VERMONT ACADEMY OF SCIENCE AND ENGINEERING

VASE ANNUAL REPORT FOR 2017-18

The first major VASE event of the year was the Annual Meeting and Public Forum, held in UVM's Davis Auditorium on October 10, 2017, and attended by about 50 VASE members, honorees, guests, and the general public. VASE Outreach Coordinator Grace Spatafora presented the 2017 Paula Fives-Taylor Awards for Outstanding Teaching in Science. By vote of the VASE Trustees in 2015, these awards now honor the memory of VASE founding member, Dr. Paula Fives-Taylor, who was passionate about education throughout her long career. This year's awardees were (Grades K-8): Christine Depatie, 6th grade teacher and STEM coach at the Swanton School, and (Grades 9-12): Michael Turner, from Mt. Mansfield Union High School, Jericho. The awardees each received an engraved plaque as well as a check for $1000.

The keynote speaker for the evening was Dr. Martine Rothblatt, lawyer, author, and entrepreneur who founded Sirius XM radio, and is now CEO of United Therapeutics, a biotechnology company focused on developing products that address unmet needs of patients with chronic and life-threatening conditions. Dr. Rothblatt spoke on "Unexpected Moments of Creative Inspiration," illustrated by slides of her work. Her stimulating talk elicited numerous questions.

Following the meeting, VASE members, honorees, and guests reconvened for dinner in UVM's Waterman Manor. VASE welcomed two new members: Gary E. Carver, Director of R & D at Omega Optical, in Brattleboro, and Noah M. Graham, Associate Prof. of Physics at Middlebury College. After dinner, both of the science teacher awardees gave some personal remarks.

VASE's most long-standing outreach program is our Small Equipment Grants, made to Vermont K-12 educators. In 2017 we received 11 proposals, almost all of them well developed and highly deserving. We were able to fund eight of these, with a total of $6,788 awarded. A list of grantees follows this report.

A highlight of this year has been the introduction of a new outreach program: Hands-On Science and Technology (HOST) Grants. A donor who wishes to remain anonymous gave VASE $10,000 to establish this new program. The gift was actually made in June 2017, at the end of the 2016-17 fiscal year, and we made the first grant in June 2017 as well—for a request that perfectly matched the criteria for the HOST program that had come in unsolicited, before the grant program had even been announced. Following the announcement, we received 11 proposals (including the early one), and we were able to fund seven more of these, for a total of $10,000.

In a departure from the tradition of the recent past, the VASE 2018 spring meeting was held at the Vermont State House in Montpelier. We invited all the 2017 grantees—for both Equipment and HOST grants, to attend, and most of them did so. This was a wonderfully energetic event: the grantees and their some students/mentees set up demonstrations of their projects at tables around the State House cafeteria, while VASE members, guests, and a large number of

legislators circulated and talked with them. The more formal part of the program consisted of brief presentations by new members Gary Carver and Noah Graham, as well as by HOST grantee Mark Drapa and students from the Westford Robotics Club, who showed some slides from their trip to Washington in summer, 2017 for the international finals of the First Lego League competition (which VASE helped to support through our first HOST grant). By our count, at least 19 legislators stopped by for at least part of the meeting—an excellent response, particularly in view of the fact that the Legislature was in the throes of debating gun-control bills at the time. We will likely repeat this highly successful experiment in future years. Some pictures from the meeting are on the VASE website, at https://www.vtscieng.org/events-2

Perhaps in part as a result of the State House meeting, the bill to establish a Task Force on Artificial Intelligence H.378, passed by the Legislature and signed by Gov. Scott yesterday, calls for one member of the 14-member Task Force to be named by VASE. We are very pleased to be recognized in this way, and look forward to participating in this new initiative. After consultation with the VASE Board, I have named John Cohn of IBM to be part of the new task force.

In other notable developments, VASE this year become independent of UVM, establishing our own website (https://www.vtscieng.org) and our own independent bank account, rather than having all VASE finances handled through a UVM account. The VASE Treasurer, in charge of the account, is: Steve Knowlton
     160 White Rock Drive, #2
     Montpelier, VT 05602

Finally, this will be my last annual report, as I will be succeeded as VASE President by Grace Spatafora, Professor of Biology at Middlebury College in October. My tenure as President has been a rewarding, but I look forward to passing the torch to Grace's extremely capable hands.

P. Frank Winkler
Gamaliel Painter Bicentennial Professor Emeritus of Physics
Middlebury College
VASE President
July 27, 2018

VASE Small Equipment Grant Awards, 2017

School	Lead Teacher	Title
Burlington District	Amy Truchon	K's are Computational Thinkers, Too!
Maple Leaf Montessori, St. Albans	Jill Ann Smith	Simple Machines
Middlebury Union Middle School	Randy Barnes	Hot Rod STEAM Challenge (3-D Printer)
Rice Memorial H.S., Burlington	Michael Mazzella	Measuring Photons with a Spectrophotometer
Ripton Elementary	Sara Lesperance	Where Does My Trash Go? Why does it Matter?
Robinson Elementary, Starksboro	Ruth Beecher	What can we TRULY See, in and out of the classroom?
U-32 Middle/High, Montpelier	Alison Gauthier	Engineering Climate Change Solutions
Woodstock Union Middle/High	Ryan Becker	Snatoms—Connecting Atoms, and Student Learning, in New Ways!

