

THE GAZETTE

"a news-sheet, a periodical publication giving an account of current events"

West Falmouth Religious Society of Friends

MAY 2023



This World by Mary Oliver

I would like to write a poem about the world that has in it
nothing fancy.
But it seems impossible.
Whatever the subject, the morning sun
glimmers it.
The tulip feels the heat and flaps its petals open and becomes a star.
The ants bore into the peony bud and there is a dark
pinprick well of sweetness.
As for the stones on the beach, forget it.
Each one could be set in gold.
So I tried with my eyes shut, but of course the birds
were singing.
And the aspen trees were shaking the sweetest music
out of their leaves.
And that was followed by, guess what, a momentous and
beautiful silence
as comes to all of us, in little earfuls, if we're not too
hurried to hear it.
As for spiders, how the dew hangs in their webs
even if they say nothing, or seem to say nothing.
So fancy is the world, who knows, maybe they sing.
So fancy is the world, who knows, maybe the stars sing too,
and the ants, and the peonies, and the warm stones,
so happy to be where they are, on the beach, instead of being
locked up in gold.

From M. Oliver, *Why I Wake Early*. Boston, MA: Beacon Press, 2004.

Contents

Upcoming Events	2-7
Photos of Friends	8-9
News of Friends	10-11
Readers Write	12-18

Officers

Molly Cornell, clerk

Sally Fritz, recording clerk

Clyde Tyndale, treasurer

Regular Events

Peace and Social Order

2nd Sunday at 12:30 p.m.

Erica Adams, clerk

Ministry & Counsel

Cynthia Rankin, clerk

(508-360-7536)

West Falmouth Meeting for Worship with Attention to Business

Usually 4th Sunday

May 28; June 25

Upcoming Events

New England Yearly Meeting

International meeting for worship – daily from 12:00 noon to 1:00 p.m. Join together with Friends in holding in the Light the situation in Ukraine, the decision makers, the soldiers, the citizens, all the people whose lives are in danger and already disrupted by fear.

<https://neym.org/events-calendar/international-meeting-worship>.

Sandwich Quarterly Meeting

New Bedford -- Work party after worship followed by lunch, Sunday, **March 12** (every second Sunday).

Quarterly Meeting for Business – Saturdays, July 22 in East Sandwich; and **October 28** in Allen's Neck.

Quarterly Ministry and Counsel – Saturday, September 23 in Mattapoisett. Note: Business and M&C meetings start at 10:00. Format to be determined.

West Falmouth

Peace and Social Order

Sunday, **May 21**, following Meeting for Worship, 12:30 – 1:30 p.m., John Davidson will speak on *Fighting Corruption at Home and Abroad*.

Sunday, **June 11**, 12:30 p.m. Susan Starkey, cofounder of Faith Communities Environmental Network and board member of Cape Cod Climate Change Collaborative, will speak. See next page for details.

Note that videos of previous 2nd Sunday presentations can be found at <http://www.youtube.com/@westfalmouthquakers>.



Memorial Meeting for Geoff Allsup -- Friends are invited to a meeting for worship to celebrate the life of Geoff Allsup on **May 6** at 1:00 p.m. Worship will be held at the meetinghouse and on Zoom. To receive the Zoom link register at <https://bit.ly/GeoffAllsupMemorial>. Masks are required in the meetinghouse and the windows will be open. Following worship, Friends are

invited to a reception at the Beach Pavilion at Good Will Park. Carpooling to the reception is encouraged as parking is limited. Friends are asked to bring a dessert and a chair to Good Will Park if possible. Please contact Cynthia Rankin or Paula Blumenthal with any questions.



The 3 Stories:

Business as Usual, The Great Unraveling, The Great Turning



Susan Starkey Co-founder: Faith Communities Environmental Network

Board member: Cape Cod Climate Change Collaborative <https://capecodclimate.org/faith/>

You are invited to a conversation designed to enliven your sense of

***What our anxieties for the world** eg: climate, biodiversity, women's rights, democracy- are telling us via **Three Stories** from a *systemic thinking perspective*.

***Look at choices** we have to meet this moment *with resilience and creativity*.

***Consider ways to practice "adversity activated development"** wherever you live (and one way to help if you are on the **Cape & Islands**)

ZOOM Talk: Sunday June 11, 2023 at 12:30 -1:30 pm EDT

Question + Answer period follows

LINK to Register: <https://bit.ly/The3Stories>

BIO: Susan Starkey is a semi-retired Leadership Coach who moved from Denver, CO to Cape Cod in 2015, just in time to help mobilize local faith communities embrace the Paris Climate Accord. She is the co-founder of the Faith Communities Environmental Network and serves on the Board of the Cape Cod Climate Change Collaborative. She and her husband and Husky enjoy their grandchildren and living in kinship with the larger community of life. <https://capecodclimate.org/faith/>



2nd Sunday Zoom Forum – a Quaker Series

HOST: Peace + Social Order Committee
West Falmouth Preparative Meeting, MA (USA)

Also of Interest

The Golden Rule visits Plymouth

Veterans for Peace are coming to Plymouth aboard their peace schooner, *The Golden Rule*, to support our efforts to prevent the owner of the Pilgrim nuclear power station from **dumping** over a million gallons of **radioactive water** into Cape Cod Bay. They are also working to end nuclear weapons around the world. See <https://vfpgoldenruleproject.org/wp-content/uploads/2022/02/Brochure-2021-10-Rotary.pdf> and <https://masspeaceaction.org/the-golden-rule-sails-again-for-a-nuclear-free-world/>.

