



Secret Scientists

Unsung Innovators in Geology



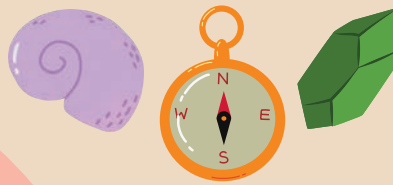
Ibn Sīnā
c. 980→1037

The Persian polymath Ibn Sīnā authored some of the earliest known works on Earth Science. His book *Kitab al-Shifa* covered topics like fossils, minerals, mountain formation and the superposition of strata nearly 700 years before scientists in the West.



Shen Kuo
c.1031→1095

The Chinese scholar Shen Kuo wrote about many Earth science-related subjects, such as geomorphology, paleontology and stratification, over 800 years before these concepts were explained in Europe. He also invented the magnetic needle compass.



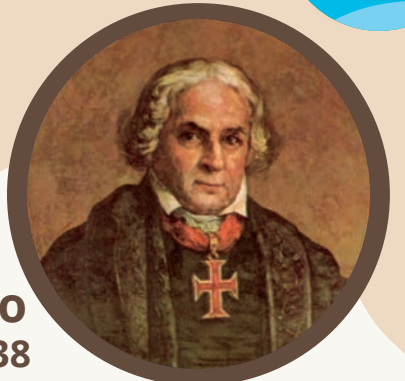
Martine Bertereau
c.1590→1642

Martine Bertereau was the world's first documented female mineralogist and mining engineer, who travelled across Europe and discovered several hundred ore deposits. However, her interest in alchemy led to her imprisonment for witchcraft and sorcery by the French government.



Sekiya Seikei
1855→1896

Sekiya Seikei was the world's first Professor of seismology and highly influential in the study of earthquakes in Japan. During his career he helped develop Japan's seismic survey and he was first to estimate and model ground motion based on his observations of the 1887 earthquake.



José Bonifácio
1763→1838

The Brazilian statesman José Bonifácio de Andrada e Silva was also a talented geologist. He discovered four new mineral species (petalite, spodumene, cryolite and scapolite) and helped in the discovery of lithium, the essential building block of renewable energy technologies.



Mary Horner Lyell
1808→1873

Sir Charles Lyell is seen as a founder of Earth Science, but his wife Mary Horner was instrumental in his fieldwork, acting as his scribe and cataloguer. She significantly inputted into Charles' celebrated book, *Principles of Geology*.



Pramantha Nath Bose
1855→1934

Bengal-born geologist Pramantha Nath Bose was the first Indian to gain a BSc degree from a British University. He was also the first to discover iron ore deposits in modern day Odisha, which led to the creation of the Tata Iron and Steel Company in 1907.



Florence Bascom
1862→1945

Florence Bascom was the first woman hired by the USGS and first female officer of the Geological Society of America. She founded the geology department at Bryn Mawr College, Pennsylvania, which trained some of the 20th century's most important female geologists.



Marguerite Thomas Williams
1895→1991



Marguerite Thomas Williams was the first African American to achieve a PhD in geology in the USA. She was one of the first Earth scientists to recognise how human activities and land management can accelerate erosion.



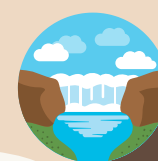
Ananda Coomaraswamy
1877→1947

Ananda Coomaraswamy was a historian of Indian art, but also the first director of the Mineralogical survey of Sri Lanka. He discovered two new minerals, and rather than name them after himself, called them Thorianite and Serendibite.



Inge Lehmann
1888→1993

Whilst many Earth scientists have heard of the 'Lehmann discontinuity', less are familiar with Inge Lehmann, whom the term is coined after. Through analysing data from earthquakes, she was first to suggest that the Earth has a solid inner core and liquid outer core.



M.S. Krishnan
1898→1970

Maharajapuram Seetharaman Krishnan was the first Indian Director of the Geological Survey of India. He led many field investigations on economic mineral deposits, did pioneering mapping and wrote *The Geology of India and Burma*, now in its 6th edition.



Chi Jishang
1917→1994

Chi Jishang was a pioneering petrologist who led multiple geological surveys of China. She created a formula to identify rocks that contain diamonds (known as 'kimberlites) and devised a naming system for kimberlites that is still used in China today.



Mathilde Dologopol de Sáez
1901→1957

Mathilde Dologopol de Sáez was an Argentinian paleontologist who studied a variety of fossils, from extinct crocodiles, to birds and fish. She was one of the first female Latin American vertebrate paleontologists.



Explore more...

Adami, E. (2019) 'Martine Bertereau', *medium.com*

Al-Rawi, M. (2002) Contribution of Ibn Sina to the development of Earth Sciences, *Muslim Heritage*

Beniast, A. (2020) 'Marguerite Thomas Williams: The US' first black person to obtain a doctorate in Geology', EGU Blogs, *blogs.egu.eu*

Berta, A. and Turner, S. (2020) *Rebels, Scholars, Explorers: women in Vertebrate Paleontology*. Johns Hopkins University Press.

Encyclopedia Britannica (2022) José Bonifácio de Andrada e Silva, Brazilian statesman, *Encyclopedia Britannica*

Hunter, D. (2013) Mary Horner Lyell: "A Monument of Patience", *Scientific American*

Indian National Science Academy (n.d.) Deceased Fellow- Dr MS Krishnan, *insaindia.res.in*

Lee, L.X.H. (2003) *Biographical Dictionary of Chinese Women: The Twentieth Century 1912–2000*. M.E. Sharpe.

Schneiderman, J.S. (1997) Rock Stars A Life of Firsts: Florence Bascom, *GSA Today*, 7, 8-9.

Schueth, J. (2021) 'Stone swallows and bamboo shoots: the paleontology of Shen Kuo (part 1)', Bias in the fossil record blog, *fossilbiasblog.com*

Sherrif, A. (2018) India's Iron Man, The Better India, *thebetterindia.com*

Sivakumar, K. (2019) Ananda k. Coomaraswamy Geologist, Art Historian and Philosopher, *American International Journal of Research in Humanities*, 25, 148-151.

Stomberg, J. (2015) How Inge Lehmann used earthquakes to discover the Earth's inner core, *Vox*

Sprevak, M. (2006) 'A Japanese earthquake model', Whipple Museum of the History of Science, *whipplemuseum.cam.ac.uk*