

RAW MATERIALS

Raw Materials: Plastics

Exploring the heritage of the Lower Lea Valley

Bow Arts Trust

Evaluation Report 2019



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1.0 Introduction

The *Raw Materials: Plastics* project started in November 2018 and ran until November 2019. The project was funded with £47,000 from The National Lottery's Heritage Fund together with £10,000 from University College London.

The project was led by Bow Arts Trust, a charity established in 1995, and supported by key partners including London Boroughs of Waltham Forest, Hackney and Newham, Suffolk Record Office, the Victoria and Albert Museum, Vestry House Museum, Science Museum London and the Museum of Design in Plastics, who all gave support in-kind through their time, support and advice, including facilitating group visits for research and loans from their collections. University College London collaborated with the project by: supporting residencies by the project's two Resident Artist/Makers; devising and participating in a series of three public events with UCL Mobile Heritage Lab; undertaking research on visitor perceptions of plastics; enabling UCL Slade students to attend research visits and develop artwork to propose for exhibition in the final *Raw Materials: Plastics* exhibition.

Six members of Bow Arts staff contributed to the project. Gallery staff included Sophie Hill, Gallery Director, Saphia Venner, Arts + Events Coordinator and Fizza Murtaza, Gallery Assistant. Other members of staff were the Bow Arts marketing team – the Marketing Manager and Media & Communications Assistant, and the Education Projects Manager leading the school project.

Building on the success of the previous years' projects that explored the heritage of wood and textiles, *Raw Materials: Plastics* provided the opportunity for people to engage with and develop an understanding and appreciation of the Lea Valley's plastics heritage. This was achieved through the exhibition at the Nunnery Gallery, and by engagement with the broad and lively surrounding programme of activities, events and talks that accompanied the show.

The *Raw Materials: Plastics* project included a programme of masterclasses with nearby Bow School led by the Resident Artist/Makers, engaging 60 year 10 students, whose work was included in the project exhibition.

The volunteer Community Steering Group recruited from the local area were central to the project, undertaking a wide-ranging research phase at the partner institutions to develop their skills and guide the exhibition and publication content.

The purpose of this report is to evaluate the range of activity over the project duration. Ultimately the project aimed to deliver outcomes that would directly contribute to NLHF achieving its strategic goals for heritage projects connecting heritage and people, and these goals were taken as a starting point in planning the evaluation framework for the project.

The evaluation process encompassed questionnaires for event and exhibition attendees (167 responses), volunteers, Steering Group members and UCL students who participated in the research period. Written feedback was requested and discussed with teachers from Bow School.



Community Steering Group and UCL students during a research visit to Waltham Forest Archives



Participant exploring plastic waste in debris from the shores of the Thames, with UCL and Thames21 at Bow Arts

2.0 Executive Summary

Raw Materials: Plastics was a community-led heritage research project investigating and interpreting the industrial history of plastics in the Lower Lea Valley in east London taking place in 2018-19.

The project:

- Was enjoyed by 98% of participants (n=167)
- Met its aims of making the plastics heritage of the Lower Lea Valley better interpreted and explained, highlighting the east London-led innovation of plastic and its uses, with 83% (n=160) of visitors confirming they had learnt about this history.
- Was successful in delivering the planned heritage outputs of one temporary exhibition (including loaned archival items, archive materials and responses from students and resident artist/makers), an extensive accompanying event programme, a research publication, a printed map of local plastics heritage sites, an oral history collection and research blog write-ups.
- Added all project outputs to the *Raw Materials* online platform with an interactive heritage map for ongoing public access for the next five years. It has already engaged 2,231 users (30% increase on the previous *Raw Materials* project and 34% new users).
- Attracted 1405 visitors to the exhibition, 2029 exhibition website page-views and 533 attendees across 22 public events.
- Attracted 300 participants to non-public events (e.g. school masterclasses, community group tours and events at UCL and Poplar Union).
- Engaged 58 volunteers who contributed 716 hours of volunteering to the project and reported an enjoyable volunteering experience.
- Trained 47 volunteers in conservation, learning, participation, management and media skills.
- Worked with 60 year-10 school students at local Bow School who learnt about the plastics heritage of their area and produced creative responses that were exhibited.
- Engaged more men for both the steering group and gallery volunteers (which is traditionally female heavy), more gallery volunteers from BAME backgrounds and more event participants from BAME backgrounds, particularly from local Asian communities for events.
- Made the charity more resilient by developing partnerships with new key players in the east London cultural scene and cementing existing local relationships with archives and organisations
- Successfully enabled collaboration between the Bow Arts Education and Gallery teams, which is unusual with respect to Bow Arts usual working practices.

3.0 Project Overview

Raw Materials: Plastics was a community-led heritage research project run by Bow Arts Trust. It aimed to uncover and share the plastics history of the Lea Valley area of east London. The project brought together organisations based in east London, including those joining the new East Bank cultural quarter in Queen Elizabeth Olympic Park, such as the Victoria and Albert Museum and UCL, and long-standing local organisations like Hackney Archives and Vestry House Museum in Waltham Forest, as well as prominent plastics heritage bodies The Plastics Historical Society and the Museum of Design in Plastics, Arts University Bournemouth. It brought together project volunteers, UCL students, the Resident Artist, the Resident Designer/Maker, museum and archive staff, and Bow Arts staff and volunteers, all in order to share knowledge and skills and explore the plastics industrial history of the Lower Lea Valley.

The project started with a research phase with visits to archives and museum collections to explore the little-known plastics history that had shaped the area. The Steering Group's reflections on the visits and the initial findings from these visits were shared online, alongside resources from previous years, in the *Raw Materials* digital platform.

The *Raw Materials* digital platform acts as a legacy for the on-going project series, housing the project research and acting as an online archive for people to explore archival collections. Research is made more accessible by mapping it within the local area so that the context of each archival object is better understood. The Plastics project included further development of the site, not only through adding a new series of plastics map points, but also through additional functionality to enable user comments to be added in response to the online collection items.

Alongside the research phase, *Raw Materials: Plastics* included masterclasses from the two Resident Makers for two classes of year 10 students at Bow School.



Raw Materials: Plastics exhibition at Nunnery Gallery

The students worked with the Makers, who facilitated them to produce their own responses to plastics heritage and to learn about the methods and practice of the Residents. The student's creative projects were exhibited as part of the project exhibition, with all 60 students represented.

A key output of the project was the Raw Materials: Plastics exhibition at the Nunnery Gallery, a free public gallery. The exhibition offered an opportunity for the public to encounter first-hand the project findings, with a well-structured display setting out a narrative of plastics' history in east London, complemented by substantial loans from project partners: 53 archival objects contextualised within the local geographic setting of the River Lea.

The exhibition presented new contemporary creative works by the two Resident Artist/Makers, as well as work by two selected UCL Slade students and pieces made by the participating Bow School students. The Raw Materials: Plastics exhibition aimed to give visitors a better understanding of the history of the local area and to be an enjoyable experience that engaged a wide range of people. The project exhibition ran for over three months, from 17 May to 25 August 2019, welcoming 1,405 visitors.

A diverse public event programme attracting 533 attendees encompassed heritage learning and exploration of creative responses to the Lea Valley's plastics heritage. As well as using the exhibition as a springboard for reflecting on topical environmental issues around plastics supported by the partnership with University College London.

4.0 Evaluation Methodology

The project aimed to deliver specific outcomes that would directly contribute to the National Lottery Heritage Fund's strategic goals for heritage projects, as well as supporting the organisation's audience development and its understanding of responses to and engagement in the project. The evaluation approach achieved a high number of completed visitor responses reflecting on heritage learning outcomes. This approach enabled us to obtain accurate quantitative results as well as allowing opportunity for individual comments to gather qualitative responses. The focus on a narrow range of questions used with all attendees and participants resulted in a strong data set. In taking this approach, we followed the advice of an evaluation consultant to focus on getting in-depth responses relating to the key project outcomes. However, we then found that it was too much to get attendees to additionally fill out a second form of detailed demographic information. In this respect our experience was similar to the previous Textiles project, in which we noted that it was often too much to ask for two sets of information at once.

The project's key intended outcomes are listed below; each statement describes what successfully meeting our aims in that area would look like.

Intended outcomes for heritage:

- The plastics heritage of the Lower Lea Valley will be better interpreted and explained, highlighting the east London-led innovation of plastic and its uses.

Intended outcomes for people and communities:

- People will have had an enjoyable experience through volunteering, exhibition visits and attending events.
- People will have learnt new skills from the project, including students, young people, vulnerable groups, families and volunteers.
- Young and local audiences will have learnt about heritage through the running of a workshop aimed at families.

Intended outcome for the organisation:

- As a result of Raw Materials: Plastics, the Nunnery Gallery will be more resilient, having developed partnerships with new key players in the east London cultural scene

From the start of the project in November 2018, qualitative and quantitative data was collected for evaluation purposes. Steering group visits were documented through blog posts on the *Raw Materials* online platform, and all activities were photographed. The majority of feedback was collected through questionnaires that captured how people engaged with heritage, asking people to rate their agreement to a set of statements and comment on the reasons for their ratings.

The evaluation report was written by Natasha Vicars, Project Manager and edited by Sophie Hill, Gallery Director with suggestions made by Nicky Boyd, an evaluation consultant who has also contributed to previous years. The Nunnery Gallery and event volunteers collected information as did Fizza Murtaza, Gallery Assistant. Georgina Walters, Bow Arts' Media Officer, collated social media, digital and press communication using Google Analytics to track website visits and 'Mailchimp' to record the reach of the newsletters.

A series of 11 in-depth exhibition visitor interviews were conducted by Dr Katherine Curran and her team at UCL Institute of Sustainable Heritage, to investigate whether visiting an exhibition of plastics heritage would lead to changed attitudes about plastics value and disposability (see appendix 7.7).

5.0 Key Findings

Through this evaluation Bow Arts has been able to reflect on their top-level project aims and what has been achieved through the *Raw Materials: Plastics* project.

For full details of the outputs and outcomes for our heritage and people involved in the project, please refer to section 5 – detailed findings.

5.1 Heritage

- **The plastics heritage of the Lower Lea Valley will be better interpreted and explained, highlighting the east London-led innovation of plastic and its uses**

We were very successful in meeting this aim. 83% of visitors agreed that they had learnt about the history of plastic in east London (based on 160 responses across event and exhibition attendees). These visitors commented that they gained insight and understanding of the history of plastics in the Lower Lea Valley through their engagement with the project outputs, including the exhibition and event programme. Comments from visitors on evaluation forms include:

“Learnt about history and great inventions of the area - past and present”

“Learnt lots! Had no idea of relevance of east London to plastics production.”

“I have learned about the history of plastic. We use things every day and we don't even know where it has come from.”

“Great to learn this is essentially where plastics began/developed.”

