



Media Inquiries: Michael Walker, Department of Communications
212-769-5766; mwalker@amnh.org
www.amnh.org

April 2019

**AMERICAN MUSEUM OF NATURAL HISTORY
PALEONTOLOGIST MELANIE HOPKINS AWARDED
NATIONAL SCIENCE FOUNDATION CAREER GRANT
TO STUDY TRILOBITE EVOLUTION AND
TO ENGAGE SCIENCE TEACHERS IN FOSSIL FIELD WORK**

American Museum of Natural History Associate Curator Melanie Hopkins has been awarded a prestigious five-year National Science Foundation (NSF) CAREER grant for her project to study trilobite evolution and to work with the Museum's [Master of Arts in Teaching](#) (MAT) Program to develop a new professional training initiative to introduce MAT alumni who are now Earth science teachers in New York State to fossil field work at local dig sites with the goal of helping teachers use fossils to engage middle- and high-school students. The National Science Foundation CAREER awards support junior faculty who exemplify the role of teacher-scholars through research, education, and the integration of education and research within the context of the mission of their organizations.

The grant funds Hopkins's research investigating the evolution of trilobites – extinct arthropods that lived for almost 270 million years before they disappeared during the largest mass extinction in Earth's history 250 million years ago. The teacher development part of the project, called the **Earth-science Reciprocal Learning Year (EARLY)**, will include graduates of the Museum's MAT Program who are now teaching Earth science in high-needs middle and high schools in New York State. Giving teachers first-hand experience of how paleontology is practiced in the field will help them educate their students in scientific practices and show how scientists reconstruct and date events in Earth's history.

"A growing body of research indicates that immersive out-of-school learning experiences strengthen students' ability to construct science understanding and can influence future career choices," says Dr. Hopkins. "The EARLY initiative seeks to support new teachers' work with their students to deepen understanding of the work of scientists, build on Earth science content, and engage with teachers and students from other New York schools. The initiative also allows

(more)

the new teachers to facilitate learning from a place of strength because of their expertise and knowledge of the Museum.”

The key parts of the **EARLY** initiative includes:

- **Field excursion to Early Paleozoic outcrops along the New Jersey/New York border.** Teachers will focus on ancient marine environments, trilobite evolution, and major events in Earth history including the Cambrian and Ordovician Radiations and early Paleozoic extinctions.
- **Field excursion to Penn Dixie Fossil Park and Nature Reserve,** located just south of Buffalo, New York. This 54-acre site was ranked as one of the top fossil parks in the United States, according to a study by the Geological Society of America. Since visitors are welcome to keep any fossils they unearth, the site provides an excellent resource for teachers to build paleontological teaching collections that include some of the quintessential fossils of New York State: brachiopods, trilobites, bryozoans, crinoids, cephalopods, bivalves, and gastropods.
- **Follow-up workshop with participating teachers and their students back at the Museum.** The initiative offers a new paleontology-focused experience that includes a fossil lab using specimens collected by the teachers during their field trip to Penn Dixie, a teen “SciCafé” with discussions with scientists in an informal setting to learn about their research and how it relates to students’ lives, a behind-the-scenes tour of the Museum’s fossil collection, and teacher-facilitated learning in Museum galleries such as the Milstein Hall of Ocean Life and the Hall of New York State Environment.

The program will serve 10 teachers and approximately 50 students per year, for a total of 50 teachers and 250 students over the five-year grant period.

The Museum’s MAT program in Earth science began as a pilot in 2011 as the first freestanding museum-based master’s degree program to prepare science teachers in the United States. Authorized by the New York State Department of Education, the MAT program addresses a critical shortage of qualified science teachers in New York State, particularly in high-needs schools with diverse populations, by providing a specialization in Earth science for teachers of grades 7–12. Working in partnership with schools in New York City and the region, the MAT program is developed and delivered in the context of a natural history museum and integrates academic theory and learning with application in a school setting. To date, the program has

produced **94 MAT graduates who are teaching 9,000 students in high-needs New York State schools.**

AMERICAN MUSEUM OF NATURAL HISTORY (AMNH.ORG)

The American Museum of Natural History, founded in 1869, is one of the world's preeminent scientific, educational, and cultural institutions. The Museum encompasses 45 permanent exhibition halls, including those in the Rose Center for Earth and Space and the Hayden Planetarium, as well as galleries for temporary exhibitions. It is home to the Theodore Roosevelt Memorial, New York State's official memorial to its 33rd governor and the nation's 26th president, and a tribute to Roosevelt's enduring legacy of conservation. The Museum's five active research divisions and three cross-disciplinary centers support approximately 200 scientists, whose work draws on a world-class permanent collection of more than 34 million specimens and artifacts, as well as on specialized collections for frozen tissue and genomic and astrophysical data and on one of the largest natural history libraries in the world. Through its Richard Gilder Graduate School, it is the only American museum authorized to grant the Ph.D. degree and also to grant the Master of Arts in Teaching degree. Annual visitation has grown to approximately 5 million, and the Museum's exhibitions and Space Shows are seen by millions more in venues on six continents. The Museum's website, mobile apps, and massive open online courses (MOOCs) extend its scientific research and collections, exhibitions, and educational programs to additional audiences around the globe. Visit amnh.org for more information.

National Science Foundation

The National Science Foundation (NSF) is an independent Federal agency created by the National Science Foundation Act of 1950, as amended (42 USC 1861-75). The Act states the purpose of the NSF is "to promote the progress of science; [and] to advance the national health, prosperity, and welfare by supporting research and education in all fields of science and engineering."

NSF funds research and education in most fields of science and engineering. It does this through grants and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations, and other research organizations throughout the U.S. The Foundation accounts for about one-fourth of Federal support to academic institutions for basic research.

NSF receives approximately 55,000 proposals each year for research, education, and training projects, of which approximately 11,000 are funded. In addition, the Foundation receives several thousand applications for graduate and postdoctoral fellowships. The agency operates no laboratories

itself but does support National Research Centers, user facilities, certain oceanographic vessels, and Arctic and Antarctic research stations. The Foundation also supports cooperative research between universities and industry, US participation in international scientific and engineering efforts, and educational activities at every academic level.

#

No. 25