

The Nantucket Maria Mitchell Association
2019 Annual Report
Nantucket's Science Center



**Maria
Mitchell**
Association
Nantucket's
Science Center

***“When we are chafed and fretted by small
cares, a look at the stars will show us the
littleness of our own interests.”***



MARIA MITCHELL
AMERICA'S FIRST WOMAN ASTRONOMER

Mission Statement



The mission of the Nantucket Maria Mitchell Association is to create opportunities for all to develop a life-long passion for science through education, research, and first-hand exploration of the sky, land, and sea of Nantucket Island. In fulfilling our mission, we recognize the historic persona of Maria Mitchell, the foremost American woman scientist and educator of the nineteenth century, and her potential impact on contemporary thought by passing on her legacy of intellectual curiosity, respect for and love of nature, learning by doing, and the ideal of individualism.

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Executive Director's Report

2019 Was a Year to Remember at the Maria Mitchell Association

For over 100 years, The Maria Mitchell Association has been an integral part of the fabric of the Nantucket community. We conduct state-of-the-art research in the field of astronomy while providing hands-on learning opportunities for people of all ages interested in the natural sciences, as well as the history of Maria Mitchell, our inspiration. We are particularly proud of our efforts this year, in concert with our friends at the Nantucket Land Bank, to build a fully accessible Discovery Playground with “Everyday Science.” What better way to learn about science than to experience it on one of the many pieces of equipment. With thanks to our donors and collaborators, we raised over \$1.5 million to make this special playground a reality for our community and the results are extraordinary. Based on attendance since the playground opened in September 2019, it is projected that we will see over 20,000 people visit and enjoy Nantucket’s Discovery Playground each year.



But 2019 was also about many of our other achievements and milestones that are best illustrated by reviewing the numbers:

- 18,000 learners of all ages served in 525+ public programs;
- 10,000+ annual visitors to the Aquarium, Natural Science Museum, Historic House, and Vestal Street Observatory learned about the nature and people of Nantucket;
- 4,000+ attendees studied the Nantucket night sky at our Open Nights at Loines Observatory;
- 3,000+ people learned about science at our summer Pop-Up Science cart in and about town;
- 66 collaborations occurred with non-profits, businesses, and foundations;
- Tens of thousands of children visited our new Discovery Playground featuring “Everyday Science;”
- 32 college interns received valuable training and work experiences in preparation for careers in STEM fields;
- 50+ middle school and high school students from Nantucket (and beyond) mentored;
- 120 fifth grade Nantucket students learned about and planted native trees on island;
- 450+ families attended the Annual Nantucket Science Festival - the island’s biggest mid-winter family event;

Executive Director's Report

- 16 scientists spoke throughout the summer at our Science Speaker Series;
- 575 Discovery campers learned about the nature of Nantucket;
- 33 families received camp scholarships thanks to the generosity of others;
- 700+ MMA members took advantage of everything we have to offer;
- 5 new exhibits graced our Natural Science Museum.

We are deeply appreciative of the community's support and encouragement to ensure that science education and research opportunities will always be available to children, students, and adults who have a passion for learning and the curiosity to discover something new.

With appreciation,



David Gagnon
Executive Director



New Initiatives

2019 brought significant change to the Astronomy Department - most notably with the implementation of a new, large National Science Foundation (NSF) grant to fund a year-round, post-baccalaureate MMO Research Fellow position. The goal of this fellowship is to support traditionally underrepresented students in astrophysics as a way to increase diversity and inclusion in STEM, while working to solve one of the most exciting recent mysteries in astrophysics - the 'missing baryons' problem. The grant, entitled "Dissecting the Cosmic Web with Fast Radio Bursts," supports the MMO's creation of the Fast and Fortunate for FRB Follow-up collaboration with UC Santa Cruz in order to use the mysterious new phenomena of Fast Radio Bursts, or FRBs, to find the ~50% of baryonic matter that is 'missing' from current surveys of the Universe. We were happy to welcome back former National Science Foundation Research Experiences for Undergraduates (NSF-REU) intern Jay Chittidi (Vassar College, Class of 2019) as the first MMO Research Fellow.

MMO Research

The flagship NSF-REU program received 210 applications for the six available positions. After an extensive review process, including phone interviews of the short-listed candidates, six outstanding students were selected:

- Jordan Ealy (San Diego State University)
- Alexander Massoud (Ithaca College)
- Abigail (Abby) Mintz (Yale University)
- Celia Mulcahey (Mount Holyoke College)
- Roel Olvera (Texas Lutheran University)
- Georgia Stolle-McAllister (Kenyon College)

Each student was paired with an individual research project - with topics ranging from eclipsing binary stars and X-ray studies of star formation to galaxy formation and cosmology - and was mentored by Dr. Jorgenson, Gary Walker, and in some cases an additional affiliated astronomer (AA). This summer, we were joined by six AAs:

- Dr. Daniel Castro (Chandra X-Ray Center, Center for Astrophysics | Harvard & Smithsonian)
- Dr. Lindsay King (University of Texas, Dallas)
- Dr. Rodolfo Montez, Jr. (Chandra X-Ray Center, Center for Astrophysics | Harvard & Smithsonian)
- Dr. Philip Muirhead (Boston University)
- Dr. Laura Prichard (Space Telescope Science Institute)
- Dr. David Principe (Massachusetts Institute of Technology)