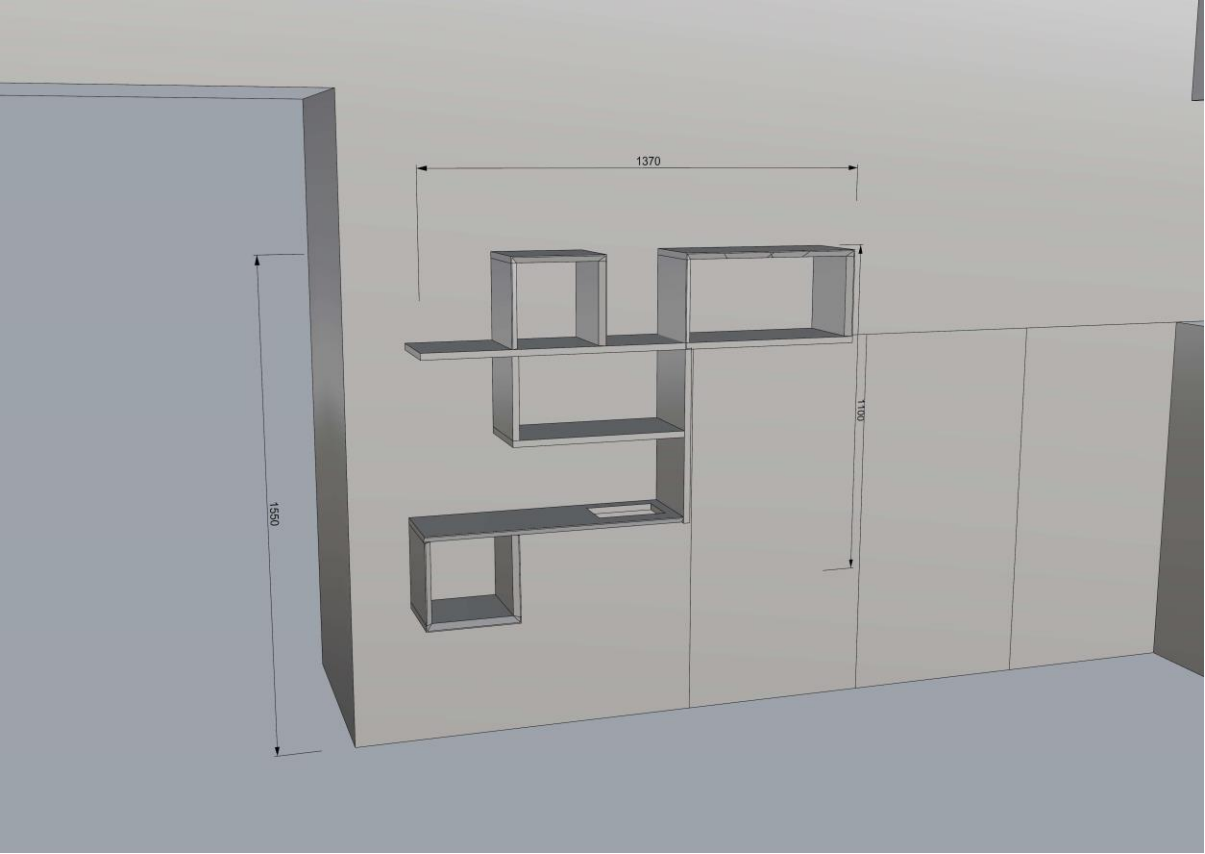
- **Plastics heritage will be better identified and recorded, and archive collections will be further digitised making them more accessible**



The project exhibition at Nunnery Gallery run by Bow Arts

The project was successful in delivering all planned heritage outputs supporting these aims, as follows. We delivered 22 public events and also contributed to additional unanticipated off-site events. We achieved fewer than expected oral history recordings, and we reflect on this in section 5.8:

- One temporary exhibition at the Nunnery Gallery exhibiting archival collections (53 items), contemporary design and artwork, film and objects made by Bow School participants and a heritage map of the local area. The exhibition engaged visitors with the findings of the research period, creating a coherent narrative through interpretation texts, images and displays of archival objects. Contemporary artworks from the Resident Artist/Makers (and selected Slade students) responding to the research were presented within the exhibition offering another avenue of interpretation to appeal to a wider range of visitors.
- 15 map pins added to the *Raw Materials* online platform's heritage map with accompanying written archival descriptions, and 10 new blog posts were published online. These outputs engaged people with heritage online; the platform attracted 2,231 users, a 30% increase on users of the platform during the *Raw Materials: Textiles* project. 34% of these users were new. The plastic pages on our website had 2,029 views during the exhibition period (3 months).
- 22 public events including two events with UCL's Mobile Heritage Lab/ Thames21, one of which was a warm-up event, followed by a wide-ranging programme alongside the exhibition including boat tours, creative workshops and talks, plus new unanticipated follow-up events in partnership with UCL in October 2019 at Nunnery Gallery and in November 2019 at the UCL Institute of Making, and at Poplar Union in east London.
- A permanent display shelf for the gallery, built on the design of the *Raw Materials* logo and featuring all the catalogues / heritage maps, the gallery's collection of vintage objects purchased as a handling collection through the *Raw Materials* series, as well as a display screen for all the archive photos and an iPad to enable gallery visitors to use the website / comment on items in the space. This creates a permanent presence and legacy for *Raw Materials* and its findings in the Nunnery Gallery.



Design for *Raw Materials* shelf



Raw Materials shelf before installation

- We recorded four oral histories during the project. We obtained three more from the Waltham Forest Oral History Workshop (WFOHW) collection, which is not publicly accessible. All were exhibited and added to the online heritage map, making them available to audiences. Suffolk Record Office has expressed interest in accessioning two oral history recordings into their archives, and WFOHW added all our recordings to their collection.
- We achieved further development of the heritage map, online and in print, with a new version developed for print and exhibition, and a Plastics Route added to the online platform as intended.



↑ Parkesine box lid, with inlaid mother of pearl and gold details.

One of Many

The staggering success of plastic in the 150 years since Parkes' work makes him a particularly illustrious member of Hackney Wick's industrial past, though given his underlying idealism one wonders what he would make of its usage today. For all its filth and hardship the industrial East End of London had a strange ambition to it. A desire to redefine what humankind could make and who was allowed to use it.

Dig under the area's surface and you'll find a who's who of manufacturing. Kidd & Co works supplied Fleet Street with much of its ink for nigh on 200 years. The confectionary works that absorbed Parkes' old plant produced sweets for a century before being bought by Trebor.⁶ None of these places were without hardship. Cholera outbreaks, phoshy jaw, and east London's penchant for wage strikes show as much. Many workers met with disease or death in this wild industrial frontier, victims of the harsh visions of progress that fuelled it. But there was vision, and you need somewhere a bit wild for that to truly work.

Much of Hackney Wick's industrial heritage has long since been swept away, but its impact on the modern world will last for centuries. The East End of London had remarkable strength and, as Alexander Parkes showed, it had plenty of brains too.

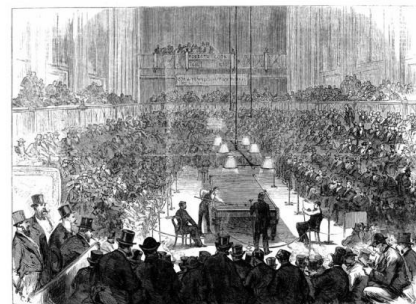
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Raw Materials: Plastics publication, showing essays by Steering Group members

- We met our aims of producing written information including a high-quality printed catalogue (5,000 copies were produced); online publishing of research; a printed programme of events (5,000 were printed); a printed exhibition list of works and archive material, and interpretation wall texts.
- Sharing our research on Facebook succeeded in engaging Walthamstow residents more deeply with the heritage of their area with many responding with their own memories and connections, within Facebook group comments. We were not able to convert these responses into Oral History interviews, within the project.

Eleanor Begley

DID PLASTIC SAVE THE ELEPHANTS?



↑ A championship billiard match at St. James Concert Hall in London, England. Wood engraving, English, 1870.

¹ 'The Post-Billiards Age', 99th Invisible, accessed April, 2018, <https://99percentinvisible.org/episode/the-post-billiards-age/>.

² Ibid.

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Natasha Vicars ▸ Walthamstow Memories

19 June · 🌐

Any-one have memories of British Xylonite - Halex - in Hale End, Walthamstow (hence the brand name of Halex)? Early plastics pioneer with a large site on Larkshall road by Highams Park station...



👍 42

105 comments 3 shares

- Seven essays by Steering Group members were published in the catalogue enabling visitors to take away a compendium of the project's research. Unexpectedly, two essays will be published in *Plastiquarian* (winter and spring 2020), the Journal of the Plastics Historical Society, extending their reach.

We succeeded in **making collections available to the public** that are not normally accessible, through the exhibition, publication and online platform and heritage map. The majority of objects that were on display as part of the *Raw Materials: Plastics* exhibition are not usually on public display or accessible to the public. In particular, the exhibition allowed Vestry House's extensive collection of British Xylonite Company objects and photographs to be publicly exhibited, of which the vast majority are rarely shown, and for the collection of striking Parkesine items owned by private collector Harold Mernick to be publicly shown for the first time. A set of five vintage plastic objects was purchased as a handling collection available to Nunnery Gallery visitors during the project exhibition.



Parkesine box lid with inlaid mother-of-pearl and metal detailing from the collection of Harold Mernick

5.2 Volunteers

- **Volunteers will have had an enjoyable experience**
- **Volunteers will have learnt new skills**

In total 58 volunteers contributed to the project, contributing 716 hours of time, this exceeded our aim of engaging 40 volunteers contributing personally to the project. It was 65% more than the previous year of *Raw Materials*.

47 volunteers were trained in conservation, learning, participation, management and media skills; we consider this a good result. All volunteers received the planned training through the project, enabling them to develop new skills. The volunteers involved include the Community Steering Group and gallery assistant volunteers who engaged visitors in the exhibition and at events.

We achieved the planned research visits and training for the Community Steering Group and added new collection visits during the project. The Steering Group and UCL students visited MoDiP, V&A, Science Museum archives, Vestry House Museum and Waltham Forest Archives, Hackney Archives, Newham Archives and Suffolk Record Office Ipswich, and Higham Park Society.

