



TOOLS & TECHNOLOGY

Spring 2019

196 Main Street - PO Box 679 - Windsor VT 05089 - 802-674-5781 - www.americanprecision.org - @PrecisionMuseum

Transforming a Museum

Windsor STEAM²

Since the summer of 2017, the American Precision Museum has made great strides in furthering our education and interpretation initiatives to better meet our visitors' interests and our stated mission.

In 2019, the 20th anniversary of our Model Engineering Show, we are rebranding, renewing, renaming, and updating this traditional event to better reflect the needs of the museum and visitor interests. **"Windsor STEAM²", (STEAM Squared) will debut on Saturday, August 24 at the Windsor Recreation Center and APM.**

Windsor STEAM² will highlight our focus on the evolution of machine tools in manufacturing, and Science Technology Engineering Arts & Math. The "M-squared" represents manufacturing.

This community event, annually hosted by the American Precision Museum, will offer a wider spectrum of old and new technologies, from traditional model engineering to hands-on demonstrations, crafts, activities, etc. to attract a more diverse cross section of visitors including more families, youths, and those not familiar with the museum or its history and collections. If you would like to participate as an exhibitor with a machine model or other technology or related display, please contact us.

We hope you will join us in the celebration of the history of the evolution of machine tools, machine models, new technology and the spirit of innovation and creativity that continues to inspire our modern society. These are key concepts in our education and interpretive mission at the American Precision Museum.



*Fun with Spaghetti:
Girls' Engineering Day, Feb. 23, 2019.*

Did you know in 2018...

- **4,631 people visited the museum**
- **297 people attended our Model Engineering Show and Maker Space**
- **45 special tours and events**
- **29 new donors**
- **23 new members**
- **3 new corporate members**
- **400 summer camp visitors**
- **20 school visits**
- **Total program attendance reached 800**



Robo-Rattlers of Rutland at the 19th Annual Model Engineering Show.

In this edition...

Programs and News
Exhibits and Events
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Corporate Members

New Museum Entrance



The American Precision Museum has completed a project to replace our museum entrance doors - made possible in part, by a grant of \$11,031 from the Vermont Arts Council Cultural Facilities Program and the State of Vermont.

This grant supported the installation of handicapped-accessible entry doors in our historic 1846 Robbins and Lawrence Armory, a National Historic Landmark, and a signature building in Windsor County.

The new doors are an integral feature of the building facade and were designed to be very similar to the originals, while making the building safer and accessible. The Preservation Trust of Vermont holds a preservation easement on the building facade and advised and approved the design as well.

The Vermont Arts Council is committed to building a Vermont where art, culture, and creativity are at the heart of our communities. Engagement with the arts transforms individual lives, connects people more deeply to each other, energizes the economy, and sustains the vibrant cultural landscape that makes Vermont a great place to live. The Council works to ensure this through intentional priorities in grantmaking and services.



APM vice-chair, Eric Gilbertson with Karen Middleman, Executive Director of the Vermont Arts Council, at the Cultural Facilities Grant reception, Vermont State House, February 19, 2019.
Photo: courtesy, VT Arts Council.



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Message from the Chair of the Board Steve Dalessio

This past season has been an exciting one for the museum. We saw Ann Lawless, APM Executive Director for the past 15 years, retire and the appointment of Darlyne Franzen as Interim Executive Director. We are now in the process of searching for a new Executive Director who will work with the staff and board in guiding the museum into the future. In addition, we welcome several new board members; all come with a great deal of relevant experience and enthusiasm for APM and its promising future.

With the help of several very generous donations, the museum has started moving forward with its "Transformation Plan," with the goal of developing the museum into a place where every generation can learn about the past, present, and the future of manufacturing.

The first segment of the transformation plan has been completed, with the renovation of the front lobby into a new "Learning Lab." The Learning Lab is a reconfigurable space where children of all ages can explore activities that promote STEM learning. The space can accommodate additional programs and our annual summer speaker series, which explored Sustainability in Manufacturing in 2018. Scott Davison, our Education Director, has developed many new programs which will expand and enhance the museum's dedication to STEM education. The next phase of the transformation plan is well underway with the renovation of the Innovation Station, located in the exhibit hall. We plan to install an Advanced Manufacturing Cell, which will demonstrate the integration of machining and robotics. This is one exhibit you won't want to miss.

The museum team appreciates your financial support and welcomes your suggestions. Please plan to return to the museum this season with your family and friends to discover our exciting transformation updates.