Each AA visited the island to work directly with students and gave a public talk as part of the MMA's Science Speaker Series. We began the summer with the "Python Bootcamp" - a two-day intensive workshop aimed at getting the students up to speed on the latest computer programming language widely used in astrophysics. The common observational project, using the MMA's 24-inch telescope, focused on observations of two targets - the long-running monitoring of MWC349 and FL Lyra - an eclipsing binary star with unusual behavior. In mid-summer, the interns were treated to a visit by astronaut Drew Feustal and his wife Indira, who met privately with the interns before his talk at the Dreamland. In August, all of the students presented ten-minute talks on their research projects to the public as part of the MMA's Science Speaker Series.

In January 2020, the interns successfully presented research posters at the 235th meeting of the American Astronomical Society (AAS) meeting held in Honolulu, Hawai'i. We are happy to report that intern Abby Mintz (Yale University) was awarded the prestigious Chambliss Astronomy Achievement Award for her research poster, entitled "Probing the High-Redshift Circumgalactic Medium Through Quasar Absorption Line Tomography" and completed under the guidance of Dr. Jorgenson. The AAS also saw the occurrence of the fifth annual MMO alumni breakfast. Generously sponsored by Ball Aerospace, Planewave Instruments, Thirty-meter Telescope International Observatory, and STArTorialist, the breakfast brought together over forty MMO alumni and friends.

Open Nights at Loines Observatory

It was an average summer for Open Nights at Loines Observatory with approximately 30% cancellation due to bad weather. In total, we welcomed 1,600 visitors and made \$15,000. Our single-night attendance record of 193 visitors happened on July 29. Vestal Street Observatory daytime tour visitation held steady at approximately 200 visitors over the course of the summer. We continued to offer private Open Nights for various school and private groups.

On November 11, we hosted a special public outreach event in celebration of the transit of Mercury. 150 visitors stopped by Vestal Street to take a peek at Mercury passing in front of the Sun through our solar telescope and Sun Spotter. In winter 2019, we welcomed Bennington Field Work term student Ariel Mora, who worked with Gary Walker on observations of the symbiotic variable star V0694 Mon.

Staff News

Dr. Jorgenson was awarded time on the Gran Telescopio Canarias, a 10.4-meter Spanish telescope, with her collaborator Dr. Monica Relano-Pastor for a project entitled "Searching for Lyman-alpha emission in Damped Lyman-alpha Systems." Dr. Jorgenson continued her bi-weekly radio interview entitled "Looking Skyward," on current events in astronomy, with John Basile of the Cape and Islands National Public Radio station WCAI. Dr. Jorgenson served on professional scientific committees for the Hubble Space Telescope Time Allocation Committee and began serving a three-year term on the AAS's Committee on the Status of Women in Astronomy (CSWA), as well as acted as a manuscript referee for "Astrophysical Journal" and the "Monthly Notices" of the *Royal Astronomical Society*. Dr. Jorgenson attended the Inclusive Astronomy 2 meeting in Baltimore, MD, as well as an Alan Alda Center for Science Communication workshop entitled "Power Connection: Reshaping the Future for Women in STEM."

MMO Telescope Engineer Gary Walker has been active in supporting the installation of the Mittelman Telescope in New Mexico along with Arne Henden and the Sliski family, and he continues regular remote observations with the Sierra Remote Observatory.

Natural Science

In 2019, the Natural Science Department continued its goals of preserving and displaying the biodiversity of Nantucket County and conducting research on invertebrates, birds, and marine biodiversity. This year, the collections on display in Hinchman House were updated with island habitat-themed groupings of specimens and accompanying narratives.

The Aquarium and Natural Science Museum were open from 4 June through 31 August. Visitation increased at the Aquarium but decreased slightly at the Museum when compared with 2018. This is not surprising since in the past two years we had the 2018 eclipse event and the 200th birthday party at the Hinchman House, allowing free admission to hundreds of visitors. In the past two years, we have received a grant from the Highland Foundation to open all of our facilities for free on a Friday during the summer.



This summer, we held the MMA “Free Fun Fridays” on July 19.

The MMA Research Center was busy this summer. It was used as the home base for the Owl Prowls and for the Nantucket Shellfish Association Board meetings. Additionally, Afnaan, Faizaan, and Daanish Qureshi taught robotics classes and Jack Dubinsky taught “Microscope Mayhem.” The museum interns learned to prepare study skins and a few public talks were held at the MMA Research Center. MMA Discovery Camps used the Research Center on rainy days.

Natural Science Collections Manager Julia Blyth, along with several interns and six volunteers, prepared twenty-six bird specimens for the Edith F. Andrews Ornithology collection, and four for the education collection. Additionally, we started to take tissue samples from Barn Owls for future stable isotope analysis. We shared this owl specimen with the Museum of Comparative Zoology in Cambridge, MA; researchers there will prepare the specimen, retaining its trunk skeleton and tissue samples, and return the study skin to the MMA. We have been working on implementing a way for the MMA’s biological collections to be available to visitors in an online portal.

