Icefin underwater robot provides views from beneath "Doomsday Glacier"

The Icefin robot under the ice near McMurdo research station, operated by the US Antarctic Program.
● ROB ROBBINS/USAP

Data come from an expedition using the underwater robot Icefin under remote Thwaites Glacier in Antarctica.
The rapid retreat of Thwaites Glacier in West Antarctica appears to be driven by processes under its floating ice shelf that are different than researchers realized. It is known as the "Doomsday Glacier" because of the potential threat it poses to global sea level rise, according to SciTech Daily.
Two papers published in the journal *Nature* provide a clearer picture of the changes taking place under the glacier, which is the size of Florida and is one of the fastest-changing ice-ocean systems in Antarctica.
The results show that, although melting has increased beneath the floating ice shelf, the present rate of melting is slower than many computer models currently estimate.
New observations determining where the ice enters the ocean show that, while melting beneath much of the ice shelf is weaker than expected, melting in cracks and crevasses is happening much faster. The findings are an important step in understanding the glacier's contribution to future sea-level rise, scientists say.
A layer of fresher water between the bottom of the ice shelf and the underlying ocean slows the rate of melting along flat parts of the ice shelf. However, scientists were surprised to see that the melting had formed a staircase-like topography across the bottom of the ice shelf. In these areas, as well as in cracks in the ice, rapid melting is occurring.
Thwaites Glacier's grounding zone – the point where it meets the seafloor – has retreated 14 kilometers since the late 1990s. Much of the ice sheet is below sea level and susceptible to rapid, irreversible ice loss that could raise global sea level by more than half a meter in centuries.

Written form was a continuation of oral speech

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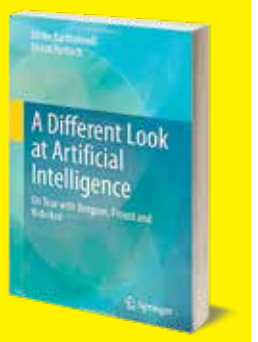
If one thinks about the possibilities of representing knowledge, the writing down of facts naturally comes to mind immediately. Nowadays, we are used to obtaining knowledge from written sources, e.g. in the form of textbooks or scientific scripts. However, the use of texts that are written in natural language is in principle only possible for humans and therefore only conditionally suitable for artificial systems.
However, this seemingly obvious method of using texts as a representation of knowledge is by no means self-evident. If we go back to ancient Greece, we find written records there that were written more for the purpose of being read aloud. In scrolls, text was written down in strings without spaces or punctuation, sometimes even changing the direction of writing at the end of the line "furrow-like". This so-called "scriptura continua" can still be found today in various Asian writing systems. The texts of ancient Greece could only be read aloud in this form, and only then did they acquire structure and arrangement.

In poetry, the verse meter, which played an important role in reading aloud, also helped to structure the text. Texts often recorded speeches so that they could be repeated at any time by reading them aloud – the written form was, so to speak, a continuation of oral speech.

Scientific discourse took place through speech and counter-speech. The transition from linguistic discourse to discourse with the aid of texts, i.e. to prose discourse, took place only slowly. Only by separating the text from the spoken language did it become expedient to structure the text, making it easier to read and understand. Our use of punctuation marks, headings, and page breaks did not become clearly established until much later in scholasticism, that is, in the High Middle Ages.
However, an exception to this scriptura continua can already be found in ancient Greece, namely in the use of ideographic signs in algebra and geometry. Ideographic signs are stylized images that stand for a concept or, rather, the idea of a concept. For example, the superscript 2 in the algebraic term x^2 stands for the concept of squaring a number x. It is also clear here that the two-dimensionality of the medium of paper or papyrus is exploited.
Many centuries before Christ, it was clear to Greek mathematicians and philosophers that in order to convey mathematical facts, ideas and concepts had to be written down, which in turn would then be comprehended by the reader. The representation of knowledge in written form played an important role in ancient Greece; the term "techne", from which our word technique is derived, denotes a form of practical knowledge. This techne was also often demonstrated in practice, through the so-called "epideixis", a public display of knowledge. This was especially common in the crafts, but also and especially in medicine. However, a public display of mathematical facts was unthinkable in ancient Greece – the reason for this obviously lies in the special ideographic notation mentioned above, which can only be grasped with a certain degree of prior knowledge and was therefore not accessible to the general public.



To enable readers to form their own opinion on these questions, the authors clearly explain in ***'A Different Look at Artificial Intelligence: On Tour with Bergson, Proust and Nabokov'*** *(2023) the individual techniques or methods of AI and relate them to approaches from philosophy, art and neurobiology.*

● MEHDI SALEHI/ANA

PIC OF THE DAY

Although the age of cotton-beaters has passed, Haj Kasiri and his son, Nasser, are keeping alive the flames of a nostalgic job, which brought people comfortable sleep and happy dreams.