



Editor's Note:

This is the beginning of a new series that explores the link between milling, renewable energy and climate change.

We can condense this idea into the following sentence:

Understanding **Our Milling Heritage**

Encourages **Local Initiatives**

In modern **Renewable Energy**

Which impact **Global Climate Change**

This ten part series, which kicks off our new monthly newsletter, *Renewable Roots*, is designed to help our current audience (and potentially new readers) understand another way the history of milling is relevant today – in light of climate change.



Fans of our current newsletter shouldn't worry – we will continue to post just as much content on our milling heritage, records and history. However, exploring this link both encourages an awareness of climate change, which (despite being a positive and negative “buzzword” in today's media) is an important topic; and also encourages the survival of milling as a craft – opening more eyes to the forgotten achievements of milling heritage.

Each newsletter will have an article on a topic to do with milling, renewable energy and/or climate change, while also highlighting a local initiative in sustainability that has some connection with mills or milling history. Our first local focus is on Reading Hydro, a brilliant community-led initiative to create a hydroelectric turbine using an ancient mechanism often installed at milling sites today, an Archimedes Screw.



Upcoming Paid Internship Opportunities:

Interested in a career in history? Or just passionate about renewable energy & climate change?

We're offering two part-time 30-day paid internships over the coming year (our first starts in December/January) and welcome applications from all. As an intern, you'll be asked to interpret records and produce a digital exhibition on renewable energy relating to our new project: Reading EmPOWERed.

People of all ages and stages will be considered - we are keen to attract applicants from communities that represent the wide range of backgrounds and experiences of local Reading and modern Britain.

If you're interested, head to <https://new.millsarchive.org/internship-opportunities/> for more information. Then email your CV and a brief description of why you think you'd be a good fit for the role to rachel.riddell@millsarchive.org. The deadline for applications is 30th November.

This role is funded by the National Lottery Heritage Fund, with thanks to National Lottery players.

Photos from the Month



^ Some photos from our current placement with University of Reading students. Megan and Katie are developing educational materials on the pros and cons of wind and water power. These materials will be turned into an exhibition, hosted in the University Library.



This month Liz (our director) and Nathanael (our archivist) visited David Elliott, a long-term lecturer on renewable energy and technology at the Open University UK. After 40 years of teaching, David moved out of his office. We rescued his life's work from potential landfill, and are honoured to house his prolific collection.



What does Milling Have to do with Climate Change?

It is increasingly clear that we urgently need to deal with climate change, as emphasized by the latest report from the Intergovernmental Panel on Climate Change (IPCC), known as the Sixth Assessment Report (AR6). This detailed report highlights significant and rapid changes happening in the atmosphere, ocean, cryosphere, and biosphere; human-induced climate change is already having a major impact on global weather patterns and extremes, resulting in negative outcomes, particularly in marginalized communities that have historically contributed minimally to the issue. Dr. Ella Gilbert from the British Antarctic Survey points out that climate change is making extremes worse, creating a stark contrast between temperate regions experiencing hotter summers and regions in developing countries grappling with depleted and contaminated food sources.

A notable example illustrating the widespread consequences of climate change is seen in Kenya's maize production. In just three years, from 2018 to 2021, maize production dropped from 44.6 million bags to 34.3 million bags due to the harmful effects of drought, higher temperatures, and climate-related pests. This decline is concerning, considering that maize makes up about 65% of Kenya's total staple food calories. With the population growing at a rate of two percent annually, reaching 55 million, the increasing gap between supply and demand has led to rising prices, intensifying food insecurity in the region.

Furthermore, the climate crisis goes beyond crop yields, resulting in a concerning increase in climate-related waterborne, foodborne, and vector-borne diseases globally. In East Africa, the safety of food is compromised by factors like high temperatures, wet harvests, and elevated post-harvest moisture levels, creating a significant challenge with aflatoxin contamination. Aflatoxins, toxins produced by mould on crops like maize under adverse climate conditions, pose severe health risks, including liver cancer. The African milling industry, crucial for ensuring food security, faces substantial challenges, increasing the risks to the region's overall food security.