The gift shops continued to move away from plastic items and toward higher-end

gifts and educational toys. This year the museum gift shop was moved into the hallway of the museum, making it more accessible.

Research programs consisted of ongoing projects and new projects. The MMA continued to collaborate with the Nantucket Conservation Foundation on the long running Whip-Poor-Will survey and regional horseshoe crab survey. The Aquarium interns led the Marine Invader Monitoring and Information Program (MIMIC) in collaboration with the University of Massachusetts Field Station and the Massachusetts office of Coastal Zone Management. Isabella Fielding, a summer intern is conducting an oral history of birders on the island. To date, she has recorded interviews with Virginia (Ginger) Andrews, Ken Blackshaw, Burton (Spruce) Balkind, Julia Blyth, Libby Buck, Shea Fee, Skyler Kardell, Lee Morgan, Patricia (Trish) Pastuszak, Tucker Taylor, and Harvey Young.

We again received fish for the Aquarium from Marjorie Williams at the Cape Cod Museum of Natural History. We would also like to thank all of the fishermen and charter captains listed on the MMA Scientific Permit for their donations of specimens to the Aquarium.

The Nantucket Science Festival, hosted annually in March, remains the largest mid-winter community event for families. This year, we saw over 450 participants. We continue to collaborate with island non-profits, businesses, educators, and sponsors to make this free community event possible.



Education

A Growing Department

The MMA welcomed Molly Zegans as the new year-round Education Coordinator on March 8, 2019. Molly joined the Maria Mitchell team with a Bachelor's degree in Biology from Lewis and Clark College and significant experience from Mass Audubon's Boston Nature Center in Mattapan. Molly served in multiple capacities at the Nature Center including Naturalist, Preschool Teacher, Assistant Director for the summer camp, and Coordinator of the summer field trip program. Here at the MMA, Molly is responsible for managing the Summer Discovery and Environmental Education Internship Programs under the direction of Kim Botelho. During the 2019 school year, she took the lead on organizing and leading school programs for preschool through 3rd grade and was instrumental in the development of new public programs for children and families including our first "Halloween Hike" at the State Forest, "Tales for Tots", owl and bat lessons for preschoolers at the Lighthouse School, and "A Night at the Museum," our first over-night program. Molly also helped with traditional MMA education initiatives such as the annual Nantucket Science Festival, assisting the Nantucket Land Council with 5th grade Vernal Pool field trips, teaching our "Reptile Round Up" 3rd grade Enrichment Series, and was the lead planner and facilitator of the Winter Discovery Camp.



More amazing changes for the Education Department in 2019, were the completion of a new classroom, office, and storage space in the basement of the Hinchman Natural Science Museum. The Museum was also moved under the management of the Education Department and out of the Natural Science Department in order to build a more comprehensive internship program, develop a student mentorship program, and to design activities and exhibits that compliment school field trips to the facility in conjunction with the new classroom.

State-wide, Regional, and National Efforts

In 2019, MMA's Director of Education, Kim Botelho, stepped down from the Board of the Massachusetts Environmental Education Society (MEES) but still remained an active member. On October 26, she was voted onto the Board of the New England Environmental Education Alliance (NEEEA) as a Massachusetts representative. Kim represented both MEES and NEEEA at the North American Association of Environmental Education's annual conference in Lexington, KY. Additionally, Kim represented the MMA as a partner of the National Informal STEM Education Network (NISEnet) at their Earth & Space Meeting in Tempe, AZ. This free professional development opportunity also provided the MMA with many resources and activities that were included in the 2019 Nantucket Family Science Festival. Additionally, the NISEnet partnership also led to the award of Sustainability

Fellowship for the MMA that included a \$1,000 stipend to build plans and camp lessons for the Giving Garden.

Education Programs

In 2019, MMA offered two afterschool series including “Animal Adaptations” for grades K-2 and “Spooky Science” for grades 3-5. Classroom programs included “Trees and the Community” for all 5th grade classes in both public and private schools, “All About Reptiles” for the Children’s House, and an in-depth look at the importance of color, patterns, and scale shape of reptiles for all public school 6th graders. This new program was designed with the intent of creating a permanent partnership with the school that would provide opportunities for art exhibits in the Natural Science Museum and would give students the chance to become animal care volunteers through a Museum Mentorship program. We also provided several field trips including “Beach Exploration” for all public school kindergarteners and “Salt Marsh Ecology” for 7th and 8th graders from New Canaan Country Day.

A major initiative to enhance science education for kindergarteners was launched in December 2019. The MMA began monthly visits to all six classes at the Nantucket Elementary School. These presentations include stories, live animal programs, hands-on activities, and take home sheets for parents and children.

In September, Kim partnered once again with the Nantucket Conservation Foundation (NCF) to offer “All About Bats” which included an indoor presentation at the MMA about bat adaptations and the opportunity to see bat specimens collected on Nantucket. Following the presentation, the group journeyed to NCF’s mist net station for a first hand glimpse of bat research in progress. This year, we caught two Northern Long Eared Bats and one Red Bat for the first time.

