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Journal of the History of Ideas, Volume 82, Number 2, April 2021, pp. 231-256
(Article)

Published by University of Pennsylvania Press



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*Making Historicity: Paleontology and the
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... without a substratum, all remains riddled and dark.¹

—Karl Wilhelm Nose, 1820

I am the child of the depths
But do not ask me,
From which remote place I come.
This I truly do not know.²

—Elisabeth Kulmann, 1822

This article owes a tremendous debt to the close readings of the anonymous reviewers, as to the editors at the *Journal of the History of Ideas*. Its arguments were hewn in the History Seminar at the Universität Konstanz, to which I was kindly invited by Martin Rempe. Finally, I thank Paige Madison, Dominik Hünninger, Martin Gierl, Hanna Roman, and Laura Nicolì for enriching this project—and my life—with their expertise and friendship.

¹ As quoted by Goethe in Manfred Wenzel, ed., *Johann Wolfgang von Goethe Sämtliche Werke. Briefe, Tagebücher und Gespräche* (Frankfurt: Deutscher Klassiker Verlag, 1994), 25:575–76: “ohne Substrat bleibt alles räthselhaft und dunkel.” All primary source translations are my own unless otherwise indicated.

² “Die Quellen,” in K. F. Großheinrich, ed., *Sämtliche Gedichte von Elisabeth Kulmann* (Leipzig, 1847), 53: “Ich bin das Kind der Tiefe / Doch frage du mich nicht, / Aus welcher Fern’ ich komme. / Ich weiß es wahrlich nicht.”

Around the turn of the nineteenth century, naturalists, poets, and educated travelers carried out a broad historical project in the mountains and caverns of the German lands. There, natural-historical questions of formation and provenance went hand-in-hand with a search for cultural identity on both a local and national scale.³ After the Seven Years War, a suite of state reforms established mining academies and journals across central Europe, institutionalizing an array of earth sciences that made the subterranean increasingly legible. In print, new genres like “subterranean geography” strengthened the ties between scientific knowledge, popular enchantment, and state interests, while in practice, travelers scaled and penetrated mountains in unprecedented numbers.⁴ Naturalists’ efforts to describe the geological constitution of the *vaterländischen* regions were echoed in the aesthetic agenda of the educated classes. Steeped in idyllic poems on the Swiss Alps and works of “primitive genius” sourced from the Scottish Highlands, many Germans came to view their own mountains as historical spaces.

One particular episode from the history of paleontology—a debate about the origin of large mammal bones found in the caves of Franconia and the Harz—shows how the interpretation of fossil evidence was inflected by a broad set of cultural and political aspirations in late eighteenth-century Germany. This episode’s central protagonist, the surgeon and speleologist Johann Christian Rosenmüller (1771–1820), interpreted these bones as the remains of a “cave bear” (*Höhlenbär*) indigenous to Germany. Rosenmüller’s claim had as much to do with the cultural politics of Germany’s present as with the zoology of its deep past.

In communicating a niche scientific debate to a broader educated audience, he presented an account of Germany’s primordial past that fed seamlessly into its present, nurturing an idea of nationhood grounded in the (sub)soil. Rosenmüller thus heralded a novel consciousness of historicity, which regarded mountains as vaults of a shared and palpable past.⁵

³ This late eighteenth-century search for cultural identity and natural roots can be seen as a significant precursor to the nineteenth-century *Heimat* movement, which similarly balanced regional and national identities. See Celia Applegate, *A Nation of Provincials: The German Idea of Heimat* (Berkeley, CA: University of California Press, 1990).

⁴ On cultures of underground travel in central Europe, see Johannes Mattes, *Reisen ins Unterirdische: Eine Kulturgeschichte der Höhlenforschung in Österreich bis in die Zwischenkriegszeit* (Vienna: Böhlau, 2015); E. P. Hamm, “Knowledge from Underground: Leibniz Mines the Enlightenment,” *Earth Sciences History* 16, no. 2 (1997): 84–91.

⁵ J. C. Rosenmüller, *Beiträge zur Geschichte und nähern Kenntniss fossiler Knochen* (Leipzig: Beer, 1795), 21–29, 86. On Rosenmüller, see Ernst Probst, *Der Höhlenbär*

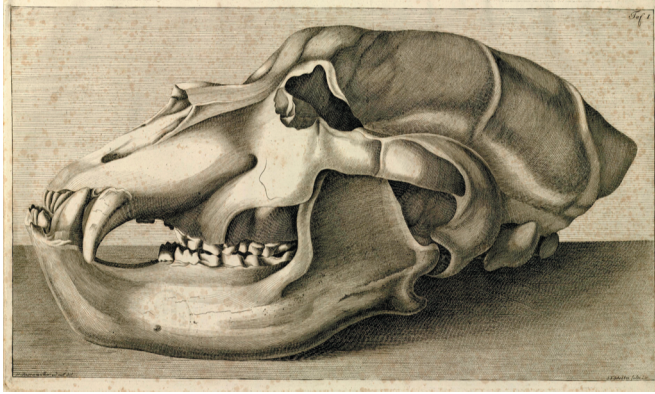


Fig. 1: The “cave bear,” drawn by Rosenmüller and engraved by J. F. Schröter. Tafel 1 in *Abbildungen und Beschreibungen der Fossilen Knochen des Höhlenbären* (1804). Source: Niedersächsische Staats- und Universitätsbibliothek Göttingen, Digitalisierungszentrum.

Rosenmüller produced five books on mountains, caves, and fossils in the two decades straddling 1800. This meant that he worked against the backdrop of a burgeoning cultural nationalism engendered by the French Revolutionary and Napoleonic Wars. In the very same decades, as the interpretation of fossils came to mark the avant-garde of geo-theory, savants across Europe vigorously debated the nature and cause of the *natural revolutions* that had shaped the globe.⁶ Rosenmüller’s part in this revolutionary age began in 1792, when he undertook a two-year investigation of the Fränkische Schweiz (Franconian Alps), a mountainous region north of Nuremberg distinguished by its many limestone caverns. A student of anatomy, Rosenmüller viewed the Fränkische Schweiz with an eye toward their interiority. There, in the grottos of Franconia, he collected all manner of objects: stalagmites, minerals, urns, and—most tantalizing of all—the fossil remains of mysterious beasts whose identity beguiled taxonomists.

One such specimen was the “cave bear.” In the sixteenth and seventeenth centuries, cave-goers surmised that the bones belonged to a dolphin or whale, or perhaps even a dragon. The philosopher Leibniz attributed the

(Hamburg: Diplomica, 2015), 41–44; Chiazio Amene et al., “Johann Christian Rosenmüller (1771–1820): A Historical Perspective on the Man behind the Fossa,” *Journal of Neurological Surgery B*, no. 74 (2013): 187–93.

⁶ Martin Rudwick, *The Meaning of Fossils: Episodes in the History of Palaeontology* (New York: Elsevier, 1972).

fossils to a “unicorn” in 1686. A century later, in 1784, the theologian Johann Friedrich Esper concluded that Franconia’s specimen, found in a cave in Gaillenreuth, belonged to a “polar bear” swept into Germany by the Noachian Flood. Esper distributed the bones among specialists in France, England, and the Netherlands. By the end of the century, Franconia’s famous fossils had joined a growing list of large mammals similar to, yet distinct from, existing species: the “Ohio unknown,” with tusks like an elephant and teeth like a rhino; the “mammoth” unearthed in Siberia and North America; the giant herbivore shipped from South America to Madrid to be dubbed “Megatherium” by the French anatomist Georges Cuvier.⁷ By the 1790s, competing interpretations of these fossils betokened competing interpretations of the earth itself. Did these skeletons belong, as Cuvier believed, to the inhabitants of a former world, whose extinction evidenced catastrophic upheaval in nature? Or were these peculiar beasts in fact the ancestral *Ur*-forms of extant species, whose “degeneration”—or, more radically, “transmutation”—suggested gradual climatic change brought about by known, observable causes?