However, amidst the challenges posed by climate change, there is a glimmer of hope in the field of renewable energy technology, demonstrating the adaptability of traditional practices. The Archimedean Screw, invented centuries ago by the ancient Greek mathematician Archimedes for raising water, has undergone a remarkable transformation. In the modern era, Archimedean screws are prominently featured in small-scale hydropower installations, serving as efficient turbines to convert the kinetic energy of flowing water into electricity. The slow rotational speed and fish-friendly design of these screws make them well-suited for sustainable hydropower projects, showcasing the integration of ancient wisdom into modern engineering for clean and efficient renewable energy solutions.

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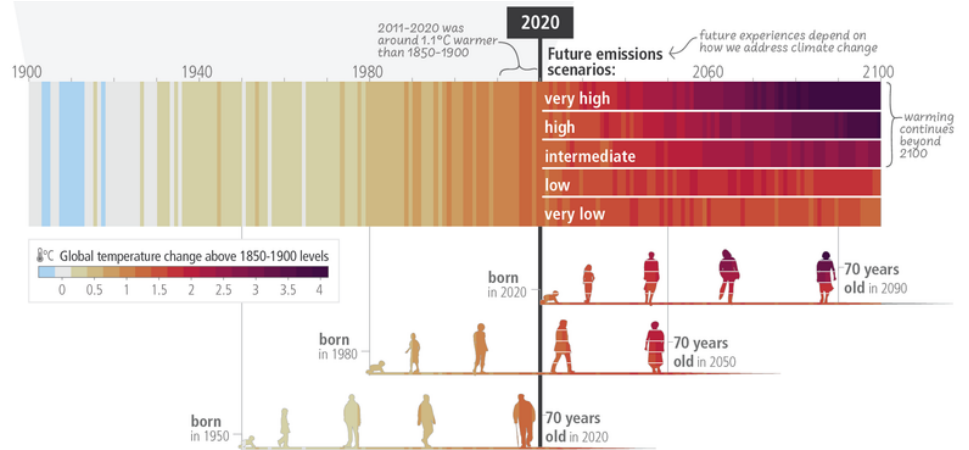
**Local Climate Event
Spotlight: (with us and /
or our partners)**

In the lead up to Christmas, Reading has a number of climate events coming up:

Our changing climate: past, present and future, 23rd Nov, 19:00 - by Prof. Christopher Merchant for *The Walter Lecture*, @ All Saints Church, RG40 1YA

Our Green Fingers, A Curated Garden Tour, Nov 28th, 11:30-12:30 @ MERL, RG1 5EX

Wokingham - People, Planet Pastry, 08:00-09:00 @ Maya's Refillables, RG40 1XU



"Observed (1900-2020) and projected (2021-2100) changes in global surface temperature (relative to 1850-1900), which are linked to changes in climate conditions and impacts, illustrate how the climate has already changed and will change along the lifespan of three representative generations (born in 1950, 1980 and 2020). Future projections (2021-2100) of changes in global surface temperature are shown for very low, low, intermediate, high, and very high GHG emissions scenarios. Changes in annual global surface temperatures are presented as 'climate stripes', with future projections showing the human-caused long-term trends and continuing modulation by natural variability (represented here using observed levels of past natural variability). Colours on the generational icons correspond to the global surface temperature stripes for each year, with segments on future icons differentiating possible future experiences" - IPCC AR6 Synthesis Report, 2023, p.7-8

**Reading EmPOWERed
Volunteer Callout**

Are you concerned about climate change?

We're looking for volunteers from all backgrounds, particularly those from marginalised communities, to help us understand more about our records on renewable energy - we've got 3 million of them, to be exact.