Summer Discovery Camp

This was another exciting year for the Summer Discovery Program. For the third straight year, we received first place as the best children’s activity on Nantucket in *Cape Cod Life!* We were also able to award more scholarships than ever before in the history of this program. Thanks to the generosity of the Ella George Children’s Foundation, we provided twenty-one scholarships to English Language Learning families and twelve additional family scholarships for a total of thirty-three valued at \$16,000. We are also grateful to Al and Mary Novissimo who donated \$1,000 for our Island Family Assistance Program.

Mitchell House, Archives & Special Collections



After the events of the 200th Birthday, one would think things might be a bit quieter but such was not the case at the Mitchell House.

For 2019, we continued with the adult preservation workshops on stone monument conservation, the “Daring Daughters of Nantucket” walks, and the very popular collaborative “Four Centuries Domestic Architecture” walks with Nantucket Preservation Trust and the Nantucket Historical Association. In 2019, we introduced a new class for children at Mitchell House that was created by the 2018 Mitchell House intern, Kelly Bernatzky. This camp is a week-long, all day adventure for children ages 7-11 in which they are immersed in all things Maria Mitchell, Nantucket, and nineteenth century. A fully hands-on experience, children make butter, sew “pockets,” create their own storefronts and board games, take an architecture walk, play games of the nineteenth century, make kaleidoscopes, and tinsmith among many other activities. The Mitchell House plays a central role in their learning as well.

Conservation, as always, is a year-round task – from a focused and conservation-minded dusting and vacuuming to keep dust, insects, and mildew at bay, to focusing down to specific artifacts for their maintenance and conservation. Mitchell House staff were able to clean all of the windows inside the House – not an easy task especially because of the UV filters. Thus, cleaning has to be focused and careful. A focus was also placed on conservation of a new donation which allowed the summer intern to learn about the conservation of furniture in a collection and the process of accessioning. A large book donation from Reva and Mort Schlesinger that we received several years ago is also being processed by a volunteer and ephemera from the Schlesingers was carefully cataloged and archivally foldered by another volunteer with a finding aid created. This

Mitchell House, Archives & Special Collections

collection is Nantucket-focused and will be available to researchers. Unfortunately, in the Archives we had a dehumidifier that decided it was tired from all its hard work. With part of the larger HVAC system that was originally grant-funded, we were able to replace it with monetary gifts already on-hand for conservation. With the 2018's intern's return for the fall, we were able to clean and accession some items that were removed from the Mitchell House about thirty years ago and unearthed during the Library's renovation into the Research Center. Other small conservation projects were conducted on the Mitchell House and Archives and Special Collections and on the Mitchell House itself.

Sadly, all things must come to an end. And in the winter, the curator removed the Maria Mitchell "Celebrating Maria Mitchell and Her Legacy" exhibit at the Nantucket Historical Association's Whaling Museum and the window display at Hingham Bank on Main Street - both celebrating Maria Mitchell's 200th Birthday. The MMA is grateful for the opportunity to have shared all about Maria and her life with a greater audience.

Of course, August 1, 2019 saw a great crowd on Vestal Street with music of the period by Susan Berman and friends, Lizza Obremski with her "Nanpuppets," celestial refreshments, and fun activities for all ages. A thank you to the donors of our cookies which included: Nantucket Bake Shop, Something Natural, the Culinary Center, and several MMA board members. And a smaller but continuing event - the Seven Sisters Tea - also occurred during the summer. During this event, women who attended the Seven Sisters Colleges meet for a get-together to celebrate Maria Mitchell and the first women's colleges - one of which - Vassar - Maria Mitchell taught at.

Throughout the year, the Mitchell House had numerous research inquiries and requests for use of historic images in multiple publications. This included a publication on women by the University of Connecticut, an exhibit at the University of North Alabama, an upcoming Nantucket book on Anna Gardner, a Zaner-Bloser textbook on American history, and Los Angeles' Griffin Observatory's quarterly publication, as well as research requests by authors, researchers, and students. Happily, the new picture book *What Miss Mitchell Saw* by Hayley Barrett was also released in the fall. So we now have a newer picture book to inspire young girls and boys about reaching for the stars! Hayley Barret will be visiting with island schools, arranged by the Mitchell House, in the spring and fall of 2020.

Facilities



The MMA continued to focus on the preservation and repair of all of our buildings, particularly on Vestal Street. Please remember the MMA if you have a lightly used appliance that you would like to replace. We have numerous sites that house staff and summer interns and are typically in need!

Research Center: While the building was completed in 2018, there were still a few outstanding smaller items to attend to. The old wood Bilco and basement entry were rebuilt allowing for better access. The west side was re-shingled and other small “clean-ups” were accomplished to the structure.

Hinchman House: Final work was completed to the basement of Hinchman House allowing it to become the Education office and classroom space. The old milk room and other spaces were also cleared out and organized. Expanded electricity was installed to make sure that the Aquarium life that lives with the MMA year-round has sufficient electricity and back-up electricity. The garden along the side of Hinchman House was cleaned up and new native plantings were introduced. New bike racks were installed for interns, as well as a public bike rack, thanks to assistance from Young’s Bicycles. In the dormitories, a few appliances were replaced with lightly used donations and new bedding, furniture, and other items in the living spaces were also replaced with donated or purchased items.