Those organizing the event are hosting the crew at the Plymouth Library on **June 15** for a film and talk. New Bedford and Dartmouth Quakers are organizing a schooner visit in New Bedford before the Plymouth visit. Then the boat goes on to Boston. Contact Bob at wattesq@aol.com for more information.

Rod Zwirner notes that the following webinar brings the issues of climate and nuclear war together in a comprehensive workshop on **May 7**, and that this will be good preparation for *The Golden Rule* visit.

Warheads to Windmills: Preventing Climate Catastrophe and Nuclear War, webinar **May 7**, 4:00 – 5:30 p.m. Climate catastrophe and nuclear war are two existential threats that could end human civilization as we know it. This webinar aims to bring together some of the leading organizations and activists working on these two crucially important issues to discuss how we can better collaborate and coordinate our efforts to save the planet from these existential threats before it is too late. There will be break-out rooms to help us connect to some of the campaigns that are already under way. Learn more about speakers and tentative format at <https://www.nuclearban.us/>. Register for the webinar at <https://us06web.zoom.us/meeting/register/tZEuceGqqzsrGtGLoV5dQNMz784MYw1ljiHx#/registration>.



Faith Communities Environmental Network's Healing Walks

Thursday, **May 25**, 10:00 a.m. - 12:00 p.m. Sylvan Gardens & St Christopher's Episcopal Church, Chatham. *World Water Day*. See <https://www.unwater.org/news/world-water-day-2023>. Please register by emailing Susan Starkey at STARKEY.SUSAN@gmail.com. Note: FCEN Healing Walks will be off for the summer and will resume in the fall.

Quaker Women will meet via Zoom on Monday, **May 15**. The topic will be *A spring memory*. We hope to have an in-person outdoor potluck and worship sharing towards the end of May, date and location to be determined. The Women's Group will meet in person at Atria on Friday **May 5** from 9:30 – 10:30 a.m.

Adult Discussion Group – Sundays at 9:00 a.m. Gatherings are in the library corner of the meetinghouse. We'll be using queries from the *Interim Faith and Practice*. Sally notes that when we gather in the library corner exploring the ups and downs of our spiritual journeys it's not really the ideas that matter so much. It's the warmth that rises from the sharing. All are welcome.

Draft report by the EPA on the proposed machine gun range on the Joint Base Cape Cod finds significant public health hazard -- On Thursday, April 27, the U.S. Environmental Protection

Agency (EPA) issued a draft determination under the Safe Drinking Water Act that a Multi-Purpose Machine Gun Range proposed to be constructed by the Massachusetts Army National Guard may contaminate the Cape Cod Aquifer, thereby creating a significant public health hazard. In its press release the EPA noted that there are no reasonably available alternative drinking water sources for Cape Cod residents should the aquifer become further contaminated.

EPA will accept public comment on this proposal for 60 days, through June 26, 2023. During this time, the public and interested stakeholders may submit written comments for EPA's consideration. Written comments may be submitted to: R1SSAComments@epa.gov. EPA will also hold a formal Public Hearing to receive oral comments on May 24, 2023. The public hearing will be held at: The Center for Active Living, 70 Quaker Meetinghouse Road, Sandwich, MA. The formal public hearing will begin at 7:00 p.m. and will be preceded by a public meeting beginning at 6:30 p.m.

Learn more at <https://www.epa.gov/newsreleases/epa-proposes-draft-determination-protect-cape-cods-sole-source-drinking-water-seeks> and <https://www.capeandislands.org/local-news/2023-04-27/epa-deals-major-blow-to-cape-machine-gun-range-report-finds-significant-danger-to-public-health>.

Quaker Indigenous Boarding Schools: Facing our History and Ourselves -- An Online Slide Presentation followed by Reflection and Discussion. Tuesday, **May 23**, 7:00 – 9:00 p.m. Presenters are Paula Palmer, Co-Director, [Toward Right Relationship with Native Peoples](#), a program of Friends Peace Teams, and Gail Melix, Herring Pond Wampanoag and Sandwich Meeting. Sponsored by Philadelphia Yearly Meeting's Addressing Racism Collaborative and the First Contact Reconciliation Collaborative.

Native American organizations and the U.S. Department of the Interior under the leadership of Deb Haaland (Laguna Pueblo) are asking churches to join in a Truth and Healing process to bring about healing for Native American families that continue to suffer the consequences of the Indian industrial boarding schools. With support from Pendle Hill (the Cadbury scholarship), Friends Historical Library (the Moore Fellowship), the Native American Rights Fund, and other sources, Paula Palmer researched the role that Friends played in implementing the federal government's policy of forced assimilation of Native children.

Queries: What does this history and its impact on Native communities mean for Friends today? How can Friends contribute toward healing?

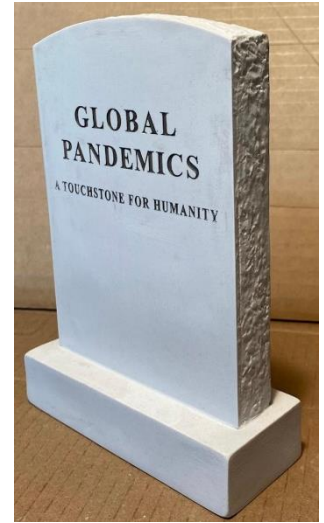
Learn more and register at <https://www.pym.org/event/quaker-boarding-schools-facing-our-history-and-ourselves/>. Worship, sharing, and reflection will follow the slide presentation.