Our roles include:

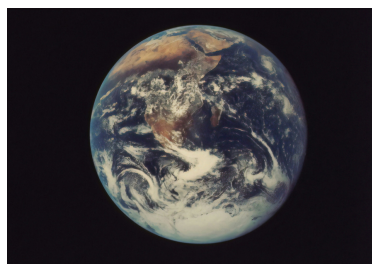
- Cataloguing
- Interpreting our Records
- Creating educational resources
- Writing articles
- Creating artwork
- Working with children
- Having a say on the interpretation of history
- Curating digital exhibitions
- Advising us on topics such as decolonisation, cultural change and modernity
- Implementing SEO on our website

To find out more, email rachel.riddell@millsarchive.org

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A local example of this integration is found in Mapledurham, where an Archimedean Screw was installed in the early 2010s. A decade later, Reading Hydro (see next section), a local energy champion, installed two Archimedean Screws along the River Thames to generate hydroelectricity for nearby businesses. These initiatives not only demonstrate the adaptability of traditional milling sites and technologies but also underscore the potential for innovation and resilience in the face of climate challenges.

In conclusion, the interconnected story of how climate change affects food security and the evolution of milling technology into renewable energy solutions paints a complex but hopeful picture. As we grapple with the consequences of a changing climate, it is essential to seek comprehensive solutions that draw from both historical wisdom and contemporary innovation. The way forward involves embracing sustainable practices, developing resilient technologies, and fostering a collective commitment to address the multifaceted challenges posed by climate change.



**A Renewable Energy Case Study:
Reading Hydro**



The River Thames at Reading passes over Caversham Weir with a drop of about 1.4 m. The water flow is about 37 m³ per second on average. This high-energy combination was harnessed to power various mills based on View Island for hundreds of years. However, by the middle of the twentieth century they had all been decommissioned and demolished. Reading Hydro CBS has revived Reading's water power tradition, by building a community-owned hydroelectric plant that generates low-carbon renewable electricity. It started generating in September 2021.

Reading Hydro's power plant has two Archimedes screw turbines (similar to the one installed at our local mill in Mapledurham), and has generated 557.6 megawatt hours of electricity to date (20 November 2023), without producing climate-heating emissions. The scheme is designed to keep generating for 40 years. For more information, visit readinghydro.org.



Upcoming in this Series...

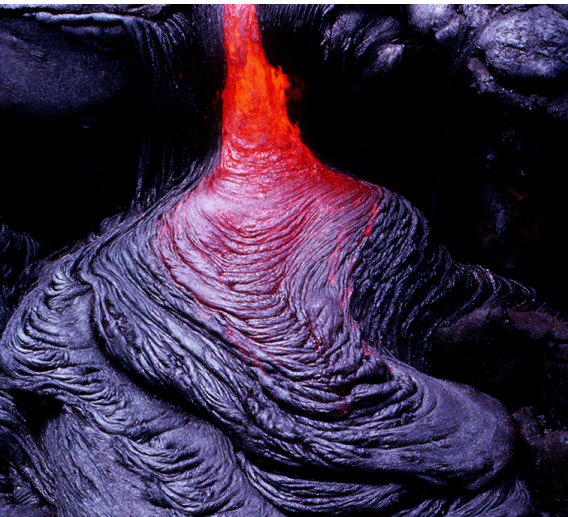
The main article, *What does Milling Have to do with Climate Change?*, is the first in a ten part series to launch our new monthly newsletter, Renewable Roots.

In upcoming articles in this series, we will address topics such as:

- A History of Milling in light of Renewable Energy
- The Forgotten Achievements of Milling
- What is Renewable Energy?
- The Pros and Cons of Renewable Energy in all its variations
- Reading's Local History of Sustainability
- How can an Understanding of Milling serve Renewable Energy today?
- Why is addressing the Climate Crisis so urgent?

...as well as highlighting more renewable energy case studies and a new section on monthly sustainable heroes.

If you have any questions or comments, please email outreach@millsarchive.org.



An initiative of



RENEWABLE ROOTS HAS BEEN WRITTEN AND COMPILED BY RACHEL RIDDELL, INFORMATION AND ENGAGEMENT MANAGER AT THE MILLS ARCHIVE TRUST