What makes Rosenmüller, a minor actor by most accounts, distinctive within this debate is his campaign to establish the bear not as a “witness of former continents,” to borrow Martin Rudwick’s apt expression, but as a witness of human history. Rosenmüller did this, moreover, at a time when the general tendency among naturalists was to dissociate large mammal fossils from human history, having established vast “pre-Adamatic” time-scales that relegated humankind to a mere “recent phase” in earth history.⁸ The bear, most thought, belonged like the mammoth and Megatherium to prehistory, a “former world.” Working against this current, Rosenmüller harnessed Johann Friedrich Blumenbach’s notion of a “formative drive” (*Bildungstrieb*) to make the radical claim that the bear had, in fact, been a product of the German climate and had even witnessed the arrival of its earliest human inhabitants.

For Rosenmüller, paleontological evidence for the bear’s flight from German lands was, at the same time, anthropological evidence for the emergence of civilization there. And both the claim about the bear and that about the Germans hinged on his ability to prove that the animal had inhabited the caves of Franconia before its kind was driven into new climes where, he suspected, it “degenerated” into a different, perhaps still existing

⁷ Martin J. S. Rudwick, *Bursting the Limits of Time: The Reconstruction of Geohistory in the Age of Revolution* (Chicago: University of Chicago Press, 2005), 264–74, 349–75.

⁸ Rudwick, *Bursting the Limits of Time*, 261, 279, 1–2.

type of bear.⁹ Indeed, the significance Rosenmüller accorded the bear's habitation of Franconian caves bespeaks his overarching ambition to bring the primordial nearer to the present—that is, to establish the proximity of Germany's deep past. Linking the primordial to the present, Rosenmüller communicated this compelling sense of historicity to a readership eager for narratives of national heritage in an age of invasion, occupation, and liberation.

While Rosenmüller's interpretation of the cave bear as a witness of human history cut against the grain of most contemporary accounts, the local scale and patriotic tenor of his science was also reflective of his time. Across Europe, the Enlightenment period saw the rise of patriotic earth histories—or “geopatriotism”—that sought to determine the geological constitution of national and state territories.¹⁰ Rosenmüller's interest in the indigeneity of the cave bear also drew upon a deeper tradition of “local knowledge,” which was especially pronounced in the Holy Roman Empire whose political fragmentation stimulated natural inquiry on the scale of its many territorial units. As Europe's imperial powers imported natural products from their colonial possessions in the early modern period, naturalists and physicians in the land-locked states of central Europe responded by urging a rediscovery of “indigenous” or “domestic” nature.¹¹ Franconia's cave bear can be seen as one such discovery. Moreover, Rosenmüller's insistence on writing human history into natural history can also be counted among the many practices of “self-archiving” or “self-investigation” that historians have recently explored across the sciences of his time. Around the turn of the nineteenth century, such practices nurtured collective understandings of regional and national identity, particularly in Britain and Germany.¹²

⁹ Historians have quoted Rosenmüller concluding that the cave bear had gone extinct [e.g., Nicholas Rupke, “The Study of Fossils in the Romantic Philosophy of History and Nature,” *History of Science* 21 (1983): 398], yet he also speculated on its continued (albeit modified) existence among known species.

¹⁰ Lydia Barnett, *After the Flood: Imagining the Global Environment in Early Modern Europe* (Baltimore: Johns Hopkins University Press, 2019), 190–92.

¹¹ Alix Cooper, *Inventing the Indigenous: Local Knowledge and Natural History in Early Modern Europe* (Cambridge: Cambridge University Press, 2007), esp. 3, 109–15, 176–77.

¹² Elizabeth Yale, *Sociable Knowledge: Natural History and the Nation in Early Modern Britain* (Philadelphia: University of Pennsylvania Press, 2019), 205; Brent Maner, *Germany's Ancient Pasts: Archaeology and Historical Interpretation since 1700* (Chicago: University of Chicago Press, 2018), 2. Relatedly, Maria Stavrinaki's *Saisis par la préhistoire: Enquête sur l'art et le temps des modernes* (Paris: Presses du réel, 2019) offers an innovative study of “pre-history” in relation to modern art—an enterprise to which the present study contributes in its analysis of primordality in Romantic-era science.

To understand Rosenmüller's reading of animal fossils as evidence for a history of *Kultur*, this article begins by laying out the epistemic tableau that constituted his way of thinking. Its first two sections survey Rosenmüller's study of interiority (in bodies and in mountains) and the quest for primordality (in culture and in nature) of which he was a part. The article then moves, in its final two sections, to the heart of the argument: first, by situating Rosenmüller's paleontology within a web of interrelated interpretations, and second, by drawing out the cultural politics endorsed by this interpretation and taken up by middle-class mountain travelers in his time.

But how do we, in the twenty-first century, make sense of a bewildering convergence of intellectual currents from the late eighteenth? Michel Foucault's notion of "historicity" offers one workable solution, and with it, a lexicon capable of unifying this story's many strands.¹³ In *Les mots et les choses* (1966), Foucault defined "epistemes" as the historically contingent "tableaux" through which people organize the world around them. And he identified the years between 1775 and 1825 as "the Age of History," the moment when a classical episteme of identity, taxonomy, and order gave way to a modern episteme of "historicity."¹⁴ Historicity, to borrow from Laura Stark's lucid interpretation, "linked objects continuously in a stream of time, as if part of a seamless past, present and future."¹⁵

As in Rosenmüller's case, the component elements of historicity à la Foucault are one-part spatial, one-part temporal. Leaving behind the tabular, surface-based classification of the classical age, Foucault's moderns privileged the internal relations and structure of things human, natural, and linguistic. They then located time within space, "inscribing" into the cognitive depths of Man "a profound historicity," which "penetrates into the heart of things, isolates and defines them in their own coherence, imposes upon them the forms of order implied by the continuity of time."

¹³ Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences* (London and New York: Routledge, 2005), xv, xxv, 300–301. Related efforts to bring this lexicon to bear on natural sciences in Germany around 1800 are Nicholas Jardine, "Inner History; or, How to End Enlightenment," in *The Sciences in Enlightened Europe*, eds. William Clark, Jan Golinski, and Simon Schaffer (Chicago: University of Chicago Press, 1999), 477–94; W. R. Albury and D. R. Oldroyd, "From Renaissance Mineral Studies to Historical Geology, in the Light of Michel Foucault's 'The Order of Things,'" *The British Journal for the History of Science* 10, no. 3 (November 1977): 187–215.

¹⁴ Foucault, *The Order of Things*, xix, xxv–xxvi, 235–40. For the original "tableaux" (translated as "tabula"), see Michel Foucault, *Les mots et les choses: Une archéologie des sciences humaines* (Paris: Gallimard, 1966), 9, 14.

¹⁵ Laura Stark, "Out of their Depths: 'Moral Kinds' and the Interpretation of Evidence in Foucault's Modern Episteme," *History and Theory* 55, no. 4 (2016): 132.

Foucault's description of modern historicism just as easily describes the likes of Rosenmüller: "They sought to historicize everything . . . and to place the most stable of things in the liberating stream of time."¹⁶ Rosenmüller, for his part, inscribed historicity into the depths of mountains. "How important is the relation of such studies to the history of Man!" Rosenmüller trumpeted, speaking of his cave bear—that "adversary with whom the first inhabitants . . . have battled," and which doubled, therefore, as evidence of human antiquity. As we will see, Rosenmüller ultimately wrote himself into his own natural history of the earth.¹⁷

I. THE ANATOMY OF THE EARTH: PRACTICES OF INTERIORITY

Rosenmüller worked at a moment when interiority—or *Innerlichkeit*—became an emblematic feature of German thought. In modern scholarship, the term has often been described as part of an anti-rational "inwardness" among Romantics who allegedly drew themselves away from public life. But revisionist accounts of early Romanticism have made it possible to understand concepts like *Innerlichkeit* as a set of practices—active and even civically minded.¹⁸ Consider travel writing, a genre that Rosenmüller contributed to. For much of the eighteenth century, travelers tabulated a region's superficial features by surveying and counting the observable. By the turn of the nineteenth century, however, travelers sought to penetrate the inner, moral and intellectual, life of its inhabitants.¹⁹ It was then, Foucault argued, that a mutation occurred in anatomical pathology, from the "fantastic figures" of temperamental humors to the penetration of a "positive gaze," which rendered the body "a mappable territory, a subterranean."²⁰

¹⁶ Foucault, *The Order of Things*, xxv, 402–3.