Update on Global Pandemics Touchstone

NYC Walk to Remember COVID-19 & AIDS Pandemic Victims, Sunday, **May 28th** (Memorial Day Weekend).

The final Stonewalk starts at 2:00 p.m. at East Meadows in Central Park at the former site of Mount Sinai Coronavirus Field Hospital Tent area. The Global Pandemics Touchstone will be pulled 4 miles through Central Park to the Cathedral of St. John the Divine.

During the opening blessing ceremony small replica stones (see photo right) will be presented to City and Parks officials, clergy, first responders, Fire Department personnel and EMTs in appreciation for their unswerving commitment to the needs of fellow New Yorkers during the pandemic.



The one-ton granite Touchstone will be pulled by those who wish to lend a hand in moving the memorial to the final blessing ceremony led by Cathedral Canon Eva Suarez before it is transported to the Ferry Terminal where it will be brought to Hart Island cemetery for placement. For more information, please contact Lewis at lewismranda@gmail.com.

Flow -- Art Inspired by Movement and Sound – A new exhibit at the Mosesian Center for the Arts in Watertown, MA will include two watercolors by Erica Adams, one of which appears below. The exhibit runs from **May 19** to **June 30** with a public reception Thursday **June 8**, from 5:30-7:30 p.m. Learn more at <https://www.mosesianarts.org/>.

As an artist Erica has also recently received a 2023 grant from the Massachusetts Cultural Council. The \$5,000 in unrestricted funds can be used in any way to help her life as an artist. Congratulations, Erica!



Float, Drift, Flow © 2021 Erica H. Adams, Watercolor and Pencil on Arches Paper, 11 x 30 inches

Pendle Hill– See <https://pendlehill.org/>.

A First Monday Lecture with Niyonu Spann – *Integrous Testifying: Body, Mind & Spirit*. Via Zoom, Monday, **May 1** from 7:30 – 9:00 p.m. Free to the public, registration required. Learn more and register at <https://pendlehill.org/events/integrous-testifying-body-mind-spirit/>.

May Online Reading Group – On Wednesday **May 17** from 7:00 – 8:30 p.m. the group will discuss the classic pamphlet *The Prophetic Stream* (PHP #256) by Bill Taber. The pamphlet explores the connection between Old and New Testament prophets, Jesus, and Quaker religious experience. Learn more and register at <https://pendlehill.org/events/pendle-hills-reading-group-may-2023>.

A First Monday Lecture with K. Melchor Quick Hall -- *Reparations is to Justice as Art is to Freedom: Linking Healing and Creativity*. Via Zoom, Monday, **June 5** from 7:30 – 9:00 p.m. Free to the public, registration required. Learn more and register <https://pendlehill.org/events/reparations-is-to-justice-as-art-is-to-freedom-linking-healing-and-creativity/>.

Illuminate Summer Speaker Series 2023 – An online series of evening discussions with the authors of *Illuminate: Minor Prophets*, a recent publication in the Barclay Press Illuminate Friends Bible Study Series. Mondays **June 12, 26, July 10, 24, 31**, and **August 14**, 7:30 – 9:00 p.m. Learn more and register at <https://pendlehill.org/events/illuminate-summer-speaker-series-2023>.

News about some other Quaker organizations can be found at the following links:

Quaker United Nations Organization: <https://quno.org/>

Friends Committee on National Legislation: <https://fcnl.org/>

Friends World Committee on Consultation: <https://www.fwccamericas.org>

Friends General Conference: <https://www.fgcquaker.org>

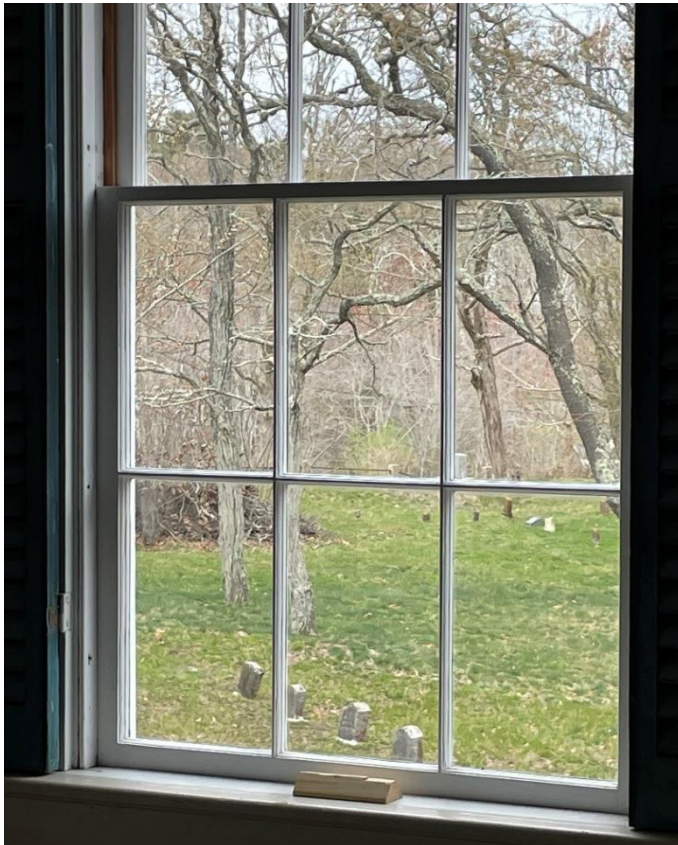
John Davidson's fascinating four-part series *Crisis in Ukraine*, part of Falmouth Public Library's popular Joy of Learning Series, concludes on Wednesday, **May 3** from 1:00 to 2:00 p.m. when John will speak on *Possible Outcomes to the Current Crisis, Peace as a Possibility as well as Ukrainian Victory*. John's academic specialization in Russian Studies and Security Studies combined with over three decades of work experience in many of the Russian-speaking countries has brought us an interesting and educational series. The presentation will be held in the Hermann Foundation Meeting Room. Registration is required. Go to <https://www.falmouthpubliclibrary.org> and see Upcoming Events. You'll find an abbreviated version of the first talk, *The History of Russia and Ukraine: An Introduction to the Current Crisis*, on page 12 of this issue.

