Summary and Analysis – As we may think

Significant (especially calamitous) events are followed by periods of consolidation, and reconstruction but they are also responsible for accelerating scientific research and technological innovations. World War II saw intensive and extensive research that led to the creation of knowledge of astronomical proportions, waiting to be disseminated and augmented through further research. At the end of the war, physicists were left with a ginormous amount of research data courtesy of the collaboration between the scientists of allied nations. It is in this context that Dr. Bush wrote this essay where he identified that as specialisation extends, scientists will face the difficult task of identifying, reading, and reviewing scholarly works specific to their restricted fields from the plethora of information available. He proposed a solution using the latest audio-visual technologies of the time including imminent and inevitable technological innovations which would pave the way for easier accessibility in the future.

An interesting device that I came across here was the cyclops camera which could be used to capture records by scientists. While working as a Computer Vision Engineer, I came across a problem where a static camera needed mechanical zooming to capture QR codes in a Warehouse Management System in a time-critical environment. We resolved the issue by attaching the camera to the forklift which transports the stock units thereby capturing the QR codes from close range avoiding any mechanical zooming. The idea of a portable camera attached to a moving object/individual being able to capture contextual information in a real-world scenario much more effectively than a static camera seems to be inherently intuitive and is also evidenced in the fact that mobile cameras are an important part of our lives.

Dr. Bush also talks about machines that will be able to perform complex transformations and mentions that a mathematician is not someone who readily performs an equation transformation but rather “a man of intuitive judgement in the choice of manipulative processes he employs”. Today we talk about AI and its applications in automation and the role of Data Scientists to develop better intuition to derive insights using the available tools and techniques. Interestingly, the idea that “technology” is meant to assist humans in their tasks and not replace them still holds 80 years down the line and the significance of “the human in the loop” still seems to be as relevant as ever.

At the heart of this essay is the device “Memex” which Professor Bush extensively elucidates. The idea of associative indexing using a trail of facts, while closer to how human memory works is still incomplete. Modern-day systems like search engines and recommender systems work on similar principles but they consider huge amounts of data. For example, a recommender system on Amazon suggests multiple products bought together by aggregating the data of thousands of customers. Sharing associative index trails on a peer-to-peer basis may create biases since it is from the perspective of one individual rather than a whole community. The article does talk about readymade meshes but doesn’t elaborate a great deal on how they will be created from the associative indices of multiple Memex devices.

While the article did rely on conjecture to outline a path for future knowledge access, it has inspired multiple inventions with the most famous being the mouse by Douglas Engelbart.

Reference:

Bush, V. (1945). *As we may think*. theatlantic.com.

https://www.theatlantic.com/magazine/archive/1945/07/as-we-may-think/303881/