¹⁷ Rosenmüller, *Beiträge*, 10–11: "Wie wichtig ist auch der Bezug, den solche Untersuchungen auf die ältere Geschichte des Menschen haben! in so fern wir auf die Bevölkerung oder auf die Ausbreitung und Vermehrung der Menschen schliessen können. Wir finden die Ueberbleibsel der Feinde, mit denen die ersten Bevölkerer mancher Gegenden zu kämpfen hatten, in den Zoolithen."

¹⁸ Theodore Ziolkowski, *German Romanticism and Its Institutions* (Princeton, NJ: University of Princeton Press, 1990), 3–17. Cf. Frederick C. Beiser, *The Romantic Imperative: The Concept of Early German Romanticism* (Cambridge, MA: Harvard University Press, 2003).

¹⁹ Helmut Walser Smith, "What Travelers Saw in Eighteenth-Century Germany," *Bulletin of the GHI* 61 (2017): 49–66.

²⁰ Michel Foucault, *The Birth of the Clinic: An Archaeology of Medical Perception*, trans. A. M. Sheridan Smith (New York: Vintage, 1994), x–xi, 149.

Rosenmüller's own practices bridged surgery and speleology, oscillating between human and terrestrial interiority. The two were entwined by the ties of material and visual culture—the collecting, trading, dissecting, sketching, and engraving of objects. After developing an early aptitude for draftsmanship, Rosenmüller studied medicine at universities in Gießen, Leipzig, and Erlangen throughout the 1790s—his most active period of subterranean exploration. The surviving letters from this time show Rosenmüller enmeshed in a university-based economy of natural objects, exchanging plants, minerals, and fossils with professors and classmates. By the end of the decade, he possessed a sought-after collection to which his anatomy classmate and erstwhile co-author, Wilhelm Gottlieb Tilesius (1769–1857), brokered entry.²¹ In the same years, Tilesius and Rosenmüller worked to popularize visual representation as a medium for anatomical knowledge and an instrument of medical education.²² Surgery, once regarded as a bloody handicraft by comparison with the “science” practiced by elite physicians, gained esteem throughout the eighteenth century as its practitioners used visual media to evidence their expertise. Armed with experimental practices, wax models, and anatomical atlases, surgeons like Rosenmüller began to challenge the traditional authority of physicians.²³

Rosenmüller's own professional ascent shows the semantic and visual entanglement of *Menschenkörper* and *Erdkörper* in fine grain. His pursuit of interior spaces occurred within a lexical tradition, stretching back through the early modern period, in which Europeans anthropomorphized (and sexualized) the subterranean as the “bowels” and “womb of the earth.”²⁴ For Rosenmüller, though, whose medical education included the study of animal fossils, the parallel between human and natural interiority was a matter of practice. It was during Rosenmüller's medical studies in Erlangen that he made regular excursions into the nearby Fränkische Schweiz, whose petrified bear bones provided material for a dissertation on

²¹ Johann Hedwig to Rosenmüller, September 1792, Kunstsammlung Veste Coburg, A.IV, 925(2), 1; Rosenmüller to Ernst Ludwig Wilhelm Nebel, July 1793, Universitätsbibliothek Gießen, HsNF 126-1a/b; Adolph Beyer to Tilesius, October 1799, Universitätsbibliothek Leipzig, Autographensammlung Clodius; Signatur: Rep. IX5/364.

²² Jean De Barsaques, “Wilhelm Gottlieb Tilesius—a forgotten dermatologist,” *Journal of the German Society of Dermatology* 7, no. 9 (2011): 569.

²³ Andrew Cunningham, *The Anatomist Anatomis'd: An Experimental Discipline in Enlightenment Europe* (London and New York: Routledge, 2010), 246–78.

²⁴ Carolyn Merchant, *The Death of Nature: Women, Ecology and the Scientific Revolution* (New York: Harper Collins, 1983).

comparative anatomy in Leipzig.²⁵ By 1797, he was appointed prosector of the Leipzig Anatomical Theatre. In fact, in the same years that Tilesius and Rosenmüller co-authored their two-volume *Beschreibung merkwürdiger Höhlen* (1799–1805)—a globe-spanning compendium of caves that included eighteen copper engravings of their own making—they also conducted autopsies together in Leipzig. The *Beschreibung* itself contained “fragments of letters” that Tilesius wrote to Rosenmüller in 1795 while studying human dissection in Portugal. Here Tilesius described the rock framing of subterranean cavities as “the *Skelet* of the cavern.”²⁶ And he saw skeletons within skeletons. In 1807, Tilesius lectured on mummies found in the caverns of the Canary Islands, which he investigated while serving as doctor aboard a Russian voyage of 1803–6.²⁷

By this time, Rosenmüller had become a professor of anatomy and surgery in Leipzig. In 1804, he wrote two further texts on Franconia, illustrating its underground in the refinement of the *pittoresque*.²⁸ The following year, the same press that had printed his anatomical illustrations of the cave bear—Weimar’s renowned Industrie Comptoir—began publishing Rosenmüller’s three-volume atlas on human anatomy, marked by a naturalistic rather than picturesque style.²⁹

Its three sections begin respectively with the “throat cavity” (*Höhle des Rachens*), the “chest cavity” (*Brusthöhle*), and the “pelvic cavity” (*Beckenhöhle*)—*Höhle* being the German for both corporeal cavities and natural caverns. Indeed, the very same engraver, Johann Friedrich Schröter, who had originally etched Rosenmüller’s cave bear now set his illustrations of human interiority in copper plates. Reading across the hazy disciplinary boundaries of Rosenmüller’s works, one thus encounters the cavities, skeletons, and bowels of earth and man alike.

²⁵ Rosenmüller, *Quaedam de ossibus fossilibus animalis cujusdam, historiam ejus et cognitionem accuratationem illustrantis* (Leipzig, 1794).

²⁶ J. C. Rosenmüller and W. G. Tilesius, eds., *Beschreibung merkwürdiger Höhlen. Ein Beitrag zur physikalischen Geschichte der Erde*, 2 vols. (Leipzig: Breitkopf und Härtel, 1799/1805), 1:158.

²⁷ “Aufzeichnungen über die Guanchen . . . und ihre Mumien” (1807), Staatsbibliothek zu Berlin–Preußischer Kulturbesitz (hereafter SBB-PK), Nachl. Tilenau, Wilhelm Gottlieb Tilesius von, Mappe 12. Later, in 1815, Tilesius’s illustration of a Siberian mammoth was widely distributed across Europe. See Rudwick, *Bursting the Limits of Time*, 506.

²⁸ J. C. Rosenmüller, *Die Merkwürdigkeiten der Gegend um Muggendorf* (Berlin: Unger, 1804); Johann Christian Rosenmüller, *Abbildungen und Beschreibungen der Fossilen Knochen des Höhlenbären* (Weimar: Landes-Industrie-Comptoir, 1804).

²⁹ J. C. Rosenmüller, *Chirurgisch-Anatomische Abbildungen für Ärzte und Wundärzte*, 3 vols. (Weimar: Landes-Industrie-Comptoir, 1805–7).



Die Rosenmüllerschöhle von Innen

Fig. 2: “The Rosenmüller Cave from within,” illustrated by Rosenmüller in *Die Merkwürdigkeiten der Gegend um Muggendorf* (1804). Source: Public Domain, Wikimedia Commons.

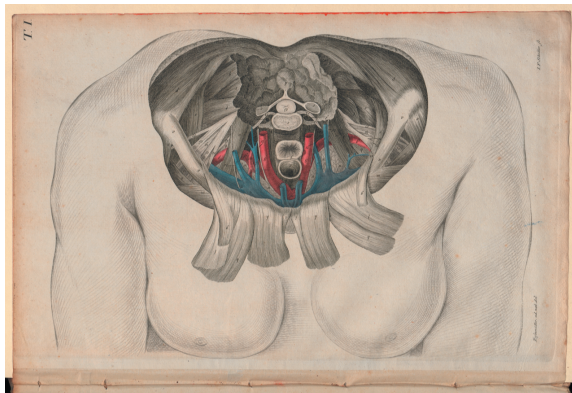


Fig. 3: “Ansicht der Brusthöhle,” illustrated by Rosenmüller and engraved by J. F. Schröter. Tafel 1 in *Chirurgisch-Anatomische Abbildungen für Ärzte und Wundärzte*, vol. 1, pt. 2 (1805). Source: Universitätsbibliothek Humboldt-Universität zu Berlin, Historische Sammlungen: XB 4702 R815-tafe.