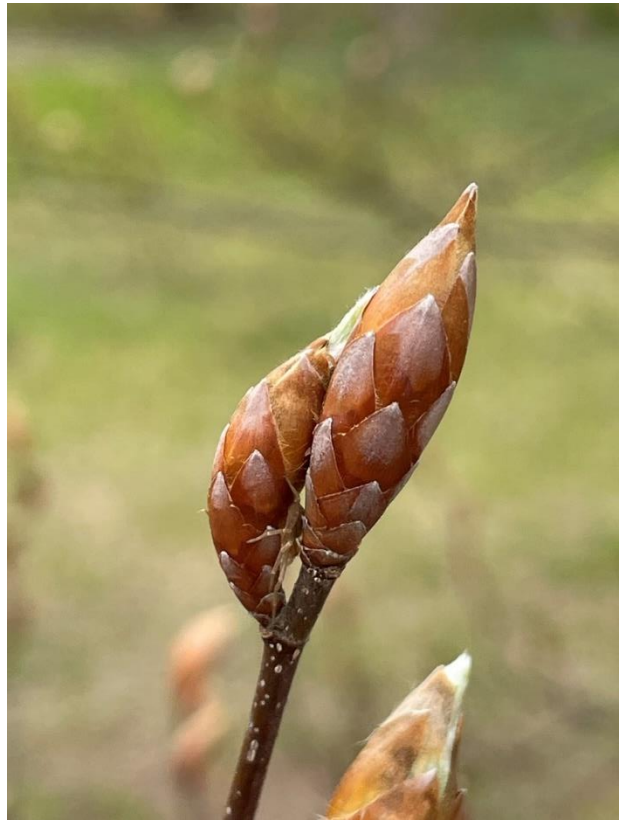
Photos of Friends

Barbara Parker of East Sandwich spoke to Friends before worship about her life including experiences at Quaker boarding school (Westtown) and summer camp. April 23, 2023.



After Meeting for Worship, Friends gathered for a silent walk among the ancient trees.





News of Friends

Nan Garrett-Logan and Deborah Warner, retired minister of Church of the Messiah in Woods Hole, went to see *Swords to Plowshares*, an anti-gun violence group, in action at U Mass Dartmouth on April 19. *Swords to Plowshares, s2p*, focuses on “convert[ing] weapons of death into tools of life, and then us[ing] those tools to the betterment of the community. All with the goal of reducing senseless gun deaths.”

On receipt of the weapons, “Weapon parts are then repurposed into various gardening tools either by prisoners in participating prisons, crew members from re-entry programs, or by volunteer blacksmiths. The finished tools are donated to community gardens, agricultural high schools or used as donation incentives. The gardens then provide vegetables at harvest time that will be donated to soup kitchens and homeless shelters.” See <https://www.s2pnortheast.org/>.

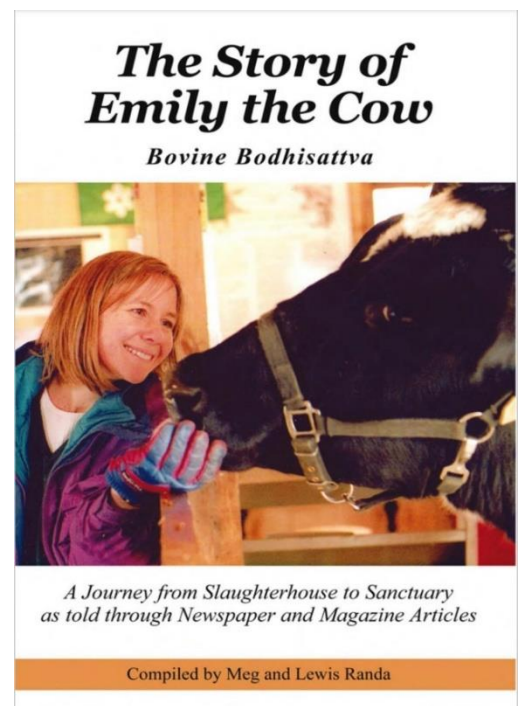
At the Dartmouth demonstration, s2p had set up forges and anvils to welcome whoever showed up to experience hands-on their work in forging garden tools out of gun parts collected through buy-backs.