Volunteers gave positive qualitative feedback detailing their learning and enjoyment in these volunteer roles, as follows (further comments are given in section 5.0 detailed findings):

“I learned how to take meter readings of temperature, visible and UV light and recording them. This made me much more aware of the importance of the environment when exhibiting historical or archival items.” (gallery volunteer)

“I never considered before the impact that lighting and external environment can have in works of arts and artefacts. I have learned that the adjustment and control of lighting, room temperatures, UV exposure and humidity is very important for artefacts’ conservation.” (gallery volunteer)

“I learned how to handle exhibition items correctly. I also had the opportunity to apply condition checking on the exhibits, providing written descriptions and photographs of their condition before installation and at the de-installation, where I was also shown how to prepare the items for delivery back to the organisations that provided them.” (gallery volunteer)



Volunteers meet with Project Manager in the project exhibition

“The overall project was fantastic – with a mixture of site visits, talks and training offered for volunteers.” (Steering Group member)

“Writing a piece for the accompanying exhibition brochure reawakened my writing skills and gave me a good sense of personal achievement. All in all, my involvement with the project was a very positive one, I would be keen to be involved in a similar way on future projects and would recommend the experience to other local residents.” (Steering Group member)



Steering Group and UCL students in a research visit to the Victoria & Albert Museum

"I am so glad that I signed up to participate in the Steering Group. It was an amazing opportunity... I would recommend the experience to anyone wanting to learn more about their local area and community's history. I am so thankful for the opportunity to write an essay for the exhibition catalogue. Through the feedback and help from Natasha and Sophie my confidence in writing has dramatically improved. I have developed my skills in archival research; I now know how to go about finding the relevant information more efficiently and how to record information properly once found." (Steering Group member)

"I learnt so much and very much appreciated the access that was granted to us as a group to view collections much closer than would usually be allowed. ... I met some great people and really enjoyed the various collection and archive visits as well as hearing from experts in the field."

"I developed my writing skills and am very glad to have had the opportunity to have my writing published." (Steering Group member)

New gallery staff also received training in environmental monitoring and received on-going support in how to approach archival-focused exhibitions.



Steering Group and Resident artist Frances Scott on a research visit viewing collection items from Vestry House Museum

5.3 Activity Participants

- **People will have had an enjoyable experience of engaging with heritage through exhibition visits and attending events**
- **People will have learnt new skills from the project, including students, young people, vulnerable groups, families**
- **Young and local audiences will have learnt about heritage through the running of a workshop aimed at families.**

There was a total of 1405 visitors to the Nunnery Gallery during the project exhibition. This was similar to the numbers of visitors in 2018, which was 1430, however it was not as many as we hoped to attract as we had aimed to have 2000 visitors.

In total 533 people took part in public events at Bow Arts, this exceeded our expectations and reflected improved leverage of local partnerships including Stratford Library and Vestry House Museum. The events aimed to extend the heritage learning and engagement, for example, boat trips on the River Lea brought heritage to life at the historic plastic manufacturing locations of the Lower Lea Valley. A workshop led by Material Driven enabled participants to mould recycled plastic into a coloured medallion inspired by an archival object - the 1862 Exhibition award medallion in Parkesine on display in the gallery.

The *Raw Materials: Plastics* events programme offered opportunities to further explore heritage findings, as well as using these as a springboard for wider discussion of plastics in light of environmental concerns and new material developments. The attendance was an increase of a factor of three on the previous year of *Raw Materials*.

We exceeded the number of family workshops offered to engage young and local audiences with heritage. We delivered a total of five family-friendly creative workshops in the project (we planned to do just one). Working with Stratford Libraries on promotion helped reach a greater family audience.

We were very successful in enabling enjoyment of heritage learning as evidenced by the following evaluation results and qualitative responses:

- 98% of visitors agreed that they enjoyed the exhibition or event that they attended (based on 167 responses across event and exhibition attendees)
- 83% of visitors agreed that they enjoyed seeing a creative response to the history of plastic in east London (based on 136 responses across event and exhibition attendees)
- 81% of visitors agreed that they had learnt new things about plastics and/or sustainability (based on 160 responses across event and exhibition attendees)

Comments from activity participants included:

“Good to see the [geographic] areas mentioned in the exhibition visit and enjoy a good trip.”

“Really made me think about my local area in a new way - early plastics pioneers!”

“I liked the materials. I liked the local educational fun. I learnt that plastic was invented in Hackney replacing [elephant] tusks.”

“Fascinating how film can be manipulated creatively. I learnt that plastic development was a key east London industry.”

“Didn't know plastic was first made right on my doorstep, Homerton, for the first time!”



Boat trip and plastics history tour of the River Lea in east London



Participants working with recycled plastic at a creative workshop led by Material Driven at Bow Arts

We succeeded in hosting vulnerable groups and offering a tailored exploration of the heritage exhibition. Relationships formed in previous years led to return visits from two local community projects, Arts Engine and Bromley-by-Bow Centre; both visits were from a group of adults with learning difficulties, totalling 31 attendees. Although Bow Arts contacted other community groups to invite them with plenty of time (months before the exhibition opened), we did not receive further bookings and so did not get as many as we had hoped. In comparison with Textiles in 2018, this may have been because there were groups whose Bangladeshi or Afghani heritage particularly connected with textiles, or because the topical interest in plastics' environmental issues and sustainability was well catered for in the public event programme with high levels of attendance.



Discussion during follow-up event with UCL at Nunnery Gallery

5.4 Trainees

- **Trainees will have learnt new skills from the project**

We succeeded in developing the skills of two placement students who worked on the project as part of the STEP programme – a shared traineeship employment programme designed to provide access to cultural jobs in east London to east London residents, supported by London Legacy Development Corporation.

Fizza was on her six-month traineeship at Bow Arts during the exhibition and events programme, in particular developing skills in volunteer coordination, and Leila was on her traineeship during the research phase and for the warm-up event. Both received training and learned new skills in heritage conservation, volunteer and gallery and event coordination.

“I learnt new skills, as environmental monitoring was something I had not done before, as well as condition reporting during the installation of the exhibition. I enjoyed meeting new people and getting to know [the gallery assistant] volunteers and others [that] I was learning to coordinate...” (Gallery Assistant - trainee)



Results displayed during Plastics Identification Survey citizen science initiative at Bow Arts/UCL event

5.5 Students

- **Students will have learnt new skills from the project**
- **Students will engage with the project's research – resulting in more work being made in relation to it**

We achieved these aims with seven students from the Slade School of Art at UCL participating in the heritage research alongside the Steering Group, learning archive research skills and proposing and creating new work.

Seven students from the Slade joined the research phase, five of whom developed and submitted a proposal of a new contemporary artwork in response to their research. Two student artists produced new work in relation to the heritage research for the project exhibition and publication, a third wrote for the online blog.

“I would say I have gained more of an interest in exploring archives and do feel empowered to approach places for research. Being a part of this project has opened avenues of research for me to pursue surrounding the topics of history of plastic in art, conservation and sustainability. Overall, it was fascinating to learn of the history and I am grateful for the opportunity in taking part.” (MA Painting student, Slade School of Art, UCL)

A total of eight postgraduate students from the UCL Institute of Sustainable Heritage took part in public events as part of the Raw Materials: Plastics programme and undertook new research.

The postgraduates developed their public engagement skills through supporting two events involving the Mobile Heritage Unit and environmental charity Thames21. These two events included new citizen science research into types of plastic found in the Thames.



Visitors investigate heritage plastics in the Mobile Heritage Unit with UCL postgraduates

Postgraduates also interviewed exhibition visitors as research for the Institute of Sustainable Heritage, developing new research on attitudes to plastics in relation to the project. This research is summarised in appendix 7.7.

5.6 Resident Artist/Makers

- **Heritage will be better interpreted and made more accessible through the two resident makers, who will research alongside the steering group, lead engagement workshops, and produce contemporary interpretations of heritage for exhibition**

We achieved our aims with the two resident makers contributing fully to the research and public programme and each creating a unique contemporary interpretation of heritage for the exhibition that extended visitors' engagement with this heritage.

- 83% of visitors agreed that they enjoyed seeing a creative response to the history of plastic in east London (based on 136 responses across event and exhibition attendees)

The Resident commissions were awarded to Peter Marigold, a designer/maker/bio-plastics entrepreneur and Frances Scott, a contemporary artist working with film. The two Residents

had very different interests and practices, which strongly enriched the conversations during the research phase and the public outputs of the project.

Peter Marigold's interests were in the processes used in forming the earliest plastics and how these techniques might leave traces on the resulting objects. He researched the history of Alexander Parkes in Hackney and his techniques with the first manmade plastic ever produced 'Parkesine'. Peter responded to these early techniques by working with bioplastic FORMcard, moulding it by hand into wooden moulds to create a design piece that was exhibited. His interpretation responded to the material substance of this first plastic, a semi-synthetic substance – connecting current bioplastics to the earliest historic plastics. His 'Semi Synthetic' designs made history more accessible for visitors, adding another aspect to the interpretation of the plastics history of the Lower Lea Valley.



Resident maker Peter Marigold's moulded bioplastic connected to historic plastic Parkesine

Comments from visitors:

"As plastic is a manufactured material, it is very interesting to see artwork that shows the moulding process"

"Interesting FORMcard has come full circle in same location [Homerton High Street, the location of Peter's studio is on the site of the first British Xylonite Company building]"

Peter presented creative family and local audience workshops using FORMcard at Bow Arts during the exhibition, which received positive ratings and comments from attendees as furthering understanding and enjoyment of heritage.

“Unique, always wanted to know how could do this kind of stuff at home. It was very hands-on and mixed ages works well”



Two workshop participants using FORMcard to reflect on local historic early plastics' and their mimicking of natural materials

Frances Scott also engaged with the first man-made plastic, cellulose nitrate as a key component of film stock (also known as Celluloid or Parkesine). Frances was able to draw together many strands of her heritage research into one piece, reinterpreting the heritage for visitors within a moving image and sound work that included animated heritage objects made through laser scanning and photogrammetry techniques. It animated three-dimensional scans of some of the loaned archival objects exhibited alongside it.

The score she developed for the film drew on archival research, including colour experiments listed in a British Xylonite Company laboratory formula book (c.1888).

Visitor comments in evaluation forms showed how the piece had contributed to the meeting our aims for a stimulating and exploratory exhibition:

“I like the combination of historical material and contemporary”

“Timely, informative, and creative contribution to both contemporary art and public discourse”

“Good to see its aesthetic and [the] philosophical aspects of plastics [in this heritage exhibition]”



Frances Scott film work *PHX [X is for Xylonite]* as installed at Nunnery Gallery in project exhibition

5.7 School Students

- **More people will have learnt about heritage through the Bow Arts Education school project**
- **Working with a local school will engage young people in the heritage of their local area**
- **School students will have learnt new skills through the project**

“All involved have gained further historical insights into the development of plastic and its connections to the local area. The works created by the students were excellent and those who attended the exhibition were proud of their achievements” (Bow School Teacher)

“Melting and combining plastics to form colours from nature helped reinforce students colour theory” (Bow School Teacher)

Bow Arts worked in partnership with Bow School engaging 60 Key Stage 4 students with the history of plastics and the importance of the material to east London industrial heritage (our target was 30 students).