VASE HOST Grant Awards, 2017

Group	Leader	Title
Dorothy-Alling-Memorial Library (Williston)	Jill Coffrin	Community Coding Challenge
Essex Robotics Club (Essex HS)	Joseph Chase	Building a Better Robot
Aluminum Avian Antics (Grand Isle)	Sheila Chairvolotti	FTC Robotics Team
Quantum Ghosts Robot (Randolph Union HS)	Charles Zani	FIRST Robotics
Champlain Shamrocks 4-H (Grand Isle & South Hero)	Sheila Chairvolotti	4-H Robotics Project
Archytas Education Corp. (Windsor County)	Kimberly Barnhart	FIRST Robotics team
Green Mountain Robotics (Randolph)	Amanda Wheeler	FIRST Robotics
Westford FLL Robotics Club	Mark Drapa	Global Innovation Int'l Competition

	2017-18 Budget	2017-18 Actual	2018-19 Budget
BALANCE, fiscal year beginning	$ 1,595.45	$ 10,933.51	$ 4,015.12
RECEIPTS			
Transfer from Technology Council	$ 13,200.00	$ 13,200.00	$ 13,000.00
Contributions from members	$ 1,100.00	$ 1,100.00	$ 1,100.00
Donation to establish HOST grant program			$ 10,000.00
See note 1 (below)			
Total Receipts	**$ 14,300.00**	**$ 14,300.00**	**$ 24,300.00**
EXPENDITURES			
Fall Meeting and Public Forum			
Travel & accommodation for speaker	$ 700.00		$ 700.00
Honorarium to keynote speaker, Martine Rothblatt	$ 500.00	$ 500.00	$ 500.00
Catering (see note 2)	$ 2,200.00	$ 1,907.60	$ 2,000.00
Conference & Events charge	$ 100.00	$ 153.56	$ 200.00
New member certificate frames, etc. (see note 3)	$ 200.00	$ 50.00	$ 100.00
Science Teacher of the Year Awards			
Two awards @ $1000	$ 2,000.00		$ 2,000.00
Christine Depatie, Swanton Central School		$ 1,000.00	
Mike Turner, Mount Mansfield UHS, Jericho		$ 1,000.00	
Engraved Plaques (see note 3)	$ 200.00	$ 200.00	$ 200.00
Small Equipment Grant Awards to Teachers			
7 @ $1000	$ 7,000.00		$ 7,000.00
Burlington School District		$ 919.00	
Maple Leaf Montessori School, St. Albans (note 4)		$ 972.00	
Middlebury Union HS		$ 1,000.00	
Rice Memorial HS, Burlington		$ 1,000.00	
Ripton Elementary School		$ 600.00	
Robinson Elementary School, Starksboro		$ 1,000.00	
U-32 Middle/High School, Montpelier		$ 597.00	
Woodstock Union Middle/High School		$ 700.00	
Total Equipment Grant awards		**$ 6,788.00**	
Hands On Science & Technology Grant awards			
Dorothy-Alling-Memorial Library		$ 900.00	

Essex HS Robotics Club			$ 600.00		
Aluminum Avian Antics 4-H			$ 1,500.00		
Quantum Ghosts Robotics, Randolph UHS			$ 1,500.00		
Champlain Shamrocks 4-H			$ 1,500.00		
Archytas Education Corp			$ 1,500.00		
Green Mountain Robotics			$ 1,500.00		
Total Host awards			**$ 9,000.00**		$ 10,000.00
VT STEM Fair award					
one award @ $100 (note 5)		$ 100.00			$ 100.00
Spring Meeting Expenses		$ 800.00			$ 800.00
Catering (Abbey Food Service, VT State House)			$ 594.20		
Accounting and Legal expenses		$ 600.00			$ 400.00
Miscellaneous expenses					
Checks for Peoples United Bank account			$ 12.91	$ -	
Envelopes & stamps			$ 12.12	$ -	
Total Miscellaneous expenses			**$ 25.03**	$ 100.00	
Total Expenditures		**$ 14,400.00**	**$ 21,218.39**		**$ 24,100.00**
BALANCE, fiscal year end		**$ 2,291.39**	**$ 4,015.12**		**$ 4,215.12**

Notes

1) The carryover as of July 1, 2018, is much larger than anticipated due to a contribution of $10,000 to estaqblish the HOST grant program. One grant of $1000 was made in June, 2017, leaving $9000, the amount awarded in FY18

2) Cost of member dinners is largely offset by member contributions

3) Estimate; invoices not yet received

4) A grant of $972 was awarded to Maple Leaf school, but not yet paid due to incomplete paperw

5) No STEM Fair award was made in 2018; we anticipate one will be made annually in future.