Drake Cottage: New flooring was installed in the Administrative Office bathroom and kitchenette, replacing the worn-out and original flooring. Windows were professionally cleaned for the entire building. Donations of several appliances and furniture helped to off-set any costs to replace broken and failing items. Dormitory

space was cleaned out and assessments made on needs. Items that needed to be replaced. Rugs were professionally cleaned. With a generous donation from two neighbors, the MMA was able to replant some of the parking area and new bike racks were purchased with the help of Young's Bicycles.

Maria Mitchell (MMO) and Loines Observatories: After several meetings with the Town's Traffic Advisory Committee, we were able to purchase new crosswalk signs to help slow nighttime traffic and bring attention to pedestrians crossing from the bike path to Loines Observatory. The MMO's native garden was replanted – with new additions to come in 2020. A new outdoor bench was purchased with a grant from the Nantucket Garden Club allowing for greater seating for the daytime Observatory tours and for enjoying the garden.

Aquarium and Washington Street Properties: These sites saw various repairs, as well as new appliances for properties in which staff are housed.

General: The gardens were a renewed focus in 2019 with new native plantings installed by the Deputy Director. A portion of a grant from the Nantucket Garden Club in the fall of 2019 allowed for the purchase of some new seating and will cover costs associated with more native plantings in the spring of 2020. Various repairs were made to all of the buildings as needed. Where able, the MMA took donations of lightly used appliances or furniture in order to save on costs for items that needed to be replaced.



Development

The MMA's Nantucket Red Tie Soirée, our largest annual fundraiser, was held again at the Sankaty Head Golf Club on Sunday, July 14. The evening's theme was a celebration of the 50th anniversary of Apollo 11 and special guest Dr. Jennifer Levasseur, Curator of the Space History Department at the Smithsonian National Air and Space Museum provided remarks. In addition to dancing to the Perry Rossi Band and enjoying delicious catering provided by the team at Sankaty, we offered a large silent auction. Sponsorship donations and ticket sales were in-line with previous years and the event was a success in celebrating our mission and work, while raising much-needed revenue to fund our programs and internships.

Another well-received event in 2019 was our Executive Director Garden Party and Picnic at 3 Vestal Street. Held on Tuesday, August 13, members, donors, and partners joined us for an intimate gathering to honor our mission and hear our strategic plans for the future.

Similarly, the MMA Honorary Board gathered for a lovely luncheon at the Nantucket Yacht Club. The event created an opportunity for our Honorary Board to offer advice and provide feedback on our goals and strategic plans.

In late September, we again brought friends and supporters together for "A Celebration of Science and Discovery." Hosted and co-sponsored by Bank of America, the gathering featured opening remarks by Dr. Maria Zuber the E. A. Griswold Professor of Geophysics and Vice President for Research at Massachusetts Institute of Technology (MIT).

Two other notable cultivation events included our Discovery Playground Grand Opening and our popular Science Speaker Series.



Red-Tie Soirée

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John Reed

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Restricted Gifts

Astronomy

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Steven & Patricia Barnett
Seth Hornstein
Nantucket Dermatology
TMT International Observatory

Barn Owl / Osprey Program

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Donations

Mitchell House and the Archives and Special Collections received several gifts this year. They included:

Virginia Andrews - a child's wood armchair with an upholstered seat; *Recollections of Lydia S. Hinchman*, 1929.

John McLaughlin - *Recollections of Lydia S. Hinchman*, 1929, 2 copies; *A Biographical Sketch of Charles S. Hinchman*, 1930.

Robert Butler - *The Critters of Massachusetts Pocket Guide*, Ann E. McCarthy, one case.

Ashley Clauss - 15 pamphlets about Nantucket dating to late 19th and early 20th century.

Frances Karttunen - Nantucket Bird Club Minutes 1946-1954; *Field Book of Wild Birds and Their Music*, F. Schulyer Mathews, 1921; *Poems*, Anne Hinchman, 1910.



Financial Report

THE NANTUCKET MARIA MITCHELL ASSOCIATION, INC.

STATEMENT OF FINANCIAL POSITION

DECEMBER 31, 2019

(With Summarized Financial Information for 2018)

Assets	2019	2018
Cash	\$ 153,543	\$ 357,355
Receivables		
Contributions	102,126	114,626
Grants	-	29,691
Other	41,339	31,959
Prepaid expenses and other assets	8,028	9,844
Investments	2,526,244	2,575,712
Note receivable	235,000	235,000
Remainder interest in property	1,270,669	1,270,669
Property and equipment, net	6,447,533	6,616,073
	<u>\$ 10,784,482</u>	<u>\$ 11,240,929</u>
Liabilities and Net Assets		
Current liabilities		
Accounts payable and accrued liabilities	\$ 168,737	\$ 152,791
Note payable, bank	100,000	-
Current maturities of long-term debt	12,869	12,408
Refundable grants	-	200,000
	<u>281,606</u>	<u>365,199</u>
Total current liabilities	281,606	365,199
Long-term debt, less current maturities	<u>1,052,736</u>	<u>1,065,605</u>
Total liabilities	<u>1,334,342</u>	<u>1,430,804</u>
Net assets		
Without donor restrictions	5,785,556	6,330,984
With donor restrictions	<u>3,664,584</u>	<u>3,479,141</u>
Total net assets	<u>9,450,140</u>	<u>9,810,125</u>
	<u>\$ 10,784,482</u>	<u>\$ 11,240,929</u>

Financial Report

THE NANTUCKET MARIA MITCHELL ASSOCIATION, INC.