Illustrations of interiority may not evidence a causal link between human dissection and underground exploration, but they do speak to the tableau within which Rosenmüller worked. While describing comparative anatomists of Rosenmüller's generation, Foucault observed "not merely a deepening of the descriptive techniques employed in the Classical age," but a descent into human depths that reconstituted "the reciprocal arrangement of the organs, their correlation, and the way in which the principal stages of any function are broken down, spatialized, and ordered in relation to one another." Such was the new epistemological framework in which Foucault's modern was "beginning to recover in the depths of his own being, and among all the things that were still capable of reflecting his image . . . a historicity linked essentially to man himself."³⁰

II. FINGAL'S CAVE IN GERMANY: THE QUEST FOR PRIMORDIALITY

To recover in the depths . . . a historicity linked essentially to man: Foucault could just have easily described the confluence of science and art in Germany at the end of the eighteenth century. While practitioners of Abraham Gottlob Werner's historical science of "geognosy" ordered the earth's rocks according to the age of their formation, working out a succession from the primordial to the present, Germany's "primitivist" poets and philologists searched for an *Ur-language* of song and poem, a cultural bedrock to call their own, looking to Scotland for inspiration.³¹ These two currents converged at the hexagonal basalt columns that frame Fingal's Cave in Scotland. The iconic columns were significant to Wernerians and are a major figure in James Macpherson's "Poems of Ossian," which immortalized the seaside cavern and offered Germans a set of blueprints for the construction of their own earth-monuments.

Together, Macpherson and Werner help to explain how Rosenmüller conceived of the earth and its inhabitants as historical entities subject to gradual change, while responding to the "primitivist" aspirations of Romantic culture in the 1790s. Rosenmüller answered contemporary calls for a German Fingal's Cave by establishing Franconia as a repository of

³⁰ Foucault, *The Order of Things*, 292–93, 402–3.

³¹ M. H. Abrams, *The Mirror and the Lamp: Romantic Theory and the Critical Tradition* (New York: W. W. Norton & Company, 1958), 79–88; Fania Oz-Salzberger, *Translating the Enlightenment: Scottish Civic Discourse in Eighteenth-Century Germany* (Oxford: Clarendon Press, 1995), 69–73.

primordial heritage. In 1790, a twenty-one-year-old Alexander von Humboldt (1769–1859) argued that the basalts along the Rhine were aqueous in origin and likened the Rhine’s mineralogy to that of Fingal’s Cave and its basaltic counterpart on the north coast of Ireland, Giant’s Causeway. According to Gaelic mythology, both the cave and causeway were the works of Ossian’s father, the giant Fionn mac Cumhaill. “How many great nature-scenes we could enjoy in our own German Fatherland,” Humboldt wrote, “and yet we so often seek them out in the remotest of countries!”³² Should not Germany have its own Fingal’s Cave, he wondered, its own Giant’s Causeway?

Ossianic mythology and Wernerian geognosy spread simultaneously through Germany in the 1770s and continued to resonate into the 1820s. In Germany as in Scotland, national and natural primordality went hand in hand thanks to a common “aesthetic politics”: while Scottish intellectuals rebelled against English cultural hegemony by publishing in the Scots language, the *Stürmer und Dränger* defied French artistic authority by defining a unique and more “profound” German manner of expression.³³ The Scottish Highlands, where Macpherson found (though some said fabricated) the epic poems of the third-century bard Ossian, thus served as a prototype for Franconia and the Harz. Replete with cliffs and caverns, Ossianic poetry is an artifact of the longing for primitivity that then inspired underground exploration. As a result of its revival in the 1760s, the great seaside cavern on the Isle of Staffa, called Fingal’s Cave after the warrior-hero who dwelt there, became a celebrated icon across Europe.

Ossian was wildly popular in Rosenmüller’s Germany—from Herder’s “Briefwechsel über Ossian” (1773) to Goethe’s translations of Macpherson in his *Werther* novel (1774) to Mendelssohn’s overture of 1830, called “Fingalshöhle.” Rosenmüller contributed to the growing interest in Ossian with his illustration of Fingal’s Cave.

The iconic image of travelers entering the cave by boat, as seen in Rosenmüller’s plate, spread far beyond the literary canon of Goethe and Herder. The same scene re-appears in the little-known works of Elisabeth

³² Alexander von Humboldt, *Mineralogische Beobachtungen über einige Basalte am Rhein* (Braunschweig: 1790), 107: “Wie manche grosse Naturscene könnten wir in unserem deutschen Vaterland geniessen, für die wir oft die entlegensten Länder besuchen!”

³³ Rivka Swenson, *Essential Scots and the Idea of Unionism in Anglo-Scottish Literature, 1603–1832* (Lanham, MD: Bucknell University Press, 2016), 2, 112–27; Fiona J. Stafford, *The Sublime Savage: A Study of James Macpherson and the Poems of Ossian* (Edinburgh: Edinburgh University Press, 1990).



Fig. 4: “Fingal’s Cave on the Island of Staffa,” illustrated and engraved “by the authors.” Tab. II in *Beschreibung merkwürdiger Höhlen*, vol. 1 (1799). Source: SBB-PK, Abteilung Historische Drucke, Signatur: Ml 6030:R.

Kulmann, for instance, who penned “Die Fingalsgrotte” when she was just twelve years old:

With eerie delight
I rowed a little boat
Into the chiaroscuro grotto
Of unseen depths,
Which Nature built you, heroes
Of gloomy antiquity, glorious
Not of walls, but of countless
Thronged rows of columns. . . .³⁴

³⁴ “Die Fingalsgrotte” in Abraham Voß, ed., *Deutschlands Dichterinnen: Von 1500 bis 1846* (Düsseldorf, 1847), 453–54: “Mit schaueriger Wonne / Befahr’ im leichten Kahne / Ich die helldunkle Grotte / Unabsehbarer Tiefe, / Die die Natur euch, Helden / Der grauen Vorzeit, prachtvoll / Hier aufgebaut aus zahllos, / Statt Mauern, an einander / Gedrängten Säulenreihen.”

Others, like Alexander's brother, the philologist Wilhelm von Humboldt, took Ossian with them into the mountains. After climbing through the Beatus Cave in Switzerland, he wrote: "Only in such regions, near to the most beautiful productions of nature, far from the pathetic efforts of art, can one truly begin to understand Homer, and Ossian."³⁵

Wilhelm's underground reading of Ossian provides a fitting parallel to his brother's course of study under Werner at the Mining Academy in Freiberg, Saxony in 1791–92. While Macpherson's Ossianic poetry bound the subterranean to a mythic primordiality, Werner's geognosy re-conceptualized the earth as a historical entity, correlating depth and time. The core conceptual shift wrought by Werner's geognosy centered on his identification of "rock formations" (*Gebirgsformationen*) as the primary unit of his earth science. Rejecting conventional methods of classifying rocks by their composition and location, Werner grouped rocks by the age of their formation, making *time* their very essence.

Rachel Laudan's nuanced account of Werner shows how the 1780s and 90s constituted a particular moment in the development of geognosy, prior to the emphasis on volcanic action and catastrophic revolution that characterized the Wernerians in subsequent decades. By contrast, the geognosy Humboldt learned in Freiberg taught that a stratified succession of formations had been deposited *gradually* as the scope and composition of the earth's primordial ocean changed over time. Hence the theoretical significance of basaltic phenomena on the coasts of Scotland and Ireland, as along the Rhine. If, as Humboldt argued in his study of Rhenish basalts, these hexagonal columns could consolidate only underwater (not through volcanic action), they could then be ordered within Werner's "Flötz" (or secondary) class of stratified rocks, formed in a slowly receding ocean atop an already deposited "primitive" (or primary) class.³⁶

The romantic allure of the primordial was itself unevenly deposited within these formations. As Martin Rudwick observed, the primitive formations drew "the romantic attraction of extreme antiquity."³⁷ Thus, in 1845 Humboldt still maintained that "mere induction" would have "the

³⁵ As quoted in Sabine Röder, *Höhlenfaszination in der Kunst um 1800: Ein Beitrag zur Ikonographie von Klassizismus und Romantik in Deutschland* (Remscheid: Arns, 1985), 86: "In solchen gegenden, den schönsten werken der natur nah, fern von allem machwerk der kunst, würde man erst Homer, und Ossian verstehn."