The project involved two classes of year 10 students, who worked creatively with the Resident Artist/Makers, Frances Scott and Peter Marigold, to experiment with materials, ideas and concepts relevant to their heritage research into plastics in the Lower Lea Valley.

Each class worked with one of the Residents over two days. Pupils gained practical skills in experimenting with new materials like FORMcard and learning how to use a Bolex camera. The artwork they produced, was used as evidence for their GCSE coursework topic 'Past, Present and Future' and was included in the *Raw Materials: Plastics* project exhibition.

The year 10 students also visited the *Raw Materials: Plastics* exhibition and were given a talk by the Project Manager followed by the chance to look around at their own pace and see their works on display.



Students from Bow School visit the *Raw Materials: Plastics* exhibition at Nunnery Gallery

Showing the students' works in the main exhibition space, so that the project was incorporated within the narrative of the exhibition, validated the significance of arts and heritage education, providing professional display of the artworks and giving the young people pride and creative confidence when they visited the exhibition.

We were successful in enabling collaboration between the Bow Arts Education and Gallery teams, which is unusual with respect to Bow Arts usual working practices. (See section 5.8 on resilience).



Resident maker Peter Marigold leads a masterclass at Bow School



Bow School students filming at a masterclass led by Resident artist Frances Scott

5.8 Resilience and Sustainability

- **The Nunnery Gallery will be more resilient, having developed partnerships with new key players in the east London cultural scene**

Bow Arts worked with eleven partners during the project, of which several had been involved in previous *Raw Materials* projects. Two new partners were added during the project, responding to introductions that were made as the research phase progressed; these were Science Museum London and the Plastics Historical Society. Partners supported the recruitment of steering group members by sharing information through external and internal channels, supporting Bow Arts' audience development.

Bow Arts developed its relationship extensively with UCL, a new player in the east London cultural scene through the establishment of UCL East in the Queen Elizabeth Olympic Park. This was coordinated partly by the Innovation and Enterprise department who are responsible for UCL's engagement with outside audiences. In addition to supporting financially through their Knowledge Exchange and Innovation Fund, the academic partner University College London (UCL) made wide-ranging and substantial contributions to the project, in which the following departments each played a part: the Institute of Making; the Institute of Sustainable Heritage; Department of Art History; Centre for Digital Humanities; the Plastic Waste Innovation Hub and the Slade School of Fine Art. Katherine Curran and researchers at the Institute of Sustainable Heritage undertook their own research on visitor attitudes to plastics through in-depth interviews with visitors at the gallery. The Institute of Sustainable Heritage also involved a further partner, environmental charity Thames21, with whom we conducted two citizen science investigations on the make-up of plastic waste in the Thames in two day-long public events.

As a result of the project, this department is interested in continued involvement with Bow Arts and its *Raw Materials* projects; for instance, the department announced the opportunity to form a Materials Innovation Network relating to plastics through an event at Nunnery Gallery – an opportunity that is open to interested local people and to Bow Arts studio holders.

“Working with the Raw Materials: Plastics project was a great opportunity for the UCL Institute for Sustainable Heritage. Through our research we have learned more about the role that heritage can play in shaping opinions of plastics and their value, including through interviewing visitors to the project exhibition of archival objects. The public events at Bow Arts with Thames21 allowed us to use citizen science to learn more about plastic waste in London. And working with the artists in residence was a great way to see our scientific research from a fresh perspective.”

(Dr. Katherine Curran, project lead, UCL Institute of Sustainable Heritage)



UCL Institute of Sustainable Heritage brought its Mobile Heritage Unit to Bow Arts for two public events

The partnership with Bow Arts on Raw Materials: Plastics provided the opportunity to amplify the research, public engagement and knowledge exchange activities of UCL. The programme has developed an inclusive community to engage with local heritage whilst addressing real world challenges through the arts. Across the university departments, academics have supported artists-in-residence to test materials and making to inform innovative practice to share with the east London community at the Nunnery Gallery and via a number of public events along the Lea River. Frances Scott's artwork PHX [X is for Xylonite] was inspired using UCL research and labs within the Institutes of Sustainable Heritage and Making, Slade School of Fine Art and UCL Digital Humanities. Heritage exhibits alongside innovative film and contemporary making engaged multiple audiences, allowing research to inform critical thinking and enquiring minds around plastics of the past and for the future. The exhibition curated historical innovation to ignite novel concepts for the 21st century; it allowed UCL to connect to and make friends with new audiences whilst teaching and research opportunities became contextualised in site-specific practice. UCL is delighted to have partnered Bow Arts with the Raw Materials: Plastics project.

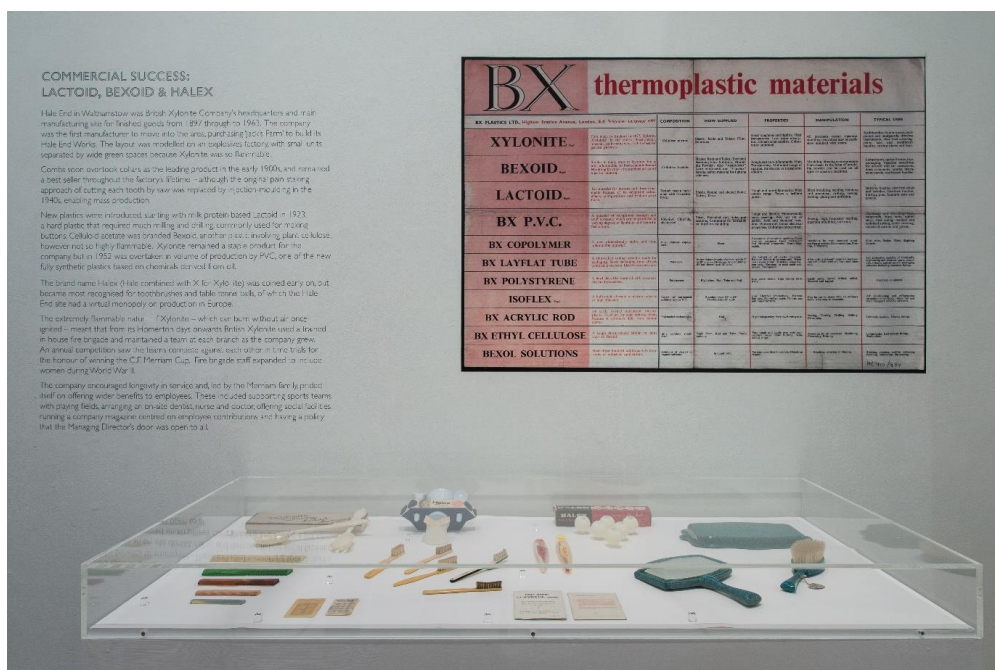
- Jo Townshend, Senior Partnership Manager (Creative Industries), UCL Innovation and Enterprise

The Victoria and Albert Museum supported the project, in light of their coming new space on the Olympic Park's East Bank (V&A East), as well as the relocation of much of their archive collections to Here East. The V&A have also expressed an interest in continuing the partnership with Bow Arts over future heritage projects. Partnerships with UCL and V&A,

with their clout, expertise and wider funding streams, are crucial to the survival of a small local gallery which currently receives no public funding.

The coming of bigger players to east London brings exciting new opportunities and Raw Materials has strengthened key relationships that will support Bow Arts and the Nunnery Gallery's resilience in the years to come.

The *Raw Materials: Plastics* project also cemented Bow Arts' relationships with Vestry House Museum (sister museum to the William Morris Museum), and formed a new connection with the Science Museum London, another major institution expanding into the Queen Elizabeth Olympic Park and a potential supporter of future materials heritage projects at Bow Arts.



Display of archival objects at Raw Materials: Plastics exhibition including loans from Vestry House Museum

“Vestry House Museum was delighted to be able to show some of our collection of early plastics from the British Xylonite factory in Hale End as part of the Raw Materials: Plastics project. Many of these objects had rarely been displayed before and were thoroughly researched by the highly enthusiastic Community Steering Group at the Museum and the Waltham Forest Archives and Local Studies Library. The exhibition at Bow Arts also gave us an opportunity to promote our extensive photography collection through showcasing some of our images of the British Xylonite factory.” - Ainsley Vinall, Assistant Curator, William Morris Gallery and Vestry House Museum

For the first time in the *Raw Materials* series, Plastics saw two of Bow Arts' departments partner – the Gallery team and the Education Department. This collaboration between departments has demonstrated how the two teams can positively overlap, strengthening

the gallery's links to local schools. With the two departments working alongside one another for nearly 20 years and rarely overlapping, this is an incredibly important outcome for the organisation

Taking learnings forward:

Reflecting on the project to inform future working practices and heritage projects:

- In scheduling the Oral History training day, we selected the date when most people could attend, however this led to it falling later on within the research period. This limited the time available to identify and arrange interviews and led to fewer interviews being undertaken. In future we'd recommend scheduling the initial training earlier in a heritage project, as one of the first activities offered to the Steering Group/participants. We recommend including a second Oral History training day, which could either be used to train people who couldn't make the first date, or to recap and to respond to questions that had arisen in practice.
- The research phase of the project felt quite rushed, running from December 2018 to early May 2019. We think there would be benefits from allowing more time for this phase – it would allow both the Steering Group and the Resident makers more time to assimilate the research visits and to undertake independent research. We also recommend allowing more time for the Project Manager to recruit the Steering Group in advance, with the aim of recruiting a larger group. This is partly because, with many small museums and archives understaffed, there was sometimes a delay in sharing the Steering Group call out. Scheduling additional time would also allow the Project Manager to offer further 'open evening' style events for interested people in target boroughs, such as Newham and Barking, giving people the opportunity to chat to someone about the role and helping break down barriers to participation – and thus achieve a more diverse group of steering group volunteers. Additional time at this stage would also allow the Project Manager to schedule in more research visits in advance.
- In working with a bigger Community Steering Group, it could then be worth offering the opportunity for individuals to become more involved with specific aspects of the project, depending on interest and availability; for example in supporting the exhibition organisation, or leading on gathering content for the *Raw Materials* online platform. Again, having a longer period of research and planning would allow better scope for this to take place.

6.0 Detailed Findings

Evidenced details of outputs and outcomes as set out in project application and review of collated data and feedback given by participants are found below.

6.1 Statistical Outputs

Activities

Type of Activity	Total number	Number of participants
Temporary exhibition	1	1405
Guided tours or walks (public programme)	5	38
Gallery Tours (not public programme)	3	33
Visits from schools or colleges	1	31
Masterclasses in Bow School	4	60
Workshops, events and other onsite activities (public programme)	17	495
Community group visits	2	31
Other off-site events (UCL, Discovery Planet Poplar)	5	145

Activity participants

Exhibition Visitors:

Age range	% of attendees
Under 20	10
20-29	28
30-39	23
40-49	17
50-59	13

60+	9
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Female	Male	Prefer not to say
52%	48%	0%

Volunteers:

58 volunteers contributed 716 hours of volunteering on gallery invigilation and event programme.

