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NOEL BARBER *meets* THE BRAIN



Girl operator at the control desk of the "thought machine"

It translates, solves 'the impossible' in figures, even has a nose for oil!

New York, Friday.

IT is the world of tomorrow, the world of Frankenstein monsters, or think-machines whose impulses obey the every whim of man. The world of tomorrow — yet this took place yesterday.

A young brunette sat at an instrument panel. Grouped around her were eleven machines sheathed in gun-metal grey, connected by invisible cables. It was a quiet businesslike room in world-famous Madison-avenue.

Peter Sheridan, one of America's most brilliant scientists, turned to Miss Lynn Polle, who doesn't understand a word of Russian, and told her without a flicker of emotion: "Mr. Barber wants a Russian sentence translated. Will you type it out on a punch card for him, please?"

I had been racking my brains for a few words remembered from my stay in Russia and I handed over to Miss Polle a piece of paper bearing the words "Mi pyeryedayem mislyi posryedstvom ryechyi."

"Fine," said Sheridan, when the sentence was typed out. He turned to the girl at the instrument panel. She slipped the card into a slot.

Press the button —and it's answered

She pressed a button, and seven seconds later the teleprinter at the other end of the room chattered for a split-second and on another hard white slip of paper stood seven words in English: "We transmit thought by means of speech."

The world's greatest electronic brain — officially known as IBM 701 electronic data processing machine— had translated a phrase almost quicker than man could speak the words.

This was the climax of two days—two utterly fascinating, absorbing days that made me forget entirely the bright lights of Broadway-spent here with the Brain and the people who made and maintain this staggering instrument, which can think 20,000 times faster than any man in the world.

But it has to have instructions

“Providing you tell it what to do,” said Dr. Cuthbert Hurd, lately of the Oakridge atomic energy plant, and who with 200 scientists worked two years to evolve the Brain, “and, of course, it won't do anything unless you do tell it what to do.

“It can solve in minutes equations that scientists know perfectly well how to solve, but which take so long that the men don't live long enough to finish the job.”

This smashing of the time barrier in the age of supersonic flight and atomic research is having a profound effect on America's defence effort, for the Brain can be turned to any use.

It translated Russian into English for me, but if man so desires it would just as easily translate French into Chinese, for this quietly humming machine in this quiet little room in the heart of Manhattan isn't just a fancy showpiece. It is in use day in, day out, rented to anyone who wants it at £100 an hour, while 11 others are each rented at about £4,000 a month to official or private concerns in America.

“Even now the U.S. Navy is using one on a vast project,” said William Wakeford, a tall, dark, quiet scientist whose speciality is industrial application of the Brain.

“Every single scrap of information about our naval air force—planes, airfields, flying times, air stresses, experiments, wear and tear— every mortal scrap of knowledge, is being fed into the 701.

“When the information from every corner of the globe has been assimilated the Brain will work out every nut and bolt—everything else—the Navy needs on every station in the world for the next three years. We reckon it will save the work of 100,000 men vital to defence.”

A rough idea of how the Brain works

Of course—you ask—how does it work? Well, I'm not going to make a fool of myself by going into details, but this is how one of the experts explained the broad outlines to me:

The machine needs two things—data, or, if you like to express it another way, a “memory,” and instructions. The data is stored mainly on cathode ray tubes—like your TV tubes at home—and any data can be stored on new tubes as and when required.

Everything in the Brain's memory is stored in its own language digits. Every instruction or piece of information is automatically reduced to a code or language made up of numbers and the Brain can store over 40,000 digits on its TV tubes—and any single one of these numbers can be selected for use in twelve-millionths of one second.

All translated into numbers

Once the data is there mathematicians work out detailed instructions for the machine, taking the problem step by step, telling the machine what to do, typing their instructions on cards that automatically reduce words to the Brain's own language of numbers.

It doesn't matter what crops up in the problem. If you have warned the Brain beforehand that it might—only might—crop up the Brain will make the decision without any help from the operator once the machine is running.

If, for example, a Russian word could have two meanings in English, prior instructions will automatically send the Brain back any number of steps to make a new decision in view of what has happened later.

It is all done at lightning speed. When working flat out the Brain makes an average of 14,000 decisions a second, and the results finally come out on the teleprinter at the fantastic rate of 150 lines a minute.

Foolproof results in latest job

The latest job for the Brain has been to find out the most favourable points in America at which there is oil or minerals—and its results are foolproof.

“It is too scientific to go into,” said Edwin Eadle, a young French-Canadian, whose life is spent in the room with the Brain, “but there is a well-established scientific formula concerning magnetic fields and subsoil which can give you all this information. The only snag is that you need to make 50,000,000 to 60,000,000 calculations to arrive at the result. With pencil and paper it would take 1,000 years. With a desk calculator a good man could resolve the equation in 5,000 weeks. We did it in under three hours.”

There’s no end to this frightening and almost diabolical Brain that has far outstripped the brain of man. Scientists here tell me that within a year or two the Brain will, by solving abstruse equations concerning temperatures and winds, be able to forecast weather with complete accuracy for weeks ahead.

This gives me food for thought

For two days I have watched this product of man’s genius at work. Somehow it goes with the machine age of the United States. Its value to humanity will be limitless.

But when, this afternoon, I fly off to the sun-kissed shores of Bermuda I know I shall be thinking time and again of the terrifying powers that man is unleashing into machines that already can think and work faster than he ever can hope to do.