STATEMENT OF ACTIVITIES

YEAR ENDED DECEMBER 31, 2019

(With Summarized Financial Information for 2018)

	Without Donor Restrictions	With Donor Restrictions	Totals	
			2019	2018
Operating activities:				
Revenue and support				
Contributions	\$ 286,234	\$ 20,878	\$ 307,112	\$ 359,266
Grants	177,531	45,082	222,613	177,669
Programs	301,929	-	301,929	410,266
Admissions	52,272	-	52,272	54,019
Memberships	80,145	-	80,145	84,750
Museum Shop	14,379	-	14,379	17,314
Special fundraising events				
Gross proceeds	134,448	-	134,448	182,006
Less: Direct benefit to donors	62,947	-	62,947	78,899
Net revenue from special fundraising events	71,501	-	71,501	103,107
Investment return designated for operations	147,514	-	147,514	129,050
Rental income	115,691	-	115,691	49,570
Interest income	1,622	-	1,622	2,943
Net assets released from restriction				
Satisfaction of program restrictions	66,473	(66,473)	-	-
Total revenue and support	1,315,291	(513)	1,314,778	1,387,954
Expenses				
Program services	1,206,040	-	1,206,040	1,140,087
Management and general	583,962	-	583,962	470,448
Development	217,079	-	217,079	277,926
Total expenses	2,007,081	-	2,007,081	1,888,461
Change in net assets from operating activities	(691,790)	(513)	(692,303)	(500,507)
Non-operating activities:				
Investment return, less amounts designated for operations	57,464	270,554	328,018	(281,904)
Contributions and grants restricted for capital activities	-	11,500	11,500	10,000
Loss on uncollectible contributions receivable	(7,200)	-	(7,200)	(11,750)
Donation of remainder interest in property	-	-	-	65,101
Net assets released from restriction				
Satisfaction of capital related restrictions	96,098	(96,098)	-	-
Change in net assets from non-operating activities	146,362	185,956	332,318	(218,553)
Change in net assets	(545,428)	185,443	(359,985)	(719,060)
Net assets, beginning of year	6,330,984	3,479,141	9,810,125	10,529,185
Net assets, end of year	\$ 5,785,556	\$ 3,664,584	\$ 9,450,140	\$ 9,810,125

Board, Staff, Interns & Volunteers

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Natural Science

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Emily Goldstein-Murphy, Ph.D.

(Jan.- Feb., 2019)

Shelley Dresser (Mar.-Dec., 2019)

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*Senior Research Fellow, MMA
and Department of Ornithology, Har-
vard University Museum of Compara-
tive Zoology*

Valerie A. Hall, Ph.D.

Research Associate, Scallops

Andrew McKenna-Foster

Research Associate, Spiders

Andrew McCandless

Research Associate, Eel Grass

MMA Natural Science Museum

Field Ornithologist

Virginia Andrews

Collections Manager

Julia Blyth

Animal Care

Jordan McHugh

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B.A., Smith College

Alyssa Meyer

*B.A., Indiana University-Purdue
University Indianapolis*

Emily Miner

B.S., Eckerd College

Sylvi Oh

B.S., University of Georgia

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Natural Science Adult

Volunteers:

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Scott Leonard, Annie Mendelsohn,
Tucker Taylor, Saoirse Ryan, Zach
Dusseau, Kim Horyn, Danielle O'Dell,
Seth Englebourg, Jed Williams, Cormac
Collier, Sarah Bois, Patrick Gregorich,
Calin Duke, Maria Silva Marchi,
Simran Mahat, Zacil Nash, Peter
Brace, Jahlani Imanuel-I,
Kenneth and Victoria Gullicksen,
Katie Holdgate, Kyle Steele, Isabelle
Moutinho Magalhaes, Bryce McGee

Natural Science Student

Volunteers:

Olivia Barlow, Lily Bartlett, Rachel Blatt
Andrew Breckenridge, Sam Gaynor,
Margot Goldsmith, Sophia Hall, Phoebe
Hedstrom, Skyler Kardell, Sasha
Kennedy, Elizabeth Pellegrini, Gus Von
Lazar, Shea Lyden, Afnaan Qureshi,
Daanish Qureshi, Faizaan Qureshi
Alex Rakowski, Alex Yuen

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Jack Dubinsky

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Molly Erickson, *U. of New Hampshire*

Madeleine Phillips, *Colgate University*

Skylah Reis, *Harvard University*

Astronomy

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Regina Jorgenson, Ph.D

Telescope Engineer

Gary Walker

MMO Research Fellow

Jay Chittidi

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Jordan Ealy, *San Diego State University*