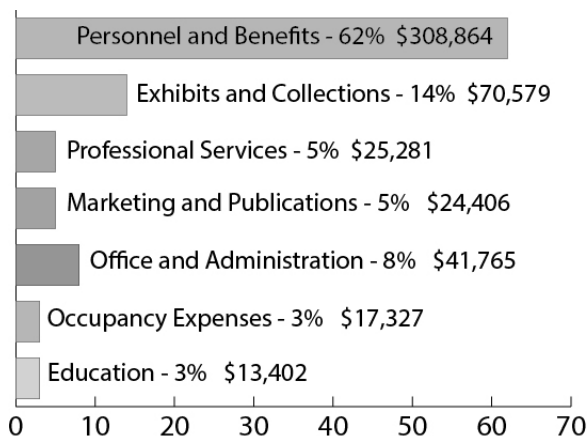
Our Mission: *To capture the imaginations of young and old with the spirit of innovation, problem solving, and design, demonstrated through the dynamic story of the machines and people which form the foundation and future of the manufacturing industry in America.*



Financial Information

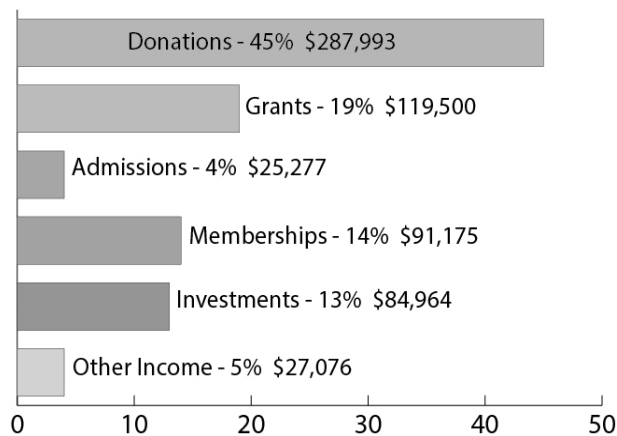
The charts below reflect Revenue and Expenses for APM's fiscal year 2018, **May 1, 2017 through April 30, 2018.**

EXPENSES



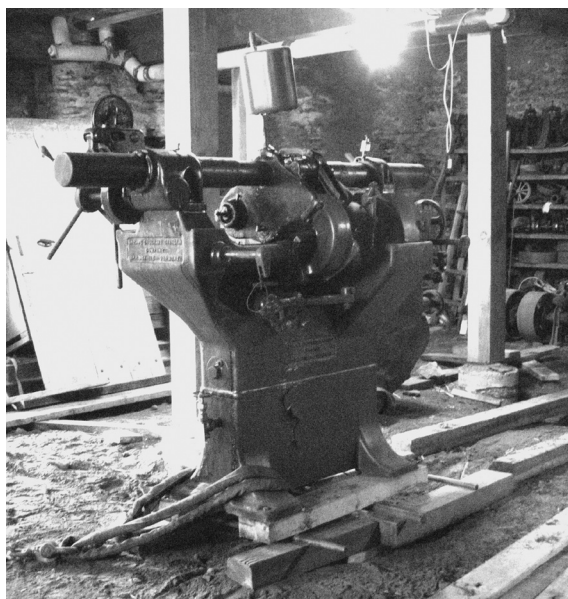
\$501,624

REVENUE



\$635,935

Restoring a Bryant Grinder



Early in 2017, longtime trustee and volunteer Don Whitney proposed restoring our Bryant precision cylindrical grinder made in 1920.

Stored in APM's basement for many years, the machine was moved out in 2010. Don enlisted Don Shattuck of Springfield, Vermont, who kindly provided space in his workshop and a great deal of technical help. Restoration work began in July of 2016, when the machine was stripped



completely and the cast iron painted parts were abrasive blasted to remove the rust and paint. The process was then reversed and slowly came back together. In late June of 2018, the Bryant grinder was returned to the exhibit hall.

In addition to Don Whitney and Don Shattuck, we are grateful to volunteers Steve Wright and John Hunter for their invaluable assistance.

Corporate Members

In the 1840s, Robbins & Lawrence created a center of excellence in hand-crafted gunsmithing and precision milling, setting the stage for future manufacturing around the world. Their business model included apprenticeship, sharing of skills across firms, and investment in innovation. Our corporate members carry on these deep traditions. We thank the corporations listed below for their generous support during 2018. *Interested in learning more about our corporate member program? Click the "support" bar on our homepage or contact us at 802-674-5781.*

Leader (\$10,000 or more)



GeneHaas



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INDEX

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Make Your Mark on APM's Future: Join The Mill Brook Society

The Mill Brook Society is the legacy society of the American Precision Museum, named after the brook that runs adjacent to the museum. Mill Brook was the source of power used in the Robbins & Lawrence building when first constructed and is part of the enduring history of the museum. To become a member of this society, simply notify the museum that you have placed APM in your will, or have chosen another way to leave a legacy gift for the museum. You will be recognized in our museum welcome center, and in our annual *Tools & Technology* publication.