Percentages of the 34 gallery and event volunteers who completed anonymous equal opportunities forms:

Age range	% of volunteers
Under 20	8.8
20-34	73.5
35-49	11.8
50-59	5.9
60-64	0
65+	0

Female	Male	Non-binary	Other	Prefer not to say
79.4	20.6	0	0	0

Identify as transgender? (% of volunteers)		
Yes	No	Prefer not to say
0	34	0

Sexuality (% of volunteers)

Bisexual	Homosexual	Heterosexual	Other	Prefer not to say
8.8	73.5	2.9	2.9	5.9

How would you describe your ethnicity?			
Ethnicity	% of volunteers	Ethnicity	% of volunteers
Asian / Asian British - Bangladeshi	2.9	Mixed – white and black Caribbean	0
Asian / Asian British – Chinese	5.9	Mixed – any other mixed background	5.9
Asian / Asian British – Indian	0	White – British	23.5
Asian / Asian British – Pakistani	0	White – Irish	0
Asian / Asian British – Any other Asian background	5.9	White – Traveller	8.8
Black / Black British – African	5.9	White – any other white background	26.5
Black / Black British – Caribbean	2.9	Other – Arab	0
Black / Black British – Any other black background	0	Other – Any other ethnic group	2.9
Mixed – white and Asian	2.9	Prefer not to say	2.9
Mixed – white and black African	2.9		

Do you self-identify as disabled? (% of volunteers)		
Yes	No	Prefer not to say
2.9	91.2	5.9

What is your religion or belief?	
	% of volunteers
Buddhism	0
Christianity	17.6
Hinduism	2.9
Islam	5.9
Judaism	2.9
Sikhism	0
Other	11.8
No religion or belief	44.1
Prefer not to say	14.7

Training

47 volunteers received training in 8 different areas. The table below shows how many volunteers received training in these areas.

Conservation	41	Delivering learning or interpretation	39
Delivering participation including participation and volunteer management			13
Conservation - collections, including oral history	30	Media skills including websites, films and recordings	39

6.2 Heritage Outputs

We succeeded in ensuring the plastics heritage of the Lower Lea Valley is better interpreted through the following project outputs:

- **Printed map & events poster**

5,000 printed maps were produced, developed from the professionally produced map from last year. The map was extended to include several locations in Waltham Forest.

The maps were – and continue to be – available to pick up at the Nunnery Gallery and distributed to local venues and partner organisations

- **Digital Platform**

The digital platform was enhanced with new functionality enabling website visitors to participate by sharing comments and responding to others' comments. The home page was adapted to display video instead of a single still image, and a short video of the exhibition was added in September 2019. The new functions were developed by Eight Arms design company who created the website two years ago. Overall, the platform continued to be a great resource, providing an accessible way for the steering group to let people know about their research through blogs. It continues to be a successful legacy of the Raw Materials story with 44 heritage pins appearing on the map in total.

- During the project period (Nov '18 – Nov '19) the Raw Materials digital platform attracted 2,231 users, a 30% increase on users of the platform during the Raw Materials: Textiles project. 34% of these users were new, demonstrating the digital platform's engagement of new online audiences. Sessions increased by 4% compared to Raw Materials: Textiles to a total of 2,722 during the project run with 5,335 page-views, although the average session duration was shorter at 1.5mins. This data presents a picture of continued and growing engagement and heritage learning through the Raw Materials platform.

- During the exhibition period of 17 May to 25 August, the Raw Materials: Plastics pages on the Bow Arts website had 2,029 page-views. The average time spent on the pages was 2 min 19 sec. 1,042 website visitors entered the site on the plastics main page.
- **Publication**

A new design agency was approached to undertake the design of the project publication. The designers reviewed previous project catalogues and made recommendations to improve the design to make it more accessible and to better present the essays and photographs. Reflecting on last year, the Steering Group essays were kept to a shorter and more consistent length. The Steering Group were inducted in image copyright concerns in advance, and were much more aware of the requirement to secure image permissions in good time for the design process. The resulting publication featured seven essays by Steering Group members and was an improved design that was very well received by visitors, event attendees, Resident Artist/Makers and the Steering Group.
- **Exhibition**

The project exhibition took place from 17 May to 25 August in the Nunnery Gallery, a free public gallery run by Bow Arts which is open six days a week. The gallery is a 10-minute walk from the River Lea and the local context of the heritage exhibition was made clear through a striking large-scale map in the first room of the exhibition, as well as in interpretation texts. The exhibition brought together archival objects and images with contemporary art and design commissions in response to the heritage research by artist Frances Scott and designer/maker Peter Marigold, and by two selected Slade School of Art students. The museum objects and archival images had been selected through the project research phase and the contemporary works gave visitors new perspectives on these displays. The exhibition also included a relevant BBC television programme. The exhibition was structured into five sections, each with an accompanying interpretation text and related image display, which supported visitors to learn about the heritage.
- The exhibition acted as a focus for media and social media interest, with television network London Live recording a broadcast piece including interviews with the Gallery Director and one Resident Maker, at the time of the exhibition opening, and BBC Radio London featuring the exhibition together with an interview shortly after. One essay about the project by the Project Manager, Natasha Vicars, is due to be published in *Plastiquarian* journal (winter 2020).
- A set of five vintage plastic objects was purchased as a handling collection available to Nunnery Gallery visitors during the project exhibition. A further display of these objects and reprint of the exhibition's heritage map wall panel and summary text was presented as a 'stall' in an educational science event in Poplar in October 2019, upon invitation. The stall was staffed by gallery volunteers and members of the Steering Group, as part of the event 'Plastics Unwrapped' from Discovery Planet at Poplar Union.
- **Oral history interviews**

Eight Oral Histories map pins were added to the online map, of which four were recorded during the project by three Steering Group members interviewing people in Waltham Forest

and Suffolk about their experience of British Xylonite Company. The full day of Oral History training by an external professional was very well received by the group.

- A further three oral histories were edited and exhibited and also added as map pins, these came from the collection of the Waltham Forest Oral History Workshop which is not publicly accessible. All new oral history recordings or edits from the project were shared with and added to Waltham Forest Oral History Workshop (WFOHW) collection. Two recordings are being considered for accession into the archives at Suffolk Record Office archives.

6.3 People Outcomes

Activity Participants

Outcomes for participants was evidenced through feedback documented through questionnaires completed by visitors to the exhibition and the event programme participants.

Although we did not manage to collect substantial demographic information through surveying participants, we did observe diverse audiences attending our event programme – and this is evidenced through documentary photographs recording the events.

The plastics heritage of the Lower Lea Valley will be better interpreted and explained, highlighting the east London-led innovation of plastic and its uses

Comments received on evaluation forms from exhibition and events included:

- *Good explanation of the origins and developments of plastics in [the] East End.*
- *Highlighting the industrial manufacturing in the east end. Everything I read was new to me*
- *I think plastic manufacturing and usage is very interesting and relevant to now*
- *Learnt lots! Had no idea of relevance of east London to plastics production.*
- *Well researched. Seeing originals on loan from the national collections added to the experience immeasurably*
- *It's interesting to see how plastic objects transform from what they used to be - every day, lifestyle objects - into heritage objects.*
- *Really made me think about my local area in a new way - early plastics pioneers!*
- *It is nice to be able to relate to the area I'm living in by getting to know what it looked like 100 years ago*
- *What the impact of such an innovative material must have had. And although plastic has a bad press now, it did replace ivory!*

- *Learnt about history and great inventions of the area - past and present*
- *Good to see the [geographic] areas mentioned in the exhibition visit and enjoy a good trip*
- *Great to learn this is essentially where plastics began/developed*
- *I live in east London and it was great to find out*
- *I have learned about the history of plastic. We use things every day and we don't even know where it has come from.*
- *The history of plastic was never considered in early education*
- *Hadn't previously thought about plastics replacing animal products*

A selection of comments from in-depth interviews of exhibition attendees by UCL researchers:

"For me, it was interesting [to] look at it from a local point of view because we live in Homerton and are interested in industry anyway in this area and I'm very interested in material properties...I'd forgotten how beautiful how some of these early products were and what they were for which of course is a huge transition from now, every day plastics, bottles ..."

It's made me think more about early plastics which I didn't really think about, how they were made and they were certainly less damaging. And the great shift in what people thought, what were the purposes and potential of plastics, from the beginning to later. It's the history that interests me, partly, just because of living around here."

"I'm from Eastern Europe and I can see that, for example, lots of these objects are still used over there. I think they are less used here, but if you go to Eastern Europe – especially in old people's houses – they still use a lot of these objects, kind of old school plastics."

"I think it's really interesting to realise how much history is in this local area and also Walthamstow...I live near Walthamstow, so I didn't know any of that, so that was quite interesting to learn about the history and how much of it was invented on our doorstep."

...Who hasn't had a tortoiseshell hairclip made of plastic or a tortoiseshell pair of sunglasses, we've all had those things, that's always been in our lives and we haven't thought about it, but we still call it tortoiseshell, so I think it's quite interesting that you don't think of it from the perspective it was actually introduced to be in a more sustainable way."

"I think they've [plastic objects] changed from being a replacement for luxury items to being much more a disposable item, so I think, seeing these objects, they're not designed to be disposable at all, they're designed to be kept and I think plastics, these days, feels very much more of a temporary type of object."

Volunteers

37 volunteers who were recruited as gallery invigilators or as event assistants, 10 volunteers who joined the steering group, and one further who made contact about the Plastics steering group but was only available to join as an events volunteer. It includes eight volunteers from UCL who

supported joint events and two volunteers from the Plastics Historical Society who supported a joint event.

The Steering Group was recruited through an open invitation shared through Bow Arts local networks of third sector and community organisations, schools and housing associations. It was also shared by Tower Hamlets Arts and Libraries and through Bow Arts' own channels, as well as by project partners. Direct approaches were made to community groups and local history groups. The recruitment culminated in an open evening where prospective participants could call-in to Bow Arts to meet the Project Manager and staff and hear about the project. The outcomes for volunteers were recorded through surveys and exit interviews, including qualitative comments and obtaining demographic information through completing an equal opportunities form anonymously, as well as through documentary photographs of the programme. The majority of the research phase of the project was recorded by the Steering Group, who documented the archive and museum collection visits that they undertook with the Project Manager.

Learning about the heritage of the local area

"I have learned more about plastic's 'humble' beginnings in the East End, and how its versatility improved some aspects of human life by making objects that were once exclusive to the rich more accessible to the working classes (and how it 'commonised' photography that was once exclusive to rich men by making it more accessible)."