Alexander Massoud, *Ithaca College*

Abigail Mintz, *Yale University*

Celia Mulcahey, *Mount Holyoke College*

Roel Olvera, *Texas Lutheran University*

Georgia Stolle-McAllister, *Kenyon College*

MMO Volunteer

Saoirse Ryan

Affiliated Astronomers

Dr. Daniel Castro
*Chandra X-Ray Center, Center for
Astrophysics | Harvard & Smithsonian*

Dr. Lindsay King
University of Texas, Dallas

Dr. Rodolfo Montez, Jr.
*Chandra X-Ray Center, Center for
Astrophysics | Harvard & Smithsonian*

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Boston University

Dr. Laura Prichard
Space and Telescope Science Institute

Dr. David Principe
Massachusetts Institute of Technology

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Education Coordinator

Molly Zegans

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Liam Cusack

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Emma Boehme

Olivia Brasher

Kathryn Brooks

Adrianna Calamita

Claudia Deeg

Emet Koffman

Madison Maguire

Natalie Moon

Margaret Sandusky

Jamie Semel

Dan Souza

Kyle Turner

Bus Driver

Roxanne Martin

Nurse Practitioner

Nancy Lucchini

Volunteer - Tree Program

Annie Mendelsohn

Pop-Up Science Intern

Saoirse Ryan

Mitchell House, Archives & Special Collections

Curator of the Mitchell House, Archives & Special Collections

Jascin N. Leonardo Finger

Mitchell House Intern

Meg Bellavance

Connecticut College 2020

Kelly Bernatzky, Fall Intern

Vassar College 2019

(Mitchell House Intern 2018)

Volunteer Tour Guide

Patricia Michaelson, Ph.D.

Student Volunteer

Avery Hylton

Maria Mitchell Women of Science Symposium

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Joe Santucci, Co-Chair

Curt Burwell

Jane Tausig

Kathy Rhode, Ph.D.

Sarah T. Bois, Ph.D.

Joel Bowman, Ph.D.

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Patricia Michaelson, Ph.D.

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Shelley Dresser, MMA Staff

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Celia Mulcahey

Jocelyn Navarro

Bridgette Yang



The MMA conducts many ongoing research programs both on its own and with various collaborators.

American Burying Beetle

Lou Perrotti, *Director of Conservation Programs, Roger Williams Park Zoo*

Cynthia Corsair, *U.S. Fish and Wildlife Service*

Anita Barstow, *U.S. Fish and Wildlife Service*

Brandon Quinby, *Purdue University, Ph.D. student*

Scallops, Shellfish

Tara M. Riley, *Town of Nantucket Shellfish Biologist*

Dr. Valerie Hall, *MMA Scallop Researcher*

Horseshoe Crabs, Insects, Bats

Karen Beattie, *Manager of the Department of Science and Stewardship, Nantucket Conservation Foundation*

Dr. Derek Perry, *Massachusetts Division of Marine Fisheries*

Dr. Jennifer Karberg, *Research Supervisor, Nantucket Conservation Foundation*

Danielle O'Dell, *Research Technician/Field Supervisor, Nantucket Conservation Foundation*

Snakes, Birds

Danielle O'Dell, *Research Technician/Field Supervisor, Nantucket Conservation Foundation*

Scott Smyers, *Environmental Consultant, Oxbow Associates Inc.*

Joe Martinez, *Curatorial Assistant, Museum of Comparative Zoology*

Green Crabs

Emily Molden, *Nantucket Land Council*

Jeff Carlson, *Natural Resources Department, Town of Nantucket*

J.C. Johnsen, *Natural Resources Department, Town of Nantucket*

Herbarium

Roberta Lombardi, *Herbarium Assistant, UMass Amherst*

Pam Polloni, *Research Assistant, Woods Hole Oceanographic Institute*

Kelly Omand, *Research Technician/Field Supervisor, Nantucket Conservation Foundation*

Astronomy

Dissecting the Cosmic Web with Fast Radio Bursts | Supported by the National Science Foundation and the Fast and Fortunate for FRB Follow-Up FL Lyra observations in support of an observing campaign on the Hubble Space Telescope with AA Dr. Muirhead MWC349 continued monitoring NSF-REU research (see page 4.)

Other

Jessica Cundiff, *Curatorial Associate/Collections Manager, Museum of Comparative Zoology, Sankaty fossils*
Annie Mendelsohn, *5th Grade Tree Program funded by the Nantucket Garden Club*

Dr. Kevin Esvelt and Joanna Buchthal, *MIT, Mice Against Ticks Project*

Collaborators

The Maria Mitchell Association is proud to establish collaborations with other non-profit organizations and universities in order to offer the best in programs and to conduct research vital to understanding and preserving Nantucket's natural areas, history, and to pursue cutting edge research in astronomy using the MMA's telescopes and leading telescopes around the world and in space.

