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**Welcome to a New Year, and February already!**

We will shortly hold a committee meeting to draft out the program for the year. Fingers crossed that there are no more disruptions!

I will also shortly send out invoices for subscriptions due in the current financial year. The money is mostly used to support students and the Science Fair. We are a Registered Charity in New Zealand and donations over \$5 are tax deductible.

Your Committee for this year is as follows:

David Lillis President  
Brian Jones Treasurer  
Diana Gordon Secretary  
John Bass  
Barry Borman  
Jeremy Buckley  
Lucy Forde  
Bruce McFadgen

Its great to have a larger committee than we have had for the last few years.

Brian Jones [treasurer.RSNZ.wellington@outlook.com](mailto:treasurer.RSNZ.wellington@outlook.com)

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## Artificial Intelligence is here? Maybe not.

Microsoft has developed two new computer programs that are taking the internet by storm, and causing palpitations in schools and universities.

One is ChatGPT which answers questions and is text based - the other is Dall-E which can create art from text i.e "paint a fox in a field at sunset in the style of Monet".

According to a paper by Christian Terweisch "Would ChatGPT3 get a Wharton MBA?" ChatGPT can pass the Wharton business school exam and earn an MBA. The paper is at:

<https://mackinstitute.wharton.upenn.edu/wp-content/uploads/2023/01/Christian-Terwiesch-Chat-GTP.pdf>

Basically Ethan Mollick, a Wharton professor, tested the program's ability to take business school finals and found that the program received a B to B- on the exam and that the program "demonstrated the capability of performing professional tasks such as writing software code and preparing legal documents." According to the media reports Mollick says that ChatGPT may also be able to pass the U.S. Medical Licensing Exam and the Bar exam.

**However, ChatGPT is not foolproof. I asked it the following:**

**Q What are Leydig tissues? to which it replied:**

"Leydig cells, also known as interstitial cells of Leydig, are a type of steroid-producing cells found in the testes of mammals. These cells are responsible for the production of testosterone, a steroid hormone that plays a key role in the development and maintenance of male reproductive physiology. Leydig cells are located in the interstitial spaces between the seminiferous tubules, which are the structures in the testes where sperm cells are produced. They also contribute to the maintenance of the blood-testis barrier which protects the developing sperm cells.

Leydig cells are activated by luteinizing hormone (LH) which is released by the anterior pituitary gland, in response to the gonadotropin-releasing hormone (GnRH) released by hypothalamus. LH stimulates the Leydig cells to produce testosterone, which promotes the development of the male reproductive system, and also has anabolic effects on muscle mass, bone density, and red blood cell production.

Leydig cells are also involved in the regulation of the hypothalamic-pituitary-gonadal (HPG) axis, which is responsible for the control of reproduction and the maintenance of sex steroid hormone levels. They also play a role in the development of secondary sexual characteristics during puberty. In some cases, Leydig cell tumors, also known as interstitial cell tumors, can develop in the testes, which can result in the overproduction of testosterone and lead to a condition known as testicular hyperandrogenism, which is characterized by a variety of symptoms such as infertility, gynecomastia, and feminization of the external genitalia.

In summary, Leydig cells are a type of steroid-producing cells found in the testes, responsible for the production of testosterone and the maintenance of the blood-testis barrier. They are activated by luteinizing hormone, and play a key role in the development and maintenance of the male

reproductive system".

**All well and good, but then I asked a supplementary question, to which the answer was a rather emphatic "no".**

**Q What are leydig tissues in invertebrates?**

"In invertebrates, Leydig cells are not present as the term is specific to mammals, where it describes steroid-producing cells located in the testes.

Invertebrates do not have a specialized organ for the production of steroid hormones like mammals, and steroid hormone production is usually carried out by specialized endocrine cells dispersed throughout the body."

**.However that answer is just wrong**

Leydig tissues exist in bivalve shellfish and in leeches. Both animals have tissues named after Franz von Leydig (1821-1908) who was a pioneer of comparative histology but though a medical doctor, was fascinated by the histology of invertebrates as well as human corpses. A search on "Leydig cells Invertebrate" using Google Scholar will throw up some 6600 references.

**Dall-E also raises legal issues:** My grand-daughter, an artist in the UK commented "A lot of artists in the UK have mixed feelings about how it sources from other existing works - yet there is no current copyright problems with a computer doing it as can't OWN the work it's really interesting " ChatGPT is extremely popular and can be hard to access: This was the response on the web when I tried to log in:

**"Explain the status of ChatGPT in the style of Shakespeare.**

**Ah, dear user of ChatGPT, thou art not alone in thy desire to engage with our esteemed AI chatbot. Many have flocked to our website in this hour, and we do our utmost to accommodate each and every one. Yet, alas, our resources are not without limit and we must ask for thy patience and forbearance. In time, we shall be able to provide thee with access to ChatGPT. Until then, we beg thee to return at a future juncture, when we may better serve thy needs.**

**Until then, we bid thee adieu and good fortune."**

Brian

## **Paleolithic scientific journals.**

**What did biologist do before paper was invented?**

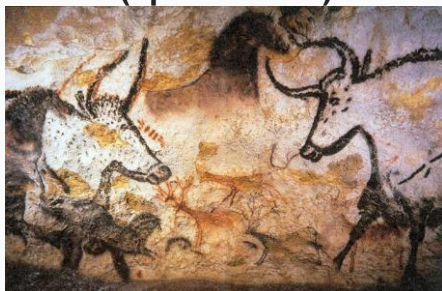
**Inscribe their data on a rock wall.**

Bacon, B., Khatiri, A., Palmer, J., Freeth, T., Pettitt, P., & Kentridge, R. (2023).

An Upper Palaeolithic Proto-writing System and Phenological Calendar. *Cambridge Archaeological Journal*, 1-19.

doi:10.1017/S0959774322000415

(open access)



**Lascaux, Public domain, via Wikimedia Commons**  
**(see lines and dots in red above snout)**

### **ABSTRACT**

In at least 400 European caves such as Lascaux, Chauvet and Altamira, Upper Palaeolithic Homo sapiens groups drew, painted and engraved non-figurative signs from at least ~42,000 bp and figurative images (notably animals) from at least 37,000 bp. Since their discovery ~150 years ago, the purpose or meaning of European Upper Palaeolithic non-figurative signs has eluded researchers. Despite this, specialists assume that they were notational in some way. Using a database of images spanning the European Upper Palaeolithic, we suggest how three of the most frequently occurring signs—the line  $\langle | \rangle$ , the dot  $\langle \bullet \rangle$ , and the  $\langle Y \rangle$ —functioned as units of communication. We demonstrate that when found in close association with images of animals the line  $\langle | \rangle$  and dot  $\langle \bullet \rangle$  constitute numbers denoting months, and form constituent parts of a local phenological/meteorological calendar beginning in spring and recording time from this point in lunar months. We also demonstrate that the  $\langle Y \rangle$  sign, one of the most frequently occurring signs in Palaeolithic non-figurative art, has the meaning  $\langle \text{To Give Birth} \rangle$ . The position of the  $\langle Y \rangle$  within a sequence of marks denotes month of parturition, an ordinal representation of number in contrast to the cardinal representation used in tallies. Our data indicate that the purpose of this system of associating animals with calendar information was to record and convey seasonal behavioural information about specific prey taxa in the geographical regions of concern. We suggest a specific way in which the pairing of numbers with animal subjects constituted a complete unit of meaning—a notational system combined with its subject—that provides us with a specific insight into what one set of notational marks means. It gives us our first specific reading of European Upper Palaeolithic communication, the first known writing in the history of Homo sapiens.



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