³⁶ Rachel Laudan, *From Mineralogy to Geology: The Foundations of a Science, 1650–1830* (Chicago: University of Chicago Press, 1987), 87–96, 106–9.

³⁷ Rudwick, *Bursting the Limits of Time*, 349; Laudan, *From Mineralogy to Geology*, 111–12.

glory of *primordiality* restored to ancient *granite*.” “Give me a place to stand and I will move the earth,” a fellow geognist wrote him around mid-century, adding to the Archimedean dictum: “lest we suppose strata to have been built hanging in thin air.”³⁸

Rosenmüller’s science responded to the same impulse, lest the natural history of his “Fatherland” be built in thin air. But as a paleontologist, he was principally interested in the more recent secondary formations. In fact, Rosenmüller eschewed geo-theory in his interpretation of the cave bear, privileging its implications for human rather than earth history. Nonetheless, Wernerian geognosy—not as a discipline or theory in this case, but as a gradualist interpretive framework—saturated Rosenmüller’s understanding of how a changing climate might have “little by little” (*nach und nach*) modified the cave bear’s structure.³⁹ For in Rosenmüller’s paleontology, as we will see, the bear was not an atemporal natural kind but, like Werner’s “formations,” a historical entity.

In Humboldt, Werner’s historicism can be seen radiating from Freiberg to Franconia. Stationed as a mining official in Prussia’s Franconian territories from 1792 to 96, Humboldt took to mineshafts and caverns to trace histories of human and plant migration evidenced by fossilized flora.⁴⁰ Just a few valleys away, Rosenmüller set about studying the same history, now witnessed by fossilized fauna, which Humboldt also investigated. It was this endeavor that answered Humboldt’s call for a German Fingal’s Cave. Indeed, as the “Rosenmüller Cave” (fig. 2) grew into an iconic site for travelers (Humboldt among the many who flocked there in the 1790s), its namesake was sure to place himself in an Ossianic genealogy.⁴¹ After opening the first volume of the *Beschreibung merkwürdiger Höhlen* with a description of

³⁸ Alexander von Humboldt, *Kosmos: Entwurf einer physischen Weltbeschreibung* (Stuttgart und Tübingen: Cotta, 1845), 1:300: “ist es wohl erlaubt, auch nach bloßer Induction . . . eine Vermuthung aufzustellen, die dem alten *Granit* einen Theil der bedrohten Rechte und den Ruhm der *Uranfänglichkeit* wiedergiebt.” Carl Friedrich Naumann to Humboldt, 1858, SBB-PK, Nachl. Alexander von Humboldt, gr. Kasten 2, Mappe 4, Nr. 8: “Die Idee einer primitiven Formation scheint mir . . . schon dadurch gerechtfertigt zu sein, dass ohne sie die Ausbildung weder der ältesten sedimentären, noch der ältesten eruptiven Formationen denkbar ist; denn beide diese verlangen mit Archimedes ein: δῶς μοι πᾶ στῶ, wenn sie nicht in den Luft hängend gebildet sein sollen.”

³⁹ Rosenmüller, *Beiträge*, 60.

⁴⁰ Patrick Anthony, “Mining as the Working World of Alexander von Humboldt’s Plant Geography and Vertical Cartography,” *Isis* 109, no. 1 (March 2018): 37–38.

⁴¹ Ilse Jahn and Fritz G. Lange, eds., *Die Jugendbriefe von Alexander von Humboldt, 1787–1799* (Berlin: Akademie, 1973), 316n10. For a 1793 account of the “Rosenmüller Cave,” see W. H. Wackenroder, *Reisebriefe*, ed., Heinrich Höhn (Berlin: 1938), 23.

caves in Britain, Rosenmüller closed the second volume by revisiting Fin-gal's Cave before taking the reader on a final tour through Franconia.

III. THE CAVE BEAR IN CONTEXT: A WITNESS OF HUMAN HISTORY

By the time of Rosenmüller's Franconian travels in the 1790s, competing interpretations of large mammal fossils evidenced competing views of earth history. A lively but inconclusive debate had yielded a broad interpretive spectrum.⁴² The enduring legacy of Buffon's *Histoire naturelle* (1749–89) supposed existing species to have “degenerated” from ancestral prototypes as the earth itself gradually cooled. Working across the life and earth sciences, Johann Friedrich Blumenbach and Jean-André Deluc argued for a binary schema that delineated an unfamiliar *Vorwelt* of species from those modified by climatic revolutions since the Flood. And the rising star of French anatomy, Cuvier, rejected species modification altogether, ensuring the stability of fixed natural kinds in an earth history punctuated by catastrophic revolution and mass extinction. After the turn of the century, Cuvier would claim that the cave bear belonged, like the mammoth and the Megatherium, to a bygone world violently severed from the present.

Rosenmüller's 1794 dissertation on the cave bear amalgamated methods and concepts from across this spectrum to produce a radically different interpretation. Reconstructing the bear's lifeways and habitat through comparative anatomy (Cuvier), Rosenmüller attributed its “degeneration” (Buffon) to an innate “formative drive” (Blumenbach) that enables species to respond to climatic conditions. The result was not a denizen of the former world, swept in from afar by catastrophic upheaval, but an indigenous being who bore witness to human history. He thus depicted the ancient history of “our German forests” not as a world apart, but as an ancestral landscape that pitted the bear against the advance of “cultivation and settlement.”⁴³

Accomplishing this narrative feat meant first pitting himself against conventional wisdom that attributed the bear's presence in Germany to an “anomaly,” a catastrophic “accident” of nature. The diluvial account given by Johann Friedrich Esper, who first examined Gaillenreuth's bones in 1771, rested upon the presence of sand and seashells in the cave, but also

⁴² Rudwick, *Bursting the Limits of Time*, 274.

⁴³ Rosenmüller, *Beiträge*, 86, 90: “unsere deutschen Wälder”; “das Anbauen und die Bevölkerung.”

aimed to explain the elephant and lion fossils found in Germany. Because it was “far too hypothetical” to suppose that such beasts “should have somehow had the urge [*Trieb*] to be buried in the crypts of Gailenreuth,” Esper reasoned that only “a violent accident” (*ein gewaltsamer Zufall*)—“miraculous floods” triggered by volcanic activity at the poles—could account for both “Greenland polar bears” and “Asiatic lions” in German caves. The Genevan savant Deluc took a different approach to the problem of bear fossils in Germany, which he investigated *in situ* while traveling through the Harz in 1778. Believing the fossils to have been “enveloped” by a “soft rock layer,” he initially suggested the bear had been coeval with the formation of the cave itself. In Rosenmüller’s reading, Deluc regarded the bones and the seashells as “having been subjected to the same accidents.”⁴⁴

But these accounts pushed the bear back into an antediluvian world uncomfortably disjointed from the present by anomalous events. Rosenmüller’s solution was to wrest “our cave bear,” as he consistently wrote, out of the former world and back into *his*. Empirically, these efforts drew upon recent studies of comparative anatomy, which distinguished *Höhlenbär* from *Eisbär*. The sheer quantity of bones also cast doubt on the idea of “a single universal Deluge” or any such “accidents.”⁴⁵ Conceptually, though, it was Blumenbach’s notion of *Bildungstrieb* that served as Rosenmüller’s chief theoretical instrument. By the early 1790s, Blumenbach had begun importing Deluc’s binary geo-theory to account for the revolutions that separated the former from the present world. But he also differed from his Swiss ally in locating mysterious mammal fossils like Germany’s cave bear in a more recent epoch of earth history, suggesting these animals had been wiped out by *climatic* revolutions. Blumenbach also had to account for a new creation of species after the “*Totalrevolution*” that, he and Deluc