ACKlimate	Grant Consortium	Natural History
American Society of Mammalogists	Massachusetts Institute of Technology	National Research Council of Canada
American Arachnology Society	U.S. Fish and Wildlife Service	Northwestern University
American Association of Variable Star Observers	Massachusetts Division of Marine Fisheries	Oxbow Associates, Inc.
Artists Association of Nantucket	Museum of Comparative Zoology	Preservation Institute Nantucket
Boston University	Nantucket Bike Tours	Prospect Hill Cemetery Association
Cape Cod Museum of Natural History	Town of Nantucket Natural Resources Department	Purdue University
Connecticut College	Monomoy Charters	Roger Williams Park Zoo
Egan Maritime Institute	Montessori Children's House of Nantucket	Rotary Club of Nantucket
European Southern Observatory	Nantucket Atheneum	'Sconset Trust
Fast and Fortunate for FRB Follow-Up (F ⁴)	Nantucket Biodiversity Initiative	Shearwater Excursions
Instituto de Fisica at Pontificia Universidad Catolica de Valparaiso (PUCV)	Nantucket Boys and Girls Club	Town of Nantucket
Josh Eldridge, "Critter Cruises"	Nantucket Community Sailing	The Trustees of Reservations
Mark Genthner, <i>Just Do It, Too</i>	Nantucket Community School	Tuckernuck Land Trust
Harvard-Smithsonian Center for Astrophysics	Nantucket Community Television	University of Arizona
Harvard University Museum of Comparative Zoology	Nantucket Conservation Foundation	Universidad Nacional Autónoma de México
Keck Observatory	Nantucket Girl Scouts	University of California, Santa Cruz
Linda Loring Nature Foundation	Nantucket Historical Association	University of Hawaii
Long Island University	Nantucket Islands Land Bank	UMass Amherst
The Mammal Society (UK)	Nantucket Land Council	UMass Boston Nantucket Field Station
Marine Biological Laboratory	Nantucket Lighthouse School	UMass Dartmouth School of Marine Science & Technology
Massachusetts Audubon Society	Nantucket Marine & Coastal Resources Department	University of Cape Town
Massachusetts Division of Marine Fisheries	Nantucket New School	University of Iceland
Massachusetts Space	Nantucket Preservation Trust	U.S. Fish and Wildlife Service
	Nantucket Public Schools	The Wildlife Society
	Nantucket Shellfish Association	Woods Hole Oceanographic Institute
	Nantucket Shipwreck & Lifesaving Museum	Vassar College
	National Collaborative of Women's History Sites	Yale University
	National Museum of	

Astronomy Publications

Bjorkquist, R. et al. (including *Jorgenson, R. A.) "Women in physics in the United States: Reaching toward equity and inclusion" 2019, AIPC, 2109, Issue 1, id.050040.

*Christenson, H. M. & *Jorgenson, R. A., "Keck/OSIRIS IFU Detection of a z=3 Damped Ly Host Galaxy" 2019, ApJ, 883, 17.

Liu, T., Gezari, S., *Ayers, M., et al. "Supermassive Black Hole Binary Candidates from the Pan-STARRS1 Medium Deep Survey." 2019, ApJ, 884, 36L.

Stassun, K. G., et al. (including *Chittidi, J.), "The Revised TESS Input Catalog and Candidate Target List" 2019, AJ, 158, 138S.

*Blackwell, A. E., Montez, R., Castro, D. "Median Energy Imaging of Supernova Remnants with Chandra X-ray Observatory" 2019, American Astronomical Society Meeting Abstracts #233, #150.02.

*Chapman, K. J., Brandt, T. "Likelihood Analysis of Gamma-Ray Emission from the Massive Star Cluster Westerlund 1" 2019, American Astronomical Society Meeting Abstracts #233, #250.10.

*Chittidi, J. S., Muirhead, P. S., Rojas-Ayala, B., *Jorgenson, R. A. "An Updated Cool Dwarf Catalog for the Transiting Exoplanet Survey Satellite Using Gaia DR2" 2019, American Astronomical Society Meeting Abstracts #233, #140.01.

*Gibson, P.J., King, L., Fong, M. "Mapping Galaxy Cluster Orientations from Cosmo-OWLS Simulations" 2019, American Astronomical Society Meeting Abstracts #233, #261.15.

*Mannings, A., *Jorgenson, R. A., Rafelski, M. "Probing Galaxy Evolution Back to 1 Billion Years After the Big Bang Using Quasar Absorption Line Spectroscopy" 2019, American Astronomical Society Meeting Abstracts #233, #355.06.

*Pittman, C. & Gezari, S. "Searching for Intermediate-Mass Black Holes in the Optical Time Domain" 2019, American Astronomical Society Meeting Abstracts #233, #369.01.

(note: * indicates MMO affiliated author)

Astronomy Awards

Two former NSF-REU interns were awarded prestigious NSF Graduate Research Fellowships. The NSF Graduate Research Fellowship provides three years of full funding support for graduate studies and national recognition from the scientific community. Congratulations:

- Holly Christenson (REU summer 2016): University of California, Riverside
- Tanveer Karim (REU summer 2016): Harvard University



**Maria
Mitchell**
Association
Nantucket's
Science Center

4 Vestal Street
Nantucket, MA 02554
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mariamitchell.org