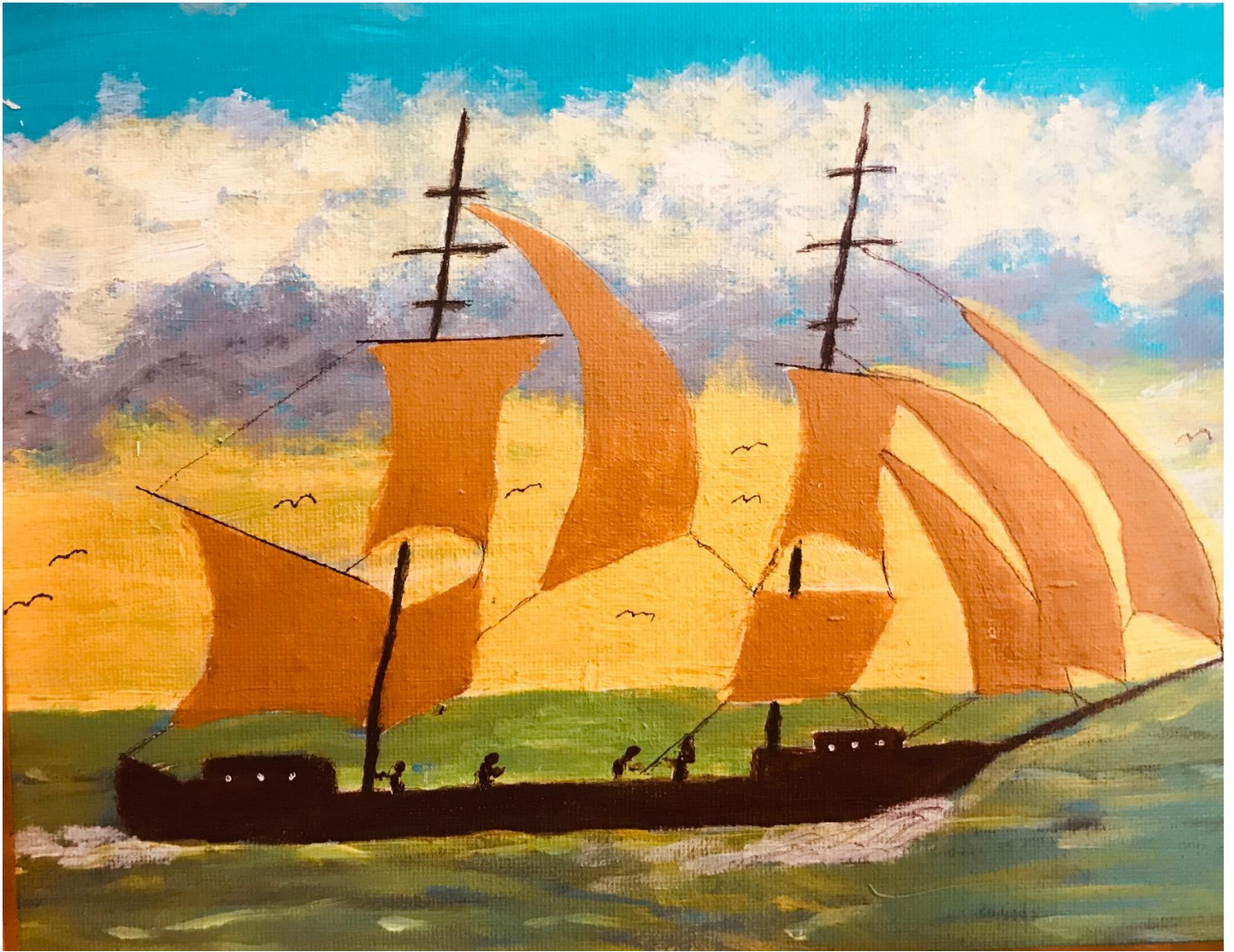
Deb Warner will be looking into the possibility of bringing the demonstration to the Cape.



Forging process (left); some finished garden tools (above). Photos: N. Garrett-Logan, April 19, 2023.

On April 13 **ABC's Channel 5** featured various segments of interest associated with the Boston Marathon route. The first five minutes or so focused on **Emily, the cow who escaped** from a Hopkinton slaughterhouse just in time and found a home at **the Peace Abbey** in Sherborn. Learn a little about Emily's story at <https://www.wcvb.com/article/quirky-finds-at-the-start-of-the-boston-marathon-route/43593081>.





Voyage into the light, Easter 2023. Alan Burt.

Readers Write

The History of Russia and Ukraine: An Introduction to the Current Crisis* John Davidson

1. Situated between Central Europe, Russia, and the Middle East, Ukraine has been shaped by empires that exploited the nation as a strategic borderland between East and West, from the Romans to the Ottomans to the Russian Empire, and then the Soviet Union.

2. The Primary Chronicle mentions Rurik, who in the 9th century came to Kyiv. The founding of Kyiv by the Vikings and the Rurik dynasty in the 9th-10th centuries is the starting point for both the foundation of the Russian state and the Ukrainian national identity.

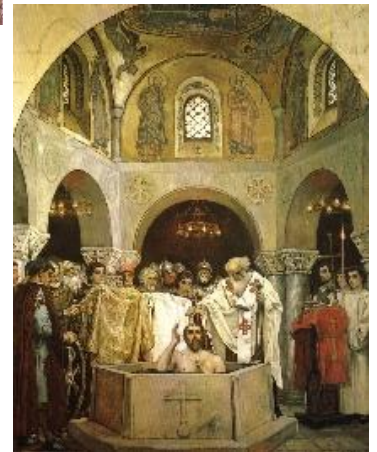
--The dispute between Russophile historians and Ukrainian national historians over whether Rurik's successors (such as Volodymyr, the descendent of Rurik who introduced Christianity) developed the Russian or the Ukrainian state over the next two centuries cannot be resolved by the historical materials available today.