⁴⁴ J. F. Esper, “Reise zu den Gailenreuther Osteolithen-Höhlen,” *Schriften der Berlinischen Gesellschaft Naturforschender Freunde* 4 (1784): 103–4: “Es ist auch gar zu sehr Hypothese, wann man annehmen wollte, daß etliche hundert Jahre lang die Grönländischen Eisbäre, die Asiatischen Löwen, die unbekanntnen Thiere eines vielleicht noch verborgenen Winkels der Erde, sollten den Trieb gehabt haben, sich in die Gailenreuther Grüfte begraben zu lassen. . . . Gewiß aber wundernswürdige Fluthen, welche die Eisbär aus dem nördlichen Meer und die südlichen Löwen hier zusammengeführt haben.” Jean-André de Luc, “QUATORZIÈME LETTRE DE M. DE LUC, A M. DELAMÉTHÉRIE, Sur les Os FOSSILES . . . 22 Mars 1791,” *Observations sur la physique* 38 (Paris: Jan., 1791), 279: “Ce fut d’après cette circonstance, que je formai l’hypothèse, exprimée dans la susdite lettre, savoir, que les *cavernes* elles-mêmes étoient dues à la destruction d’une *couche molle*, qui contenoit ces *ossemens*.” Rosenmüller, *Beiträge*, 80: “de Lüc hält es also für möglich, dass die gegrabenen Knochen mit den versteinerten Conchylien gleiches Alter haben und einerlei Zufällen unterworfen waren.”

⁴⁵ Rosenmüller, *Beiträge*, 65, 68–69, 75–76.

agreed, had extinguished life in the *Vorwelt*. To do so, Blumenbach employed his earlier concept of *Bildungstrieb*, a formative drive that guided life's second coming.⁴⁶

Harnessing Blumenbach's ideas about climate-driven modification, Rosenmüller conceived of the cave bear as a climatic product with an open-ended past, present, and future. "Degeneration is a consequence of the altered direction of the *Bildungstrieb*," he wrote, blending Buffon and Blumenbach,

which is not likely to be accidental, but caused rather by modifications in mode of life, and by the various effects of changing climate, altered nutrition, and the habitation of new recesses and dwelling places. And why should we not imagine that what has actually occurred among so many other animal species could also be possible for the bear; namely, that the modification of its habitat, its climate, and its nourishment should have such an influence upon its physical frame, and that the same species has become markedly distinct from ancestors who inhabited different regions.⁴⁷

This developmental fluidity not only allowed Rosenmüller to claim the bear as an indigenous production, but also to go beyond Blumenbach in contemplating its relation to existing forms: "Would it not therefore be possible that the same type of bear, whose fossil bones remain to us, has degenerated into a type of fur seal? or, what seems more likely still, might we not regard brown bears as the degenerate progeny of our cave bear? Could the cave bear not have been forced to seek a new home in the northern regions?" Though speculative in tone, these questions opened the door

⁴⁶ J. F. Blumenbach, "Beyträge zur Naturgeschichte der Vorwelt," *Magazin für das Neueste aus der Physik und Naturgeschichte* 6, no. 4 (1790): 1–17; John H. Zammito, *The Gestation of German Biology: Philosophy and Physiology from Stahl to Schelling* (Chicago: University of Chicago Press, 2018), 216–24.

⁴⁷ Rosenmüller, *Beiträge*, 63–64: "die Ausartung ist demnach eine Folge von der veränderten Richtung des Bildungstriebes, die wahrscheinlich nicht zufällig ist, sondern durch veränderte Lebensweise, durch die verschiedenen Einwirkungen des veränderten Clima, der veränderten Nahrungsmittel und vorher ungewohnter Schlupfwinkel und Aufenthaltsorte, bewirkt werden kann. Und warum sollte das nicht auch bei dem Bären möglich gedacht werden können, was mit so manchen andern Thiergattungen wirklich vorgegangen ist; dass nemlich die Veränderung ihres Aufenthaltes, des Clima und der Nahrung einen solchen Einfluss auf ihren Körperbau geäussert hat, dass derselbe merklich von dem Körperbau ihrer Vorfahren, die in andern Gegenden gelebt haben, verschieden geworden ist."

for Rosenmüller's account of how the bear fled Franconia "as peoples advanced in Germany, and cultivated the wilderness in which they lived."⁴⁸

Rosenmüller was not alone in thinking the bear had inhabited the caves where it was found, but he was distinctive in his argument for how recently the bear had lived there.⁴⁹ Some who thought the bear "indigenous" still relied on the Noachian Flood to explain how its bones were washed into the caverns. Deluc himself postulated a new account of the bear in a series of letters printed in Paris between 1790 and 1793. Recognizing that the fossils Esper described were not embedded in a "soft rock layer" (*couche molle*) but merely encased by a "calcareous tuff" (*tuf tendre*), Deluc came to attribute the bones to *native* animals who inhabited the cave when "the ancient sea" stretched into the European mainland. Supposing the Fränkische Schweiz to have been "*islands & peninsulas*," Deluc fittingly likened the caves of Muggendorf to those along "the west coast of Scotland," where "not only the *amphibians* but also other *quadrupeds* who inhabited those regions could retire in the decline of their lives, as we know all animals to do."⁵⁰

Though Rosenmüller appears not to have read Deluc's revised hypothesis, it provides a revealing contrast to his own. Deluc's theorizing turned on catastrophically changing sea levels, and therefore relegated the phenomena in question to a prehistoric world. By contrast, Rosenmüller needed only slight alterations in *Clima*, like those known to exist in the present world, to claim that "our German forests were once filled with bears." This conceptual maneuver allowed Rosenmüller, a native of Franconia, to write

⁴⁸ Rosenmüller, *Beiträge*, 65, 89: "Wäre es demnach nicht möglich, dass die Bärenart, von der wir die fossilen Knochen übrig haben, in die Art des *Seebären* degenerirt worden wäre? oder, welches mir noch wahrscheinlicher ist, dürfen wir nicht vielleicht die *Landbären* für ausgeartete Nachkommen unsers Höhlenbärs halten? Könnte er nicht gezwungen worden seyn, seinen Aufenthalt in nördlichern Gegenden zu suchen?" "Mir scheint es sehr wahrscheinlich, dass die in den Hölen jener Gegenden sich aufhaltenden Bären, zu der Zeit, als die Bevölkerung in Deutschland immer mehr überhand nahm und die Wildnisse, in denen sie lebten, immer mehr und mehr urbar gemacht wurden, an der Aufsuchung ihrer Nahrung verhindert worden sind."

⁴⁹ Notably, Samuel Thomas Sömmering believed humans had placed the bones in the cave, while a report from 1796 states Alexander von Humboldt's "conjecture" that both had subjected to "great *Erdkatastrophen*." [Rosenmüller, *Beiträge*, 82; Ilse and Jahn, *Die Jugendbriefe*, 316n10.]

⁵⁰ De Luc, "QUATORZIÈME LETTRE," 283: "Et puisque ces *cavernes* étoient au-dessus du niveau de la mer; non-seulement les *amphibies*, mais d'autres *quadrupèdes* qui habitent alors ces régions, ont pu s'y retirer au déclin de leur vie, comme on sait qu'en ce cas tous les animaux cherchent des retraites. Ces mêmes *îles & presque îles* étoient donc habitées par des *quadrupèdes terrestres*."

his human forbears into the region's natural history. It seemed likely to him that the cave bear fled the rising tide of human migration into Franconia. Rosenmüller went further still, arguing that "*deposits of coals*" suggested early human inhabitants had used fire to force the bear into the cavern before blocking its escape by piling up rocks at the entrance. "Maybe it was the *Slavs*," he speculated finally, whose westward migration drove the bear into a new climate, which differentiated the animal's physical form from that of its Franconian ancestor.⁵¹

IV. HISTORICITY AS POLITICS IN FRANCONIA AND THE HARZ

Having established the cave bear as a witness of Franconia's early human history, Rosenmüller then traced out a millennium of life and culture as evidenced by its underground archive. In this way, Rosenmüller developed a practice of "time-ordering" that worked outward (and onward) from the central object of the cave bear, locating contiguous archaeological objects in a relational web that bound the primordial to the present.⁵² If Rosenmüller's paleontology had inscribed historicity into the mountains, the "topographical portrait of Muggendorf" he directed toward a more general audience drew the same sense of historical continuity out of the depths of the earth.⁵³

The historicity that Rosenmüller promoted was also fundamentally political, echoing both the revolutionary tenor and the nationalist rumblings of his time. Recall that Rosenmüller's dissertation was published in the vernacular in 1795, just after the Terror and just before French occupation of the Rhineland, at a time when the evolutionary thinking suggested a dangerous affinity for revolutionary thinking.⁵⁴ Rosenmüller was no revolutionary; but he did view nature as a source of inspiration for social reform. In an 1803 publication on the upbringing of children, for instance, he argued humans ought to emulate "the care, delicacy, and cleanliness

⁵¹ Rosenmüller, *Beiträge*, 86, 89: "unsere deutschen Wälder mit Bären und andern wilden Thieren angefüllt waren"; "Vielleicht waren es die *Slaven*, die die Bären durch Feuer oder andere Mittel in die Schlupfwinkel zurücktrieben, die sie in den Hölen hatten. Die *Lagen* von Kohlen, die man zuweilen in den Hölen findet, scheinen das zu beweisen."

