– HISTORY OF QUANTUM COMPUTING –

HOW DID QUANTUM COMPUTING COME TO BE?

From atoms to algorithms:

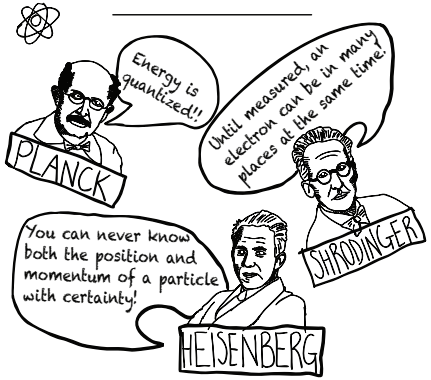
A brief history of quantum computing

IN THE EARLY 1900s, THE WORLD OF PHYSICS WAS TURNED...

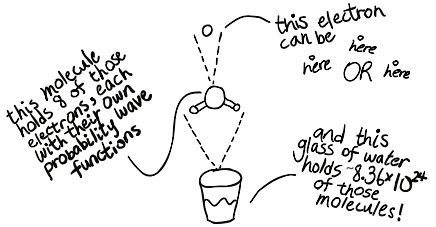
UPSIDE

DOWN

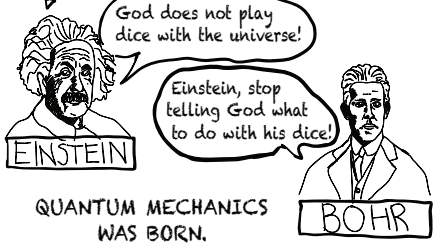
SCIENTISTS FOUND OUT THAT AS THINGS GET SMALLER AND SMALLER CLASSICAL PHYSICS DOES NOT HOLD!



THE IDEA THAT SO MANY THINGS WERE PROBABLE AND UNCERTAIN WAS BIZARRE . . .



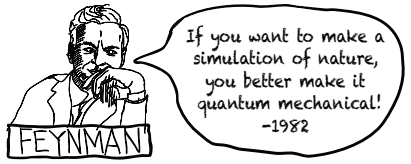
BUT EVEN WITH GREATLY RENOWNED SKEPTICS,



QUANTUM MECHANICS WAS BORN.

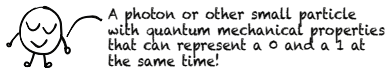
WHILE COMPUTERS ADVANCED, SIMULATING EVEN SIMPLE MOLECULAR SYSTEMS WITH SO MANY PROBABILITIES WAS NEARLY IMPOSSIBLE!

THEN, RICHARD FEYNMAN PROPOSED AN INTERESTING IDEA



INSTEAD OF BITS SET TO 0's OR 1's LIKE NORMAL COMPUTERS,

A QUANTUM BIT (QUBIT) WOULD MAKE UP A QUANTUM COMPUTER

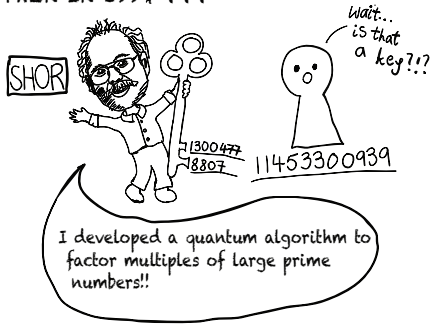


AND SO COMPUTERS WOULD MIMIC NATURE'S PROBABILITIES . . .

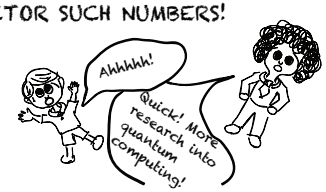
DAVID DEUTSCH LAID OUT A BASIC THEORETICAL STRUCTURE OF A QUANTUM COMPUTER (1985)

THIS IS QUANTUM SUPREMACY

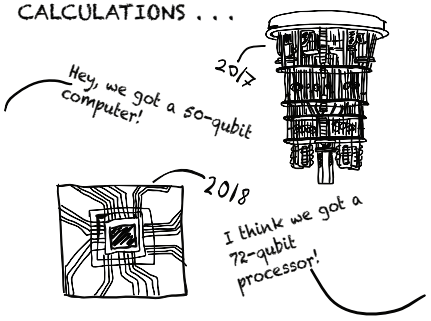
THEN IN 1994 . . .

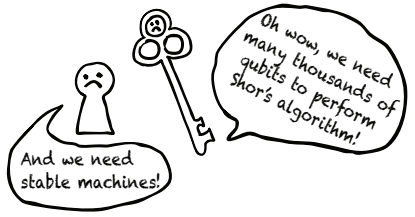


AND THE WORLD WENT BERSERK BECAUSE RSA ENCRYPTION SCHEMES WERE BUILT ON THE ASSUMPTION THAT CLASSICAL COMPUTERS WOULD TAKE AGES TO FACTOR SUCH NUMBERS!



THE ACTUAL HARDWARE IS NOT YET CAPABLE OF SUCH BIG CALCULATIONS . . .





BUT WITH RAPID ADVANCES, QUANTUM COMPUTING IS CONSTANTLY SHOWING NEW POSSIBILITIES . . .

AND THE QUANTUM COMPUTING RACE HAS ONLY JUST BEGUN

https://www.epiqc.cs.uchicago.edu/resources/

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