ABOUT THIS ISSUE – BIOMAGNETISM
Many biological organisms possess the capability to produce crystalline structures from inorganic molecules. They include ferrimagnetic crystals made of iron-based magnetite or greigite, which can be precipitated in the environment by different bacteria. As a result, microorganisms can generate local magnetic fields and give rise to biomagnetism. Magnetotactic bacteria produce nanosized, intracellular, ferrimagnetic particles in a genetically controlled manner. The crystals align in chains, transforming the bacteria into small magnets presumably for optimizing their navigation along the geomagnetic field. Alternatively, iron-reducing and iron-oxidizing bacteria gain energy from metabolizing iron and can indirectly induce precipitation of magnetite extracellularly. Given the intriguing and complex origin of biological magnets, coupled to their magnetic properties and biological function(s), the field of microbial biomagnetism has attracted major interest for research in recent decades.

Articles in this issue of Elements illustrate how distinct but complimentary scientific communities are addressing some important questions on biomagnetism including: how to identify biological magnetic minerals in the geological record to reconstruct the past microbial life; assessing the impact of biomagnetism on the biogeochemical cycling of iron and other chemical elements; engineering biomagnetism for biomedical and environmental applications; and understanding its evolution and association with higher organisms such as eukaryotes.

THANK YOU AND FAREWELL RICH HARRISON
This issue of Elements marks the final theme to be published under the leadership of Rich Harrison (Cambridge, UK). Rich has served Elements as Principal Editor of Mineralogy since 2020, and will be replaced this year by Sumit Chakraborty (Ruhr Universität Bochum, Germany).

We are grateful for Rich’s witty, creative, and fascinating Editorials; his keen insights into a range of current topics in geoscience today; and his quiet superpower of keeping issues timely and on task. In addition to this issue of “Biomarkers” (vol. 19, no. 4), Rich has also guided the publication of six other fascinating themes in Elements, including “Hydrothermal Fluids” (December 2020; vol. 16, no. 6), “Exploring Earth and Planetary Materials with Neutrons” (June 2021; vol. 17, no. 3), “Heavy and Stable Isotopes: From Crystals to Planets” (December 2021; vol. 17, no. 6), “Water in Planetary Bodies” (June 2022; vol. 18, no. 3), “Exploring Jupiter’s Moon Io” (December 2022; vol. 18, no. 6), and “Olivine” (June 2023; vol. 19, no. 3).

Elements’ Principal Editors are typically responsible for six issues, Rich volunteered to take on “Biomarkers” as an extra seventh issue owing to his interest and background in the topic—as well as to help keep editorial assignments timely in light of a minor delay last year in the naming of his successor. With these seven issues in print, Rich’s service will long remain a valuable gift to the broad geoscience community and beyond. Please join us in applauding Rich for his excellent editorial work as we wish him well in all of his future endeavors. Thank you, Rich, and bravo!

Becky Lange, Janne Blichert-Toft, Sumit Chakraborty, Tom Sisson, and Esther Posner

5 Owing to the mid-2023 price spike of Somerset 50#, we were advised to print the four outer sheets of paper on thicker Somerset 80#, covering a total of 16 pages. Normally, only the outer sheet of paper is printed on Somerset 80#, covering four pages, namely, the outer and inner front and back covers.