There are many ways to make a legacy gift to APM: cash, securities, life insurance, personal property, real estate, retirement plans, and rollover IRAs, or annuities. Please call the museum at 802-674-5781 to discuss The Mill Brook Society with a member of our staff.



Girls' Engineering Day t-shirts based on the design above, were provided to all participants thanks to Jane Osgood and Ted Hilles.

APM's Gift Shop: New Items for 2019

Over the winter, Visitor Services Manager, Lisa Yordy added new items for young and old to the museum gift shop, and to APM's eCommerce site. The Leonardo da Vinci "Extraordinary Machines" pop-up book was published to commemorate the 500th anniversary of da Vinci's birth. The most significant creations of the Renaissance genius come to life in this lavishly illustrated book. We're featuring a Hydraulic Robotic Arm kit made of sturdy die-cut plywood for kids age 8 and up. The Magnetic Sand Timer and Cool Plasma Ball are in stock, so stop by the shop during your next visit to check out these items.

We also carry APM t-shirts and youth shirts, made just for the little ones. Our handsome APM apron is custom made by a local sewist - with only 20 on hand for the season - so call if you are interested. We've produced a new set of notecards, which feature artistically compelling elements of several of our period machines, so get your pen out!

Girls' Engineering Day - February 23, 2019



In Memoriam - Clayton H. Washburn, Jr.

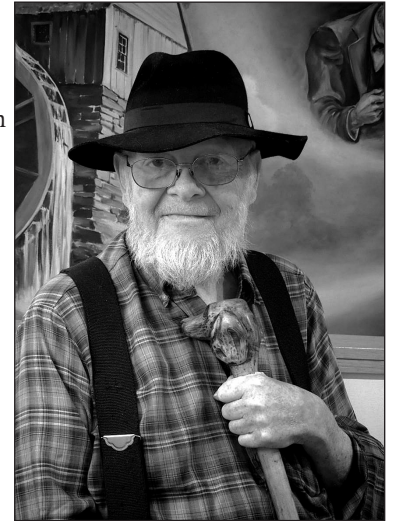
Clay Washburn, a long standing volunteer and supporter of the American Precision Museum, died unexpectedly on April 12, 2019 at Lebanon Center, Genesis Eldercare where he was recovering from hip surgery. He was born December 12, 1944 in Randolph, VT, the son of Clayton Harold Washburn Sr. and Anna O. (Whitcomb) Washburn.

In 2002 when the Cone-Blanchard Corporation shut down, the number of employees had decreased from many hundreds to only 40. Trustee Suzanne Richardson (now Suzanne Richardson Daniels) realized that these men could be a valuable resource for the American Precision Museum, and she hired 12 from her own funds for six weeks. Clay Washburn was one of them.

They did meticulous and important work, most notably moving a building that had been stored in pieces in APM's attic. They lowered the lumber from an upper floor, loaded it onto a trailer, and moved it to APM's founder, Ed Battison's place, since he had acquired the building and stored it in the attic. It wasn't long after that job ended that Clay began volunteering with us.

Clay grew up in Bethel, VT, where he attended the Lympus One Room Schoolhouse. He graduated from Whitcomb High School in 1962 and worked for a short time at the Veneer Mill in Bethel before he started his life-long career as a machinist at Cone-Blanchard Machine Tool Company in Windsor. On January 30, 1965 he married Sue M. Stoddard, and they made their home in Hartland, then later in Windsor. Clay worked at Cone until they closed in 2002. He was the final machinist to cut a chip before they closed.

An avid hunter and fisherman, Clay enjoyed tying his own flies, loading his own bullets, and hunting. He could be found at most area gun shows and was known for his gunsmith skills. He also never passed by a yard sale without stopping. In his retirement years he volunteered here at the American Precision Museum. He enjoyed meeting visitors from across town and across the globe, and giving tours. He was a Civil War buff who loved sharing history with others. Clay was very proud to be a life member of the National Rifle Association. He is missed by all.



Paul Koch Scholarship



Paul Koch in the Working Machine Shop.