3. Painting of the baptism of Vladimir or Volodymyr, the founder of the Russian or Ukrainian state (Vanetsov 19th C.). The argument as to whether Volodymyr (who took the throne in Kyiv in 980 AD, and is called Vladimir by the Russians) was Russian or Ukrainian would be comic if its outcome were not so tragic.

--Last spring in March an elderly Ukrainian man in his mid-80s in the suburbs of Kyiv who found a Russian paratrooper had broken into his garden asked, "Why are you here?" The paratrooper replied that because Rurik founded the Russian state and Vladimir was Russian, Kyiv belongs to Russia.

4. The Mongol horde conquered Russia starting in about 1215, and Kyiv was also burnt by the Mongols. In the Russian concept of medieval history, after the Mongol horde was defeated at the Battle of Kulikovo Field (1380 a.d.), the various Tsars incorporated lands under their control, in a process referred to as the gathering in of Russian lands. The long reign of Ivan III, from 1462 to 1505, is seen as the beginning of a new age in Russian history, the Muscovite period. In the Ukrainian view, all of this was not glorious or good, and had nothing to do with them.



5. A painting of Cossacks writing a letter to the Turkish Sultan telling him to go to h by Ilya Repin. The Cossacks were folk heroes who freed slaves from the Tartars and the Ottomans, and the word itself is of Turkic origin meaning a guard, a freeman or a freebooter. By the mid-sixteenth century, the lands south of Kyiv were full of Cossack settlements. These were Ukrainians who came to escape serfdom, and thus the great national myth was born of the heroes who ran away from serfdom and fought for freedom.



6. The Khmelnytsky Uprising, also known as the Cossack–Polish War, was a Cossack Rebellion that took place between 1648 and 1657 in the eastern territories of the Polish-Lithuanian Commonwealth, which led to the creation of a Cossack Hetmanate in Ukraine. Under the command of Hetman Bohdan Khmelnytsky, the Zaporzhian Cossacks, allied with the Crimean Tartars and local Ukrainian peasantry, fought against Polish domination and Commonwealth forces. The uprising has a symbolic meaning in the history of Ukraine's relationship with Poland and Russia. It ended the Polish Catholic szlachta's domination over the Ukrainian Orthodox population. At the same time, it led to the eventual incorporation of eastern Ukraine into the Tsardom of Russia initiated by the 1654 Pereiaslav Agreement, whereby the Cossacks would swear allegiance to the Tsar while retaining a wide degree of autonomy. Painting of the entrance of Bohdan Khmelnytsky into Kyiv.



7. Monastery of the Caves in Kyiv -- When I visited the Monastery of the Caves, (pechorskaya lavra) I was not aware of its key role in the Orthodox Reformation, in which the Orthodox Church adapted to the challenges of the Reformation and the Counter-Reformation by updating and westernizing the Byzantine heritage.

--The first Orthodox College was established in Kyiv in 1632, which altered the Jesuit (Counter-Reformation) curriculum to fit Orthodox needs by creating a statement of faith, providing written answers to the standard questions of that era.

8. Since the late sixteenth century, the region south of Kyiv had become a Cossack freehold in all but name, a fact that assisted the rise of Kyiv as the focus of religious, educational and cultural activities opposed to Polish Catholic authority. The Cossacks contributed to the Kyivan renaissance in that their presence minimized the Tartar threat, making the city more secure as a place for religious dissidents to live and work, as well as for the monks and peasants who tilled the Cave Monastery's lands to produce the revenue needed to fund education.



9. The incorporation of Ukraine into the Russian Empire in the sixteenth and seventeenth centuries was a gradual process, and the sequence of events which led to the Cossack Hetmanate signing agreements with the Tsars in Moscow in the 1650s was quite complex, giving rise to divergent interpretations. Although the Russian theory argues that the result was the formation of one nationality, in fact Ukrainian national identity gradually developed over the next three centuries, despite the gradual absorption of the territory into the Russian state following Peter the Great's victory at the battle of Poltava in 1709, portrayed below.



10. Michael Hruschewsky was a Ukrainian academician, politician, historian and statesman who was one of the most important figures of the Ukrainian national revival of the early 20th century.

--He is often considered the country's greatest modern historian, the foremost organizer of scholarship, the leader of the pre-revolution Ukrainian national movement, the head of the Central Rada (Ukraine's 1917–1918 revolutionary parliament), and a leading cultural figure in the Ukrainian SSR during the 1920s.

11. As a historian, Hrushevsky authored the first detailed scholarly synthesis of Ukrainian history. His ten-volume *History of Ukraine-Rus* was published in the Ukrainian language and covered the period from prehistory to the 1660s.

--In the work, he balanced a commitment to the ordinary Ukrainian people with an appreciation for native Ukrainian political entities, autonomous polities, which steadily increased in the final volumes of his master work.

--In general, his approach combined rationalist enlightenment principles with a romantic commitment to the cause of the nation and positivist methodology to produce a highly authoritative history of his native land and people.