⁵² Stark, "Out of their Depths," 132.

⁵³ Rosenmüller, *Beschreibung*, 2:xxviii.

⁵⁴ See Toby Appel, *The Cuvier-Geoffroy Debate: French Biology in the Decades before Darwin* (Oxford: Oxford University Press, 1987).

with which [animals] assemble their nests.” Moreover, Rosenmüller’s use of newly minted concepts like “Staatsbürger” (citizen, descended from burgher, or *Stadtbürger*) and “Menschenklassen” (classes rather than estates, or *Stände*) also “signaled a polemical engagement with the old society of orders.”⁵⁵ At the same time, the portrait of heritage that Rosenmüller produced in his “topography” of Franconia, published the following year, was read against the backdrop of decisive French victories on the battlefields of Central Europe—Ulm and Austerlitz in 1805 and Jena and Auerstedt in 1806. And by using the possessive (“*our* cave bear,” “the soil of *our* Fatherland”), Rosenmüller, a native of Hildburghausen in the northern forests of Franconia, signaled his allegiance both to Germany, as a cultural and linguistic unit, and to Franconia, the wellspring of a historicity to which he was bound.⁵⁶

The forward-looking *Staatsbürger* thus looked backward to trace a lineage between the primordial and the present in his “portrait” of the Fränkische Schweiz. And the mountains of Muggendorf, Rosenmüller wrote in 1804, were uniquely capable of bridging the gap between the “learned” man and his “primitive” brother, humbling the one and elevating the other. “While they stir and inspire the crudest of primitive men, they also pose questions to the learned natural researcher, the answers to which beguile his profundity and erudition.” Rosenmüller then discerned continuity between *Naturmensch* and *Naturforscher* in the underground “vestiges, which lead into gloomy antiquity.”⁵⁷

In the caves above Muggendorf, he found heaps of human bones, which the “old inhabitants” took for the “remains of their ancestors, for giants’ bones.” Citing his own forerunner, Esper, Rosenmüller reckoned the bones had lain there for some eight hundred to one thousand years. One pair of skeletons lay in the depths of the very cave where the bear’s remains were found. Judging from the partial emergence of their wisdom teeth, Rosenmüller identified the skeletons as belonging to a male and a

⁵⁵ Reinhart Koselleck, *Futures Past: On the Semantics of Historical Time*, trans. Keith Tribe (New York: Columbia University Press, 2004), 78; J. C. Rosenmüller, *Die Kinderstube, von ihrer physischen Seite dargestellt* (Leipzig, 1803), 9, 15, 35: “Wir bewundern bei den Thieren, die Sorgfalt, die Zierlichkeit, die Reinlichkeit, mit welcher sie ihre Nester zusammentragen und in Ordnung halten, sollten wir ihnen nicht wenigstens gleich zu kommen suchen . . . ?”

⁵⁶ Rosenmüller, *Beschreibung*, 2:xxvii: “unseres Vaterländisches Bodens.”

⁵⁷ Rosenmüller, *Merkwürdigkeiten*, 3–4: “Indem sie den rohesten Naturmenschen rührt und begeistert, legt sie dem gelehrten Naturforscher Fragen vor, an deren Auflösung sein Tiefsinn und seine Gelehrsamkeit scheitert. . . . der Antiquar findet in ihr Spuren, welche ins graue Alterthum leiten.”

female, about twenty years old. Here, as in the case of the embattled cave bear, primitive fantasy and melancholic romanticism colored Rosenmüller's description:

Perhaps these bones belonged to a pair of lovers who fled here to escape their pursuers, and, in fear of the known danger from which they ran, passed into the grasp of yet another. Or perhaps they leapt into the depths from the narrow crevice of the entrance, and were wretchedly shattered; for the depths, where the bones lay, certainly amount to 60 feet.⁵⁸

Rosenmüller projected into Franconia's past a tragic sense of humanity that echoed the aesthetic temperament of his present. His readers would have recognized in the lovers' leap a familiar literary trope, echoing the famous suicides of Lessing's Emilia Galotti and Goethe's Werther. One suicide ballad, penned by the Harz traveler Julie von Bechtolsheim the same year as Rosenmüller's vignette, drew upon an Irish folk tale and was set, fittingly, on the high cliffs of a mountain from which a forlorn maiden threw herself.⁵⁹

Rosenmüller's myth-laden mountain science brought the primordial past ever nearer to the present by tracing the ways in which people had used the caverns through the ages. Of particular interest to him was the question of whether or not the "German antiquities" found underground might reveal the pagan practices of his forbears.⁶⁰ Indeed, Teutonic paganism was a common trope among cave-goers. Those in the Harz revived the pagan idol, "Biel," a deity who, according to local folklore, was said to consecrate the woodsman's axe.⁶¹ In the Biel's Cave logbook one visitor exclaimed:

⁵⁸ Rosenmüller, *Merkwürdigkeiten*, 52: "die ältern Bewohner dieser Gegend hätten jene Knochen für Reste ihrer Voreltern, für Riesenknochen angesehen." Rosenmüller, *Beschreibung*, 2:365–67: "Vielleicht gehörten diese Knochen einem liebenden Paar an, das seinen Verfolgern zu entfliehen sich hierher flüchtete, und in der Angst vor der bekannten Gefahr sich einer unbekanntem überlieferte. Vielleicht sprangen sie von der engen Kluft des Einganges hinab, und wurden so jämmerlich zerschmettert; denn die Tiefe beträgt, bis an den Haufen wo die Knochen lagen, gewiß 60 Schuhe."

⁵⁹ Julie von Bechtolsheim, *Journal für deutsche Frauen* 2 (1806): 61–67.

⁶⁰ Rosenmüller, *Merkwürdigkeiten*, 49: "deutsche Alterthümer." On the development of "vaterländische Altertumskunde," see Maner, *Germany's Ancient Pasts*, 15–41.

⁶¹ The "Götze Biel" is noted in Heinrich Heine, *Reisebilder I, 1824–1828. Kommentar*, eds. Sikander Singh and Christa Stöcker (Berlin: Akademie Verlag, 2009), 504–12. Heine had himself traveled into the Biel's Cave.

Long live Biel, God of the Germans!
For when a man worships him,
He shall be as happy as Christ,
Yonder Biel reigns.⁶²

In Franconia, Rosenmüller showed a measured skepticism toward local discoveries of “splintered benches upon which priests and judges would have sat.” But he also confessed to being enchanted by the play of torchlight against the “gigantic stalagmites,” which “awaken images of fantasy.” Such was the effect of a stalagmitic formation known as “the *sacrificial altar*.” “If this cave was ever used for some sort of divine worship,” he wrote, “it is very likely that its location was right here, where the image of God is enthroned.” Rosenmüller carried on, wondering if “our oldest German forefathers” had burned bat excrement to illuminate their subterranean rites, or perhaps even worshipped and embalmed the beetles that resided there. In the more recent past, the caves above Muggendorf had given refuge to villagers fleeing the maelstrom of the Thirty Years’ War—a legend Rosenmüller continually re-told.⁶³

Retrospective fantasy also nurtured an increasingly racialized conception of nationhood. In the Harz, middle-class travelers saw the inhabitants of mountain villages as the nearest descendants of a hearty primordial stock and an antidote to the overly cultivated present dominated, politically and culturally, by France. Where educated Germans had long regarded peasants as pariahs, they increasingly saw “commoners” as a bulwark against radicalism during the French Revolution, especially with French troops on German soil. Travelers thus relegated contemporary “mountain folk” (*Gebirgsvolk*) not to the “imaginary waiting room of history” but to a corridor between the primordial and the present.⁶⁴ Typical

⁶² 21 July 1792 in C. F. Schröder, *Naturgeschichte und Beschreibung der Baumanns und Bielsböhle* (Berlin, 1796), 177: “Es lebe Biel, der Deutschen Gott! / Wenn ihn ein Mensch verehrt, / Der sey so glücklich wie ein Christ, / Der Gott steht, jener Biel.”