"It was great learning about how plastics originated... from Hackney Wick, which is so local to the gallery."

Developing skills and learning new skills

"My volunteer experience at Raw Materials: Plastics was wonderful. It was my first time volunteering at an art gallery in London and it was very positive. I learned a lot about the history of east London and its relationship to plastics manufacturing and development."

"Through hands-on experience, I learned how to handle exhibition items correctly. I also had the opportunity to apply condition checking on the exhibits, providing written descriptions and photographs of their condition before installation and at the de-installation, where I was also shown how to prepare the items for delivery back to the organisations that provided them".

Environmental conditions - equipment and preserving heritage collections

"During the exhibition I learned how to take meter readings of temperature, visible and UV light and recording them. This made me much more aware of the importance of the environment when exhibiting historical or archival items".

"I never considered before the impact that lighting and external environment can have in works of arts and artefacts".

"I have learned that the adjustment and control of lighting, room temperatures, UV exposure and humidity is very important for artefacts' conservation".

How did you engage visitors to the exhibition with the project and local heritage?

“By asking them to comment on their exhibition’s favourite learnings with post-its, and sharing our common surprises of the sophisticated objects produced with plastic e.g. the golden Parkesine boxes were really detailed.”

“I gave written information that explained the work in more depth and found out about their [visitors’] experience and interest in the subject. One thing that sticks out for me was a visit by a couple that actually worked in the plastics factory featured in the exhibition. Their experience was recorded as part of the audio exhibit and it was great to see and talk to them about their first-hand experience as well as what it meant for them to have their story on record for others to hear.”

What did you enjoy about volunteering on the project?

“I especially liked the graphic design of the map, which included a walk visitors could take to learn more about specific sites related to plastic production from the past. The visitors seemed genuinely passionate about the items in the exhibition.”

“I enjoyed volunteering for the exhibition as it showcased the history of plastics brilliantly.”

“Probably one of my favourite objects in the exhibition was the FORMcard pieces. I also had the opportunity to assist in a workshop with their creator Peter Marigold.”

What aspect of the project do you think was most successful?

“I particularly liked the collaboration with the artist who made the rather beautiful mix composite plastics that brought the history of the exhibition into the modern day and [showed] how relevant the artist’s process was.”

“The most successful aspect of the exhibition for me was the revelation of the development of plastics in the East End. Something I didn’t know. Also, the fact that the development of plastics and its mimicry of natural materials such as ivory was originally developed to help the environment and the extinction of certain wildlife.”

“Boat tours – because they would keep selling out quickly. They gave the visitors and locals a chance to learn about the area and its heritage while experience something fun.”

Steering Group Members

The Steering Group was recruited through an open invitation shared through Bow Arts local networks of third sector and community organisations, schools and housing associations. It was also shared by Tower Hamlets Arts and Libraries and through Bow Arts’ own channels, as well as by project partners. Direct approaches were made to community groups and local history groups. The recruitment culminated in an open evening where prospective participants could call-in to Bow Arts to meet the Project Manager and staff and hear about the project.

Once formed, the Steering Group visited eight archives or museum collections; these were Hackney Archives, Waltham Forest Archives, Newham Archives, Suffolk Record Office, Vestry House Museum, the Victoria and Albert Museum, the Museum of Design in Plastics (Arts University Bournemouth) and the Science Museum collection store at Blythe House. In the first visit at Newham Archives the focus was primarily on training, as an introduction to using the archive for research. All subsequent visits were written up as blog posts by members of the group, resulting in seven blog posts being published about the research period. The majority of the group had not written blog posts before. Each visit was facilitated by museum and archive staff who shared expertise and assisted the group in investigating the plastics history of the Lower Lea Valley. Additional meetings included a talk and presentation of historical plastic objects by a local historian (and committee member of the Plastics Historical Society), and a visit to the informal British Xylonite Company collection held by the Highams Park Society in Hale End. This latter visit led to two items being loaned by the Society for the project exhibition.

Oral History training by an external professional was very well received by the group. Subsequently, three members of the Steering Group undertook interviews with four people about their experiences of the plastics industry. WFOHW made available recordings of interviews with three people from Waltham Forest; these were included as four excerpts in the project exhibition and online platform.

“Writing a piece for the accompanying exhibition brochure reawakened my writing skills and gave me a good sense of personal achievement. All in all my involvement with the project was a very positive one, I would be keen to be involved in a similar way on future projects and would recommend the experience to other local residents.” Steering Group member

“I am so glad that I signed up to participate in the Steering Group. It was an amazing opportunity to explore and learn about the history of a material that is so prominent to our world and its future. As leader, Natasha’s enthusiasm and commitment to the project was reflected in the whole group. I would recommend the experience to anyone wanting to learn more about their local area and community’s history. The final exhibition was delightful – amazing to see our efforts pulled together for the public to enjoy. Seeing the artists’ final response to the project having worked alongside them in the group was a particular highlight. I am so thankful for the opportunity to write an essay for the exhibition catalogue. Through the feedback and help from Natasha and Sophie my confidence in writing has dramatically improved. I have developed my skills in archival research; I now know how to go about finding the relevant information more efficiently and how to record information properly once found. Oral History was one of my favourite parts of the project. I had no real idea of oral histories as a method of recording history, and found it not only fun but quite challenging.” Steering Group member

“I would like to take the opportunity to thank Bow Arts for providing this opportunity. I learnt so much and very much appreciated the access that was granted to us as a group to view collections much closer than would usually be allowed.

I learned about the history of plastic in east London; I knew next to nothing on this topic before joining the steering group! I enjoyed volunteering on the project; I met some great people and really enjoyed the various collection and archive visits as well as hearing from experts in the field. I developed my writing skills and am very glad to have had the opportunity to have my writing published.

I have learnt a lot! I knew a little about industrial history in the area, but had no idea plastic was such a big part of it. Everyone involved has been lovely and the research was fascinating. I wasn't able to attend as many sessions as I'd have liked, but I think that's inevitable when group members have courses and jobs to juggle. I enjoyed the final exhibition very much. It was lovely seeing the artistic contributions, it brought the history to life. It was educational to write in a different context [Fred usually writes for a local news site], and Natasha's edits were very useful. There's a real art to navigating archives, and it was great to see pros at work." Steering Group member

Students

Students from the Slade School of Art at UCL participated in the heritage research alongside the Steering Group and postgraduate students from the UCL Institute of Sustainable Heritage took part in public events as part of the Raw Materials: Plastics programme, particularly the two events involving the Mobile Heritage Unit and environmental charity Thames21. For these events, they supported the citizen science research into types of plastic found in the Thames, interviewing visitors for their research, as well as generally assisting with engaging visitors with the events. A total of eight postgraduate students participated from UCL's Institute of Sustainable Heritage.

Seven students from the Slade joined the research phase, variously attending visits at the Victoria and Albert Museum, Museum of Design in Plastics, Vestry House Museum and Suffolk Record Office, Ipswich Branch. The group were recruited through an initial meeting including presentations from the Resident Artist/Makers and from Sophie Hill and the Project Manager about the Raw Materials series at Bow Arts. Five of this group responded to the opportunity to submit a proposal of a new contemporary artwork in response to their research, to be considered for the project exhibition. Two artists were selected by a panel comprising Sophie Hill, Nunnery Gallery Director, Jo Volley, Senior Lecturer, Slade School of Art and the Project Manager; a further student was selected to write an essay for the Raw Materials website blog section. The artwork produced by Flora Bradwell and Monica Perez Vega were well received in the Raw Materials exhibition, and was featured in the project publication alongside a text from each artist.

The students welcomed the opportunity to learn how to use archives for research, and to hear from a leading conservation scientist at the Victoria and Albert Museum.

Resident Artist/Makers

Bow Arts received 15 applications for the two Resident commissions on Raw Materials: Plastics. There were many high-quality applications received, with artists and makers responding thoughtfully to the brief. The number of applications was half that received in the textiles project, perhaps because the industrial history of plastics in east London is a less familiar subject than textiles

heritage. Three candidates were interviewed, with the shortlisting undertaken with Dr Susan Lambert, Director of the Museum of Design in Plastics at Arts University Bournemouth, Nunnery Gallery Director Sophie Hill and Project Manager, Natasha Vicars.

The Resident commissions were awarded to Peter Marigold, a designer/maker and bio-plastics entrepreneur and Frances Scott, a contemporary artist working with film. The two Residents had very different interests and practices, which strongly enriched the conversations during the research phase and the public outputs of the project. Both Residents attended all research visits with the Steering Group and this contributed to the experience for other attendees as they participated in discussions and shared their particular perspectives.

Designer/maker/bioplasic entrepreneur Peter Marigold and contemporary artist Frances Scott were selected as resident artist/makers for Raw Materials: Plastics, each producing a new commission for presentation in the project exhibition. They attended all archive and museum collection visits discussing the findings and sharing their own research with the Steering Group. Both undertook inductions at UCL's 'Makespace' and were introduced to the techniques available at the Institute of Sustainable Heritage. Each gave a talk as part of the public programme during the exhibition, and led two days of masterclasses at Bow School; Peter additionally led public creative workshops and Frances participated in two speaking events at UCL.

The final piece developed by each Resident was exhibited in the project exhibition at Nunnery Gallery and both final works have since been exhibited internationally.

"The visits – the archives – were brilliant for me. Normally, I get so little time to take time out and just explore things. It is just so enriching to be able to put so much about the plastic I make into context through this research. I think developing that workshop with FORMcard used to imitate natural materials has influenced the way that I'm thinking about my own material now..." - Peter Marigold

Outcome: Having two makers will broaden the scope for engagement, with one likely to interpret heritage artistically and the other to highlight the technicality of material developments surrounding plastic sustainability

Frances Scott interpreted the heritage artistically, creating an artist's film that drew together many strands of the project into a high-quality artistic product that was engaging for visitors and complemented the archival displays. Peter Marigold's design background and familiarity with working with the recently developed FORMcard bioplasic enabled him to respond to historic technical material processes and connect them with this innovative sustainable contemporary plastic in a way that was meaningful for visitors.

Quotes from evaluation forms from visitors, responding to the commissions:

"As plastic is a manufactured material, it is very interesting to see artwork that shows the moulding process"

"Interesting FORMcard has come full circle (in same location [Homerton High Street, the location of Peter's studio])"

"It made me think a lot about plastic and creativity"

“Enjoyed artists interpretation”

“I like the combination of historical material and contemporary”

“Timely, informative, and creative contribution to both contemporary art and public discourse”

“Good to see its aesthetic and [the] philosophical aspects of plastics, [and] its positive side as it is often seen as negative at present.”