--Hrushevsky always emphasized native Ukrainian factors rather than international ones as the causes of various phenomena. Thus, he was an anti-Normanist, who stressed the Slavic origins of Rus, internal discord as the primary reason for the fall of Kyivan Rus and the native Ukrainian ethnic makeup and origins of the Ukrainian Cossacks. (He considered runaway serfs especially important in the last regard.)

--Also, he stressed the national aspect to the Ukrainian Renaissance of the 16th and 17th centuries and considered that the great revolt of Bohdan Khmelnytsky and the Cossacks against the Polish-Lithuanian Commonwealth to be largely a national and social phenomenon, rather than simply a religious phenomenon. Thus, continuity, nativism, and populism characterized his general histories. He became more of a left socialist over time.



12. In 1917, Hrushevsky was elected head of the revolutionary parliament, the Ukrainian Central Rada, in Kyiv and gradually guided it from Ukrainian national autonomy within a democratic Russia through to complete independence. He chaired the Congress of the Peoples of Russia. He was then clearly revealed to be a radical democrat and a socialist. On February 17, 1918, The New York Times published an article by Hrushevsky that outlined Ukraine's struggle for self-government. Following the German-supported coup of General Pavlo Skoropadshy, he went into hiding. Hrushevsky felt that Skoropadsky had perverted the cause of Ukrainian statehood by associating it with social conservatism. Hrushevsky returned to public politics after the overthrow of Skoropadsky by the Directory. He did not, however, approve of the Directory and soon found himself in conflict with it. In 1919, he emigrated to Vienna, Austria, having acquired a mandate from the Ukrainian Party of Socialist Revolutionaries to coordinate the activities of its representatives abroad.

*This is an abbreviated version, with slides, of the first of four talks given by John Davidson as part of Falmouth Public Library's popular Joy of Learning series. The fourth talk, *Possible Outcomes to the Current Crisis*, will be given on Wednesday, May 3. All images in public domain. Slide 2, painting of "The Invitation of the Varangians: Rurik and His Brothers Arrive in Staraya Ladoga," before 1912. Artist: Vasnetsov, Victor Mikhaylovich (1848-1926), photo Fine Art Images/Heritage Images/Getty Images. Slide 6, painting of the entrance of Bohdan Khmelnytsky into Kyiv by Mykola Ivasiuk. Slide 9, the battle of Poltava: engraved by unknown family member of Nicholas Larmessin Family. Slide 10: 50 grivna note featuring Michael Hrushevsky.

Heat Pumps for Heating and Cooling Your Home¹

Steve Gates

If you are thinking about ways to “go green” and reduce your use of fossil fuels, a great way to do so is electric **heat pumps**, devices which provide an efficient option for both heating and cooling. And heat pumps are a key component of Massachusetts’s plan to reduce our fossil fuel usage. Further, Mass Save and Cape Light Compact have some great financial incentives for buying such systems, that, when combined with federal tax credits, make these systems quite affordable.

So what is an **electrical heat pump**?² These systems “pump” heat from one place to another: during the winter, they pump heat into your home (replacing a traditional furnace), and during summer they pump heat out (replacing a traditional air conditioner). A useful way of thinking about them is as air conditioners that operate in two directions. Note that unlike traditional furnaces and boilers, they do not actually *create* any heat, but simply use electricity to *move* it from one location to another.

Advantages and Disadvantages. Heat pumps are attractive for two reasons: they can cost significantly less to run than many other types of home heating and cooling systems, and they can have a lower impact on the planet. Let’s look at each of these advantages.

First, they can be cheaper to operate than other systems, but this varies depending on several factors:

- They are substantially more efficient than other forms of *electric* heating, such as electric baseboard or floor heating systems, and hence cheaper.³
- They are typically cheaper than coal, oil and propane heating.
- In most geographies, heating with a heat pump is somewhat more expensive than with a natural gas heating system.⁴

The other advantage of heat pumps is that they can be much “greener” than traditional heating and cooling systems. Because heat pumps are electric, they use no fossil fuels (gas, coal, oil) directly. If you buy green electricity or generate it on your rooftop, then their

When do Heat Pumps Make Sense?

Replacing an existing furnace and air conditioning system with heat pumps makes the best financial and climate sense if at least *some* of the following are true:

- You own your home.
- Your home is currently heated with coal, oil, propane or electric floorboard heating.
- Your air conditioning is done with window or wall A/Cs rather than central air, or you are adding air conditioning for the first time.
- You are strongly interested in reducing your greenhouse gas emissions.
- Your existing system uses air ducts (not hot water radiators).
- Your existing system is at the end of its lifespan.
- The payback period for the new system is less than the time you plan to be in your current home.
- You have solar panels already on your roof that are producing more energy than your home otherwise needs.
- You have already weatherized your home.

At the current time, at least in the U.S., replacing an existing gas-fired furnace, especially a gas-fired boiler, with an electric heat pump is often not economical, compared to replacing it with a more modern (more efficient) gas furnace. Newer technologies and the economics of mass production may make heat pumps even more attractive over the next few years.

operation requires no fossil fuels at all, which is of course great for the environment. If, on the other hand, you get your electricity from a traditional electric utility company, much of the electricity may be generated at coal-, oil-, or gas-fired plants, and thus have a substantial carbon footprint. Fortunately, many utilities, including those in Massachusetts, are transitioning to greener energy sources and as they do so, the carbon footprint of their customers becomes smaller.

Heat pumps also have several potential disadvantages which you need to consider. First, they have a substantial up-front cost. You can more easily justify this cost if your existing heating system is nearing end-of-life, or you are installing air conditioning for the first time. You can usually financially justify the upfront cost from the long-term energy savings you'll experience.