⁶³ Rosenmüller, *Merkwürdigkeiten*, 49: “Auch hätte man noch Splitter von Bänken gefunden, auf welchen die Priester und Richter gesessen hätten”; Rosenmüller, *Beschreibung*, 2:357: “Einige gigantische Tropfsteinbildungen . . . erwecken in der That Bilder der Phantasie”; Rosenmüller, *Merkwürdigkeiten*, 49: “Würde diese Höle je zu einer Art von Gottesverehrung benutzt, so ist es allerdings sehr wahscheinlich, dass hier die Stelle war, wo das Bild des Gottes thronte.”

⁶⁴ John G. Gagliardo, *From Pariah to Patriot: The Changing Image of the German Peasant, 1770–1840* (Lexington: University Press of Kentucky, 1969), 157–70; Dipesh Chakrabarty, *Provincializing Europe: Postcolonial Thought and Historical Difference* (Princeton, NJ: Princeton University Press, 2007), 8. See also Suman Seth, “Darwin and the Ethnologists: Liberal Radicalism and the Geological Analogy,” *Historical Studies in the Natural Sciences* 46, no. 4 (2016): 490–527.

of this genre is Samuel Christian Wagener's *Reise durch den Harz* (1797). Like Rosenmüller, Wagener was critical of the local legends that supposed "the region of the *Harz* was inhabited by gigantic men in the *Urzeit*." Even so, he painted a picture of his forbears as being markedly distinct from those who "have become miserly and enfeebled through culture and luxury." If *this* is the true meaning of such legends, Wagener concluded, "then I too believe in German giants of the primordial world."⁶⁵

These sentiments intensified during the so-called Wars of Liberation against Napoleon's Grand Armée (1813–15). Johann Bernhard Gleim's 1816 account of the Harz offered an even more explicit meditation on a historicity retained by the mountains and embodied by their inhabitants. After touring Biel's Cave, Gleim described gazing out at "the ruins of Time and Man." "Human forms are ephemeral," he wrote, "but Nature and Mankind are eternal." That is, the finitude of the individual was resolved by their continuity with "human forms" past, present, and future. This was the premise of an "instructive comparison" Gleim made "between warmer antiquity and the overly cultivated present." Gleim thus found "the crude customs of our *Ur-Fathers*" superior to "our refined customs."⁶⁶ It was in the mountains and their hearty denizens, he believed, where the virtues of primitivity remained "warmly" palpable.

HISTORICITY INSCRIBED: CONCLUSION

In Rosenmüller's time, competing interpretations of large mammal fossils, like Franconia's famous cave bear, expressed competing narratives of earth history. By giving the *Megatherium americanum* a proper Linnaean binomial, for instance, Cuvier reinforced the bold claim that it was distinct from all living species and doubled, therefore, as evidence of catastrophic

⁶⁵ S. C. Wagener, *Reise durch den Harz* (Braunschweig: 1797), 33–34, 97–98: "die Gegend des *Harzes* sey in der *Urzeit* von riesenartigen Menschen bewohnt gewesen! Wenn das nichts weiter heißen soll, als: die ehemaligen Bewohner waren noch nicht wie wir jetzt, durch Kultur und Luxus kleinlich und entkräftet, sondern hatten alle die Körperkraft einer rohen, gesunden und kriegerischen Nation noch beysammen . . . : so glaube auch ich an deutsche Riesen der Vorzeit."

⁶⁶ J. B. Gleim, *Reise nach dem Brocken* (Quedlinburg: 1816), 115–16: "Menschliche Formen sind vergänglich . . . doch Natur und Menschheit sind ewig"; "so macht sie auch zugleich eine lehrreiche Vergleichung der wärmern Vorzeit mit der kalten überbildeten Gegenwart.—Die rauhen Sitten unserer Urväter, die nicht unsern verfeinerten Sitten angemessen sind, enthielten nicht weniger die zärtlichsten Bilder der Freundschaft und Liebe."

extinction in nature.⁶⁷ By contrast, Rosenmüller’s interpretation of large mammal fossils in Franconia embodied a bold claim about *human* history. Positioning the bear as a witness not of the *Vorwelt*, but of human settlement in Germany, Rosenmüller turned the caves of Muggendorf into archives of a natural history that engulfed his own history, just as he chronicled the process by which his “pair of lovers” were embalmed by the earth, “sealed by a thick coat of stalagmitic film.”⁶⁸

By appreciating the interplay of temporal and spatial imaginations, Foucault’s notion of historicity—a continuous stream of time “inscribed in the very depths of [Man’s] being”—offers a lexicon well suited to Rosenmüller’s efforts.⁶⁹ Rosenmüller placed the cave bear in an unbroken chain of objects and events that linked the primordial to the present. But whereas “inscription,” a key term throughout *Les mots et les choses*, plays a metaphorical role for Foucault, the act can be taken quite literally in Rosenmüller’s case. By etching one’s name on the walls of a cave, or scrawling it on a stalagmite, travelers wrote themselves into the mountains. Inscription performed historicity, collapsing the boundary between *Menschen-* and *Erdkörper*, individual life-span and geo-historical timespan.

It was in the 1770s, when German readers first began devouring Ossianic poetry, that sentimentalists made rock-inscription something of a literary practice, “consecrating” boulders and caverns by chiseling into them the names of those they cherished.⁷⁰ Later travelers enrolled rock-inscription into an epistemology of nationhood, establishing the underground as a realm of national interiority. “*Teutsch*” can still be read on the walls of Biel’s Cave, alongside numerous etchings from 1792.⁷¹ In the cave’s log-book that year, one traveler wrote:

O good German Fatherland,
I must still see you in your entirety,
For it would be just such joy
As when here, the Biel’s Cave I saw.⁷²

⁶⁷ Rudwick, *Bursting the Limits of Time*, 357.

⁶⁸ Rosenmüller, *Beschreibung*, 2:366: “mit einer dicken Tropfsteinrinde überzogen.”

⁶⁹ Foucault, *The Order of Things*, 403.

⁷⁰ Rüdiger Safranski, *Goethe: Life as a Work of Art*, trans. David Dollemayer (New York: W. W. Norton, 2017), 99–100.

⁷¹ Franz Lindenmayr, “Die Bielhöhle bei Rübeland, Harz,” accessed 19 January 2021, https://www.lochstein.de/hoehlen/D/nord_mitte/harz/ruebe/bielsh%C3%B6hle/biels.htm.

⁷² 21 July 1792 in Schröder, *Naturgeschichte*, 178: “O, gutes deutsches Vaterland, / Ganz muss ich dich noch sehn, / Wär’s doch mit Freuden, wie ich hier, / Des Biehles Höhle sah.”

Rosenmüller himself recalled finding the name of the bear's original examiner, "Esper," penciled on a stalagmite. It had been enshrined, like the bones of his ill-fated lovers, and like the cave bear itself, by decades of stalagmitic growth. Believing himself Esper's successor, Rosenmüller followed suit. Revisiting the cave five years later, he reported that both names remained "un-erasable" and "perfectly clear," thanks to the growth of a fresh layer of film on the stalagmite. Rosenmüller had written himself into his own natural history of the earth.⁷³

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⁷³ Rosenmüller, *Beschreibung*, 2:389: "Im Jahre 1794 schrieb ich auch meinen Namen mit Bleystift hier und fand ihn nach fünf Jahren auch durch einen Tropfsteinüberzug unausmischbar gemacht, aber, so wie *Espers*, noch vollkommen deutlich."