The makers will run workshops that explore heritage learning in a creative participatory way, increasing the enjoyment of heritage learning

Peter Marigold led creative workshops that explored his heritage research inspirations through making activities with FORMcard, which were designed to be accessible to a wide range of people. Peter also provided his workshop kit to support Bow Arts’ delivery of further public and community group workshops.

Frances Scott instigated a workshop by an artist (Bea Haut) who had assisted her with hand-processing 16mm film for her Raw Materials: Plastics commission. Bea led a workshop that explored the materiality of 16mm film stock in relation to the history of celluloid and its east London invention.

“I liked the materials. I liked the local educational fun. I learnt that plastic was invented in Hackney replacing [elephant] tusks.”

“Fascinating how film can be manipulated creatively. I learnt that plastic development was a key east London industry.”

“[I learnt] new things about plastics (16mm film) and how it can be used and manipulated.”

“Unique, always wanted to know how could do this kind of stuff at home. It was very hands-on and mixed ages works well”

School students

This year’s Raw Materials project included the new element of in-depth work with two classes of year 10 students at nearby Bow School, in collaboration with the Bow Arts Education team.

In Peter’s masterclasses with year 10 students at Bow School, he devised workshops that used his product FORMcard, a pocket-sized strong bio-plastic that melts in hot water. Students were tasked to produce natural colour palettes and sculpt with the FORMcard to replicate natural objects, referencing the early use of plastic to imitate and replace natural materials like tortoiseshell and ivory. The students concluded by creating their own works, attempting to replicate natural materials – including shells, wood and stone.

In Frances’ Bow School masterclasses, students worked collaboratively to produce a film using a Bolex camera. Frances explained how originally film was made of the plastic Celluloid as a starting point for the project, which saw her introduce students to two key sources of inspiration in her work: 17th century still life painting traditions from the Netherlands and Derek Jarman’s films. Students were tasked to produce a still life, made up from plastic objects they own and use. These became lit ‘film-sets’, with students becoming directors, cinematographers and producers, filming scenes using a Bolex camera.

- Pupils gained practical skills in experimenting with new materials like FORMcard and learning how to use a Bolex camera. These processes were made possible through having the expertise of the two Resident Artist/Makers, as well as careful planning to make these activities accessible for pupils.
- The tactile materiality and malleability of the FORMcard greatly appealed to the students who enjoyed the ability to melt down their work if they wanted to make changes and amendments
- The film and objects made in the workshops were put on display as part of the Raw Materials: Plastics exhibition at the Nunnery Gallery.

Project Staff

One part time freelance staff member was engaged to manage Raw Materials: Plastics.

One full time permanent member of staff, Gallery Director was responsible for overseeing the project and managing the project manager.

One full time Arts + Events Coordinator supported the development and delivery of the event programme, and the catalogue editing

No part time posts were retained since the end of project.

Bow Arts: Further outcomes for the organisation

For the first time in the Raw Materials series, Plastics saw two of Bow Arts' departments partner – the Gallery team and the Education Department. Due to the model of Bow Arts' Education Department, their projects rarely overlap with the Gallery's programming, however, the specific investigation of local history and plastics enabled a direct link with local secondary Bow School. This collaboration between departments has demonstrated how the two teams can positively overlap, strengthening the gallery's links to local schools, and local young people's stake in the Nunnery Gallery as their work was included in the exhibition. With the two departments working alongside one another for nearly 20 years and rarely overlapping, this is an incredibly important outcome for the organisation.

- Sophie Hill, Gallery Director, Nunnery Gallery

Outcomes for Organisation Staff

During the project, I particularly enjoyed the enthusiasm that the Community Steering Group expressed for going 'behind the scenes' at museums and their enjoyment and increasingly familiarity and confidence with archival research. It was a pleasure to work with them collaboratively as a group exchanging research findings and ideas. This experience has led me to apply for, and be offered, a curator role working with communities on a contemporary collecting programme at the Museum of London.

Another highlight for me was the substantial role I was able to take in planning, and co-curating, the project exhibition of museum objects with contemporary commissions. While I have experience in

contemporary art curating, I welcomed the development opportunity of arranging and planning a significant display of heritage objects, including structuring the narrative of the exhibition.

- Natasha Vicars, Project Manager, Raw Materials: Plastics

Partners

The following eleven partners contributed to the project:

- Hackney Archives
- Museum of Design in Plastics, Arts University Bournemouth
- Newham Archives
- Plastics Historical Society
- Science Museum London
- Suffolk Record Office, Ipswich Branch
- Thames21
- University College London
- Vestry House Museum
- Victoria and Albert Museum
- Waltham Forest Archives & Waltham Forest Oral History Workshop

As well as heritage, the project will explore the development of more sustainable plastics, through its contemporary makers and partnership events

Partnering with UCL, one of the most respected academic institutions in the country, brought wide-ranging benefits to the project. The writer and academic Mark Miodownik, head of the university's new Plastic Waste Innovation Hub gave a very popular talk with a lively Q&A at Nunnery Gallery. The Hub also introduced Bow Arts to Sally Beken, an expert in UK sustainable plastics innovations, who held a speaking event at the gallery and shared the project with her network. London-based design agency and materials library, Material Driven, offered two well-received creative workshops as part of the public programme, exploring bio-plastics and biodegradability and re-use of plastics through moulding. The latter workshop was developed specifically to connect with the 1862 Parkesine medallions exhibited in the gallery, allowing participants to make their own medallion from plastic waste from their own homes. These events were in addition to several FORMcard workshops from Resident contemporary maker, Peter Marigold. UCL's launch of their Materials Innovation Network, held in the gallery following the exhibition, was driven by the project's concern with plastics sustainability, and the event concluded with a lively discussion on moving forward, with learning from the project creating new perspectives.

7.0 Appendices

7.1 Press Coverage

Press

- 9 August 2019 – New exhibition uncovers plastics' invention and history in east London, Hackney Citizen [online] ([Web](#))
- 18 July 2019 – Raw Materials: Plastics - Peter Marigold, Frances Scott, Roman Road London [online] ([Web](#))
- 10 June 2019 – Raw Materials: Plastics, Robert Elms, BBC [radio] ([Web](#))
- 8 June 2019 – Free and cheap events in London this week: 10-16 June 2019 [online] ([Web](#))
- 17 May 2019 – Raw Materials: Plastics Interview, London Live [TV] ([Web](#))
- 10 May 2019 – Victorian chemist's Parkesine plastic invention uncovered by Bow Arts project goes on public show, The Docklands & East London Advertiser [online] ([Web](#))
- 27 February 2019 – Bow Arts project examines Alexander Parkes Victorian invention of Plastic, East London Advertiser [online] ([Web](#))

7.2 Digital Information

Mailchimp Analytics

Total of campaigns sent: 5 (20 Feb – 21 May 2019)* - campaigns were replicated

Campaign 1: Raw Materials Plastics Press Release

Sent: Wednesday 20 February 2019

Successful deliveries: 2,943 (99.1%)

Opened: 657 (22.3%)

Industry Average (Arts and Artists) = 2.7%

Clicks per unique opens: 1.4%

Campaign 2: Raw Materials Plastics Release

Sent: Tuesday 17 May 2019

Successful deliveries: 2,803

Opened: 852 (20.1%)

Industry Average (Arts and Artists) = 2.7%

Clicks per unique opens: 1.3%

Campaign 3: Raw Materials PV

Sent: Thursday 9 May 2019

Successful deliveries: 2,182 (99.6%)

Opened: 775 (27.25%)

Industry Average (Arts and Artists) = 2.7%

Clicks per unique opens: 5.3%

Campaign 4: Raw Materials Plastics Press Release Install Shots

Sent: Friday 17 May 2019

Successful deliveries: 2,784

Opened: 508 (20.1%)

Industry Average (Arts and Artists) = 2.7%

Clicks per unique opens: 2.2%

Campaign 5: Free Family Events for Raw Materials Plastics

Sent: Tuesday 21 May 2019

Successful deliveries: 2,192 (99.6%)

Opened: 841 (38.4%)

Industry Average (Arts and Artists) = 2.7%

Clicks per unique opens: 5.2%

Please note: due to the restructure of Bow Arts' e-marketing strategy there may appear to be fewer campaigns sent than previous Raw Materials exhibitions, however, each campaign was replicated in accordance with Mailchimp's limit to how many groups can receive one campaign. Between the months of May – August Raw Materials: Plastics was also included in Bow Arts' What's On campaign (totalling an additional four times, which included the exhibition and project-specific events).

Social Media Posts

Top five tweets of the exhibition:

Raw Materials: Plastics Evaluation Report

Bow Arts @BowArts
#RawMaterialsPlastics explores the forgotten industrial history of plastic in east London around the River Lea. Join us on 25 August at our Nunnery Gallery for a chance a free tour led by our steering group members who have been working on the project!

[https://bowarts.org/nunnery/final-exhibition-tour-with-steering-group-member ...](https://bowarts.org/nunnery/final-exhibition-tour-with-steering-group-member...)

Impressions	4,749
Total engagements	17
Link clicks	7
Detail expands	4
Retweets	3
Likes	2
Profile clicks	1



Bow Arts @BowArts
 Join us for **#familyfriendly** fun next Sat 17 Aug! Meet top **@UCL_ISH** scientists who will be on hand to test and identify **#plastics** of any age, and join a fun hands-on session scouring Thames-shore material to find hidden **#plasticwaste** with **@Thames21** **#zerowaste** **@plasticfreeRoRd**
<pic.twitter.com/i0crWmYxIF>

Impressions	2,290
Total engagements	8
Retweets	3
Media engagements	2
Likes	2
Detail expands	1



Bow Arts @BowArts
 Fascinating **@ObsMagazine** article 'The search for a cleaner, greener plastic' with **@markmiodownik** of UCL's **@plasticwastehub** this week - Mark will be speaking on 18 July 7pm at Nunnery Gallery - book your place now!
[https://bowarts.org/nunnery/perspectives-on-a-better-future-for-plastics ...](https://bowarts.org/nunnery/perspectives-on-a-better-future-for-plastics...)
<pic.twitter.com/T97J1MS5n8>

Impressions	2,221
Total engagements	13
Likes	4
Profile clicks	4
Retweets	2
Media engagements	2
Detail expands	1

Bow Arts @BowArts
 3 days left to go see **#RawMaterialsPlastics** - an amazing exhibition which takes visitors on a journey revealing the story of east London's central role in the invention and early development of plastics!

Entrance to the Nunnery Gallery is free & open from 10am-5pm
#TowerHamlets <pic.twitter.com/LQmesMdtXF>

Impressions	2,001
Media views	152
Total engagements	11
Retweets	3
Media engagements	3
Detail expands	2
Profile clicks	2
Likes	1



Reach a bigger audience
 Get more engagements by promoting this Tweet!

