert Uttley.
Alan Turing. Gurney Sutton. William Rushton. George Dawson. Horace Barlow.

Morfogénesis



Morfogénesis





Casa de Turing, Manchester



The Architecture Dept. of Manchester University and Macclesfield Borough Council dedicated a commemorative plaque on Hollymeade, the house in Wilmslow near Manchester where Alan Turing lived and died.

The plaque reads:

Alan Turing
1912-1954
Founder of computer science
and cryptographer, whose work
was key to breaking the
wartime Enigma codes,
lived and died here.



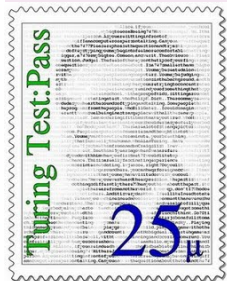
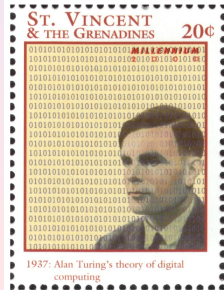
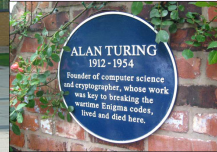
Turing en Manchester (derecha)



Suicidio, 1954

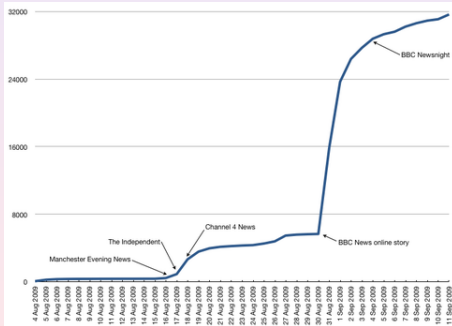


Reconocimiento

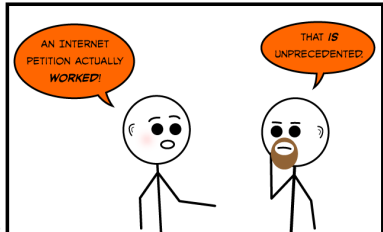
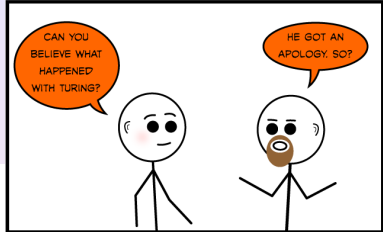




Disculpa, 2009



COMIC #50 - TURING



[HTTP://TWITCH.COM/50/](http://twitch.com/50/)

Twitvh by Eric Burke



Historical

Did Alan Turing have Asperger's syndrome?

Henry O'Connell, Michael Fitzgerald

Ir J Psych Med 2003; 20(1): 28-31

Alan Turing was born in Paddington, London on June 23, 1912. His family were middle-class and well-off. He was fascinated with science from an early age and showed precocious talent, especially in the areas of chemistry and mathematics. He attended Sherbourne Public School¹ and then King's College, Cambridge where he studied mathematics. His areas of interest at Cambridge were probability theory and mathematical logic. It was at Cambridge that he first conceptualised the Universal Turing Machine, an idea that was to evolve into the modern theory of computing. He has been referred to as the father of the computer.

He worked on a cipher machine at Princeton University between 1936 and 1938. He worked for the British Government during World War II with the Government Code and Cipher School at Bletchley Park. He was ultimately the key player in deciphering the German 'Enigma' code used by its

was focused on biological theory his house was cluttered with pots and pans containing weeds and mixtures. Ten years earlier when working on the mechanical aspects of a calculating machine the floor of his room was often littered with gearwheels.¹

Another example of these features of Asperger's syndrome was his routine when entertaining a friend and colleague, Robin Gandy. Turing invariably mulled a bottle of wine for dinner and always put the cork back in the bottle when the meal was finished, regardless of whether or not his guest wanted more wine.

When exploring concepts in biology with the aid of an early computer in Manchester University he regularly booked Tuesday and Thursday nights, and worked through the night.

He certainly imposed his interests on others. He sometimes wrote about his work in detail to his mother, especially



Alan Turing