Many young men and women have participated in our summer intern program, gaining the skills and confidence to achieve success in a variety of manufacturing and technology fields. One of those young men, a Windsor High School student named Paul Koch, faced exceptional personal challenges. He was an outstanding intern during the summer of 2017 and was considering a course of study in environmental engineering at Vermont Technical College in Randolph, Vermont. Although Paul considered himself an "average" student, he was an exceptional individual to all who knew him. In his memory, we have created the Paul Koch Scholarship in the amount of \$500, for students who may need assistance and an opportunity to see and perhaps experience a future which otherwise, might seem out of reach.

Our staff and board of trustees will review each application and make an annual award to a deserving Windsor High School student at graduation each year.

To donate to the Paul Koch Scholarship Fund, please send your check payable to APM, earmarked for the PK Scholarship Fund, to PO Box 679, Windsor, VT 05089.

2018 Report on Giving

We are grateful to our many contributors who support the museum through memberships and donations. Each gift we receive is important.

The gifts listed below were received between January 1, 2018 and December 31, 2018. Your contributions come in many forms – memberships, annual fund, special purpose gifts, gifts in-kind, and those made in honor of or in memory of a loved one.

We also recognize our volunteers who give their valuable time and talent to APM's operations, events, the Board of Trustees, and working committees. We received 173 gifts to the Annual Fund and 271 members joined or renewed. *If a donor is also a member, a membership abbreviation will follow his/her name: LM - Life Member; SM - Steward; PM - Patron; AM - Associate; FM - Family; and IM - Individual. Please let us know if we have made any errors in listing our supporters.*

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Email us with your answers.
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Young visitor at the 19th Annual Model Engineering Show and Family MakerSpace, August 2018.

Camel Thorrez
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E. Hub Yonkers

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You can make a donation or become
a member at our website
www.americanprecision.org.

THANK YOU!



The American Precision Museum on opening day, May 25, 2019.

From the Museum Guestbook

"We actually made a 2-hour drive specifically to visit this Museum. It was very much worth it for us. We're both Engineers, myself practicing and my 13-year-old son in an apprenticeship of sorts! So the exhibits and theme of the museum was very relevant for us. It is extremely well laid out with lots of examples of period equipment and machinery. The staff is super friendly and knowledgeable. There exists a STEM workshop for the children that is well stocked with lots of fun things to do and has a lot of potential. If we were local, we would spend more time there with the younger kids. It's a great example of American Heritage in manufacturing and well worth the visit if you're interested in that."

"Engineering, History, Economy, real people stories, fun shopping – all in one place! Amazing! Thank you!"

"The American Precision Museum was transformative when I came for my first visit in 2014, when I had just started writing my history thesis on the rise of Smith and Wesson. Always wonderful to come back!"

"This museum is a joy to the senses for someone who enjoys making things with their hands. Outstanding!"

"I very much enjoyed the experience of seeing these machines which my husband used during WWII. He worked as an instructor at the MIT lab. He often talked about the Norton Bombsite."

"Very interesting! The short intro video, the demos by students, the vintage machines with belts that used to connect to water power, the models, and modern machines.... All there! And the history of it all, how the development of interchangeable parts opened the door to the Industrial Revolution. It all happened here! Loved it!"

"Really fascinating to see so much ingenuity so long ago. Especially liked the live demo, making a brass gear and goblet. Neat Museum! Amazing Gift Shop."

"Was here in mid-sixties and can't believe the job you've done! Great! Thanks."

Programs & Exhibits 2019

Daily & Weekly Programs at the Museum

SAVE
THIS
SECTION

MAKER MONDAY



Join us on the **FIRST MONDAY** of every month from June through October for makerspace fun. From simple cardboard marble mazes to K'Nex machines, to building your own telegraph switch. A limited number of basic tools available. Come and experience the joy of making!

FEE: Free with admission TIME: 10:00am to Noon

TINKER TUESDAY

On the **SECOND TUESDAY** of every month from June through October.

The dictionary offers the following definitions of tinker:

- tinkering play
- to work in the manner of a tinker; especially: to repair, adjust, or work with something in an unskilled or experimental manner
- to repair, adjust, or experiment with

Bring a small item to take apart and see how it works. We will have a limited supply of objects for tinkering. FEE: Free with admission TIME: 10:00am to Noon



2019 DAILY PROGRAMS

JUNIOR APPRENTICE PROGRAM

Children between the ages of 8-12 accompanied by an adult may visit the museum any day and complete the Junior Apprentice booklet, filled with tasks and activities to explore the museum and its history. Those who complete the booklet will receive a badge made in our 3D printer and a certificate. Junior Apprentices are qualified to join our Saturday Young Apprentice Club. (See below). FEE: Free with admission

SPECIAL WEEKEND YOUTH PROGRAM

YOUNG APPRENTICE CLUB

EVERY SATURDAY from June 8 through October 26, 2019

Junior Apprentices may join our Saturday Young Apprentice Club that includes a wide variety of advanced guided activities, which may include: beginning coding, basic robotics, 3D design and printing, and many more activities to challenge the maker mind.