A second disadvantage is that the lifetime cost of a heat pump system may be higher than some alternatives, especially if any of the following is true about your home: you use natural gas, you have a boiler rather than a hot-air furnace, or you are trying to heat and cool your entire home. You'll want to get specific quotes from several vendors to judge whether a heat pump makes financial sense in your home.

Choosing a Heat Pump System. Two broad types of heat pumps are currently widely available: air-source and ground-source heat pumps. **Air-source heat pumps**⁵ the most popular type of heat pumps, transfer heat between the outside air and the inside air. The outdoor portion of such a system typically looks very much like that of a central air conditioning system, as shown at right. The indoor portion of the system has a coil and fan (like the outdoor portion) but distributes the conditioned air in one of two ways: ducted or ductless. In a ducted system, the air is sent through ducts (usually in the ceiling) and out vents into each room. In a ductless system (sometimes referred to as a mini-split), on the other hand, the air is distributed directly from an indoor unit (see example below) that is on the wall or in the ceiling of each room.



The outdoor unit of a heat pump system.



The indoor unit of a ductless heat pump system.

Ground-source or geothermal heat pumps^{6,7} operate similarly, but transfer heat between the ground outside the home and the air inside. These systems take advantage of the relatively constant temperature of the earth below the surface (at depths of 4 to 6 feet or more), and as such, are more efficient than air-source systems.⁸

Ground-source systems usually depend on deep wells or long horizontal loops of pipes underground to access a sufficiently large volume of constant-temperature earth or water. They have substantially larger up-front costs for the construction of the outside portion of the system than air-source heat pumps. Air-source heat pumps have expected lifetimes of 10-15 years, whereas ground-source systems typically last 20 to 25 years (and the external portion can last up to 50 years). Both types of system require annual maintenance to ensure a maximum lifetime, much as do furnaces and central air conditioning systems.

In areas such as Cape Cod which experience many days of freezing weather during the winter, there is an additional consideration: cold-temperature (high-efficiency) air-source heat pumps are now available that can run at higher speeds than older heat pumps and thus heat homes even when the outside temperature drops below 0°F. But they operate less and less efficiently as the temperature outdoors drops below freezing, so in extremely cold conditions it can be more expensive to heat a home with a heat pump. At some very low temperature (around -10°F for some systems) the systems will simply not be able to heat the home sufficiently, so you'll want to find out the lowest temperature the manufacturer of your unit says is feasible. Some homeowners choose to keep their old furnaces or boilers and use them to provide heat on the coldest days instead of heat pumps.

Like other types of energy-saving equipment, heat pumps are eligible for significant rebates and incentives. Massachusetts offers substantial cost savings in the form of rebates and incentives (see charts below), so be sure to ask your contractor for the details as they apply to the systems they offer. The federal Inflation Reduction Act provides for additional cost savings in the form of a 30% tax credit (you can read more about the limits and other details here⁹). You'll want to confirm those cost savings directly with Mass Save prior to signing any contract.

Air Source Heat Pump Rebates				
Equipment Type	Rebate Type	Efficiency Requirements	Rebate Amount	Enhanced Amount* (Income Qualified)
Air Source Heat Pumps	Whole-Home	Refer to the MassSave.com	\$10,000 per home	\$16,000 per home
	Partial-Home	/HPQPL	\$1,250 per ton ¹ , up to \$10,000	

¹ Tons are calculated based on AHRI cooling capacity divided by 12,000 BTUs. Rebate amount based on

tons. ↩

Ground Source Heat Pump Rebates				
Equipment Type	RebateType	Efficiency Requirements	Rebate Amount	Enhanced Amount* (Income Qualified)
Ground Source Heat Pumps	Whole Home ²	Refer to the ENERGY STAR	\$15,000 per home	\$25,000 per home
	Partial-Home	Certified List ²	\$2,000 per ton ¹ , up to \$15,000	

¹ Tons are calculated based on AHRI cooling capacity divided by 12,000 BTUs. Rebate amount based on tons. ↩

² Ground source heat pumps must be ENERGY STAR certified, qualified, listed with, and certified by AHRI, and meet the program EER and AHRI outdoor unit configuration requirements. ↩

*Cape Light Compact enhanced heat pump rebates differ from the amount listed. Customers are eligible for 80% of the installed cost of qualifying heat pump systems.

¹ Adapted from Steve's book on the climate crisis, tentatively titled *A Better Planet, A Better Life*.

² You can find a nice review of heat pumps on this site: <https://goclean.masscec.com/clean-energy-solutions/>.

³ <https://www.energy.gov/energysaver/heat-pump-systems>.

⁴ You may be able to get data on prices for your state, e.g., <https://www.ecvt.net/blog/are-heat-pumps-right-you-it-depends> tracks prices in Vermont, which are similar to those in Massachusetts.

⁵ <https://goclean.masscec.com/clean-energy-solutions/air-source-heat-pumps/>.

⁶ https://goclean.masscec.com/downloads/MassCEC_GSHP_GUIDE.pdf.

⁷ <https://www.energy.gov/energysaver/geothermal-heat-pumps>.

⁸ <https://news.energysage.com/compare-air-source-geothermal-heat-pumps/>.

⁹ <https://www.hvac.com/resources/inflation-reduction-act-heat-pump-rebates/>.



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