Young Apprentices who complete special projects may present them on August 24th during our Windsor STEAM² event.

Space is limited so please call ahead to save your space. Some programs may be subject to materials and instructor fees. Call for more information and dates throughout the summer.



Admission

Members free

Adults	\$8
Seniors 65+	\$7
Students	\$5
Kids under 6	free
Family	\$20

Special Group Rates

Call for details
802-674-5781

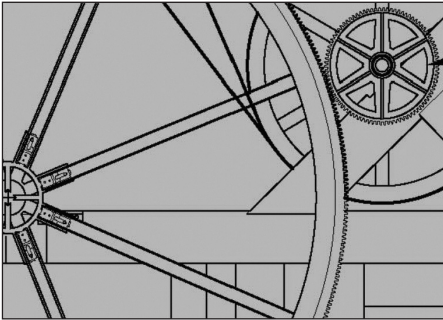
Hours

Open daily
10:00 am - 5:00 pm
Memorial Day weekend
through October.

EXHIBITS

Waterwheel and Millwork

Drawings explain how a massive waterwheel in the basement of this brick factory building diverted water from the Mill Brook to power machines using a complex systems of gears, shafts, and pulleys.



Shaping America

From the tool revolution of the 1800s to advanced manufacturing today, technical innovation has shaped who we are and how we live.

The Tool Revolution describes how ingenious mechanics in the 1840s forged an industrial America by creating one of the best gun-making operations in the world in Windsor.

Arming the Union

This site played a critical role in outfitting the Union Army during the Civil War. Learn how the precision tool industry served as the backbone of American industrial and military power.

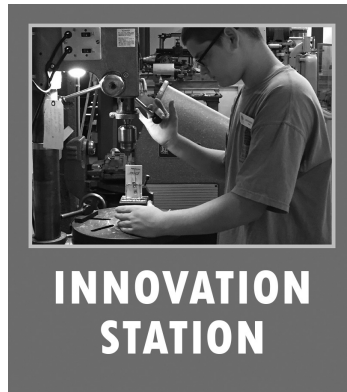
Shaping Consumer Culture

In the years following the Civil War, the tools of armory practice were put to work making consumer goods that required more accuracy.



Industrial Might

Machine tools served as the backbone of American industry and were used to build automobiles, airplanes, and a vast selection of consumer products.



Student interns operate various machines in the Working Machine Shop, approximately July 3 - August 18. Call for details.

SPECIAL EVENTS

Saturday, June 15

Behind the Scenes Tours 11am and 1pm

Reservations required, 12 per tour, \$10 ea. Call or sign up on website. Associate Members Level and up can attend FREE with their membership. Call for details.

Saturday, July 20

Behind the Scenes Tours 11am and 1pm

Reservations required, 12 per tour, \$10 ea. Call or sign up on website. Associate Members Level and up can attend FREE with their membership. Call for details.

Saturday, August 17

Behind the Scenes Tours 11am and 1pm

Reservations required, 12 per tour, \$10 ea. Call or sign up on website. Associate Members Level and up can attend FREE with their membership. Call for details.

Saturday, August 24

9:00 am - 4 pm Windsor STEAM²

This event highlights our focus on the historic evolution of machine tools in manufacturing, and Science Technology Engineering Arts & Math. The 'M-squared' part represents manufacturing. From traditional model engineering to hands-on demonstrations, crafts, activities etc. in robotics, new tech, 3-D printing and more. At the Windsor Recreation Center and the museum. \$10 for adults. \$X for kids. Members admitted FREE.



Saturday, September 14

Behind the Scenes Tours 11am and 1pm

Reservations required, 12 per tour, \$10 ea. Call or sign up on website.

Saturday, September 21

10:00 am - 5:00 pm Smithsonian Magazine Museum Day

Free admission to APM, one of hundreds of participating museums across the country, with the Smithsonian Day pass, obtainable online or in the Smithsonian magazine.



Active duty service men and women and their families are admitted free of charge to the museum.