Raw Materials: Plastics Evaluation Report

Bow Arts @BowArts

Get your plastics ready, as tomorrow we'll be hosting a fun & creative family-friendly plastics recycling workshop with [@MaterialDriven](#) in our Bow Arts' Courtyard from 11am-1:30pm.

Tickets are still available >>

<https://bowarts.org/nunnery/materialdriven-plastics-recycling-workshop> ...

Impressions	1,869
Total engagements	9
Retweets	3
Likes	2
Link clicks	2
Profile clicks	2



Katherine Curran @Kcurran6K · May 16

Had an amazing evening at [@BowArts](#) **Raw Materials: Plastics** show. Fascinating insights into **plastics** heritage and great to see our labs and our very own Miriam Wright incorporated into a work of art!!! [@complexplastic](#) [@UCL_ISH](#) [@seahaCDT](#) [@MayCassar](#) [@matijastric](#)



6 retweets, 13 likes



FORMcard @FORMcardPlastic · May 22

Learn more about the story of **plastic's** evolution with **Raw Materials: Plastics** from [@BowArts](#) The show runs until Sunday 25th August. If you are in London or visiting over the next few months we highly recommend that you visit the show. Go to: bowarts.org/nunnery/raw-ma...



3 retweets, 2 likes



Plastics Historical Society @SocietyPlastics · Jun 12

Carolyn Clark is giving an illustrated talk 'From Parkesine to Perspex – the history of **plastics**' on Thursday 20th June at 7pm as part of the Bow Arts exhibition programme on **Raw Materials:Plastic**. Details on



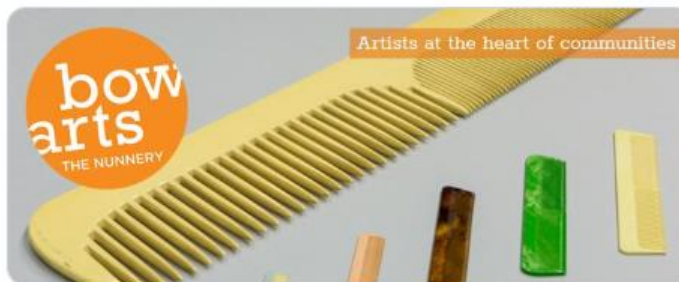
What's On
bowarts.org

1 retweet, 4 likes



Own Art @ownartscheme · Jun 11

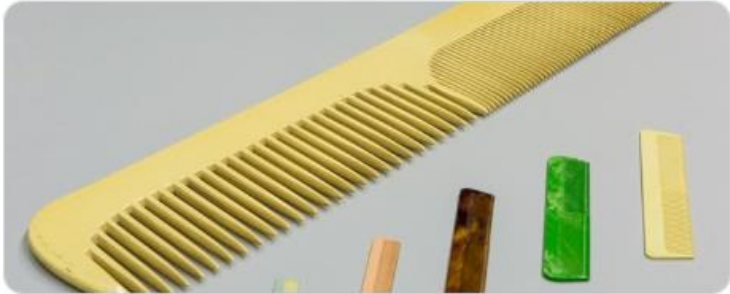
Raw Materials: Plastics. Current exhibition [@Bowarts](#) until the 25th August revealing the story of east London's central role in invention and early development of **plastics**. More info here bit.ly/2KDO6Lf?utm_ca... [#exhibition](#) [#londonarts](#)



1 retweet, 1 like

Raw Materials: Plastics Evaluation Report

ACE London @ace_london · May 27
 Go deep into the history of London's central role of inventing and development of early **plastics** with **Raw Materials**, which explores the forgotten industrial history of **plastic** in east London around the River Lea. At @BowArts -buff.ly/2J4dBoX #ACESupported



1 retweet, 4 likes

Julie's Bicycle @JuliesBicycle · Jul 18
 Looking for more events to explore #PlasticFreeJuly? @BowArts, a member of the @ace_national #JBAccelerator programme has curated an exhibition on **Raw Materials**, exploring the forgotten industrial history and early development of **plastics** in east London:



Raw Materials: Plastics
 Raw Materials explores the forgotten industrial history of plastic in east London around the River Lea. The exhibition reveals the story of east ...
 bowarts.org

2 comments, 9 retweets, 23 likes



bowarts
 Looking for creative and educational ways to entertain kids this summer? Join us in the Bow Arts' Courtyard on Saturday 17 August from 12-4pm with a special visit from @ud Mobile Heritage Lab & @thames21. Offering a fun (and clean) hands-on session scouring Thames-shore material to find all the items of plastic contained within, and sharing

Liked by denisedecordova1 and 19 others
 AUGUST 7

Add a comment... Post

bowarts
 Bow Arts
 materials while learning about the history of plastics in east London #nunnerygallery #rawmaterialsplastics #towerhamlets #riverlea #colourofwater #familyworkshops #artworkshops #eastlondon

24w
 andrew_macgregor1 Hosted by @the_colour_of_water

12 likes
 MAY 23

Add a comment... Post

Raw Materials: Plastics
Evaluation Report



johngoodltd • Follow

johngoodltd The #BowArts fascinating #RawMaterialsPlastics voyage has kicked off at the #nunnerygallery 🙌 We're delighted to have printed the #Heritage #map & Events Guide- so much to enjoy & learn! #EastLondon #ThingsToDoInLondon #printing #CommunicatingTheArts #print #printchat #printerverse #plastic #plastics #polymer #history #art #rawmaterials #industrialhistory

25w

8 likes
MAY 17

Add a comment... Post



bowarts Nunnery Gallery

RAW MATERIALS

Raw Materials: Plastics
17 May - 25 Aug 2019

UCL HERITAGE FUND bowarts nunnery gallery

Add a comment... Post

bowarts Nunnery Gallery

Gallery from 6-9pm, opened by Mr. Roderick Parkes representing the Parkes family. The exhibition reveals the story of east London's central role in the invention and early development of plastics, presenting some of the very first plastic objects alongside newly commissioned artworks that tell the story of this material's remarkable journey.

@ucl_ish @heritagefunduk #VestryHouse #rawmaterialsplastics #nunnerygallery #bowarts #eastlondon #riverlea #heritage #plastic #extinctionrebellion #sustainability

25w

Liked by postcardwall and 36 others
MAY 15

Add a comment... Post



Natasha Vicars ▸ Walthamstow Memories

19 June · 🌐

Any-one have memories of British Xylonite - Halex - in Hale End, Walthamstow (hence the brand name of Halex)? Early plastics pioneer with a large site on Larkshall road by Highams Park station...



👍 42

105 comments 3 shares



Natasha Vicars ▸ Old Memories of Walthamstow & District

19 June · 🌐

Workers approaching the British Xylonite 'Halex' factory - a brand named after Hale End, and a very early plastic! Shows Larkshall Road next to Highams Park station...



👍❤️😮 93

77 comments

👍 Like

💬 Comment

Website Analytics

Exhibition website statistics total (17 May – 25 August):

- 2,029 page views
- 1,755 unique page views
- Average time spent on page: 2 min 19 sec
- 1,042 entrances (number of visitors that entered your site through a specific page or set of pages)
- 60.57% exit page (how often users exit from the page/set pages when they view the pages)

7.3 Resident Maker commissions

The final piece developed by each Resident was exhibited in the project exhibition at Nunnery Gallery and both final works have since been exhibited internationally.

Both Residents had inductions to the UCL Institute of Making ‘Makespace’ and the laboratories at the Institute of Sustainable Heritage, and were invited to meet with relevant academics at UCL.

Peter Marigold’s interests were in the processes used in forming the earliest plastics, including moulding and working by hand, and how these techniques might leave traces on the resulting objects giving clues as to how they were made. He was keen to understand how Alexander Parkes may have worked with his invention ‘Parkesine’ also known as cellulose nitrate, the first manmade plastic ever produced. Peter was struck by the use of plant-based material, cellulose, as a key ingredient in this first semi-synthetic plastic, making a connection with the plant starches he uses to make his own bio-plastic product FORMcard.

For the exhibition, Peter responded to these early techniques by working with FORMcard, moulding it by hand into wooden moulds – moulds that displayed the characteristic marks of the chainsaw used to make them, thus referencing machine making. These FORMcard tiles in natural and synthetic colours were used to clad cabinets designed and made by Peter with the title *Semi Synthetic*. These drew on Peter’s main furniture-making practice as a designer/maker.

Peter presented creative workshops using FORMcard at Bow Arts during the exhibition, which were a popular part of the event programme, such as Bow Arts’ Open Studios which has an attendance of over 1,000 visitors.

Peter commented on his experience with the project:

I applied for the residency because I wanted to explore my own interaction with the material that I manufacture - a plastic. It meant that I got to spend some time actually thinking about it in an artistic way instead of a product way, which is something that's been missing since I started its existence [FORMcard]. The visits – the archives – were brilliant for me. Normally, I get so little time to take time out and just explore things. It is just so enriching to be able to put so much about the plastic I make into context through this research. That also applies to the area where my studio is situated on Homerton High Street. It was just incredible for me to think about our Hackney area, and

what was going on here and realising it wasn't that long ago. Just seeing photographs of places that I know, things I know, was amazing.

I guess my whole bugbear with objects is that we just passively accept them and we spend so little time thinking about them and wondering about their origins; what something is made of and where it has come from. The science museum collection was just brilliant for that. All the archives are brilliant, and meeting the UCL scientists too. The idea of these things being in the science museum was quite powerful for me; things that were, kind of the 'embryos' of what we went on to think of as a toaster or a food blender. It just makes you think so much more about the makeup of all the things that we accept passively.

I thought meeting the steering group was really nice, I enjoyed going with the team each time we visited an archive or collection. It was nice to build up that kind of mini-network of people interested in the material.

I was very happy with the school masterclasses and the results from the students. I think developing that workshop with FORMcard used to imitate natural materials has influenced the way that I'm thinking about my own material now; considering the bio-plastic much more like a natural thing; a natural phenomenon.

Doing an artist residency is time to step out of your routine, to just take a side step and look at your practice again. I thought it was great experience - really positive. It has led to several other things I am working on now. I have started making sculptural pieces from ex-FORMcard material and I will be exhibiting them, with the cabinets produced for Raw Materials: Plastics, at a new museum in Turin that is dedicated to plastic.

Frances Scott's medium of film engaged with the first man-made plastic, cellulose nitrate, a key component of film stock (also known as Celluloid or Parkesine). Frances was able to draw together many strands of research into one piece. Her film *PHX [X is for Xylonite]* presented a series of orbiting three-dimensional images of natural and semi-synthetic plastic objects, made through laser scanning and photogrammetry techniques. These animations were collaged with hand-processed 16mm film footage, including Frances' filming of a demolition on the site of the original Parkesine factory in Hackney Wick and in the laboratories of the Institute of Sustainable Heritage. Frances made use of the UCL 'Makespace' for the laser scanning elements, and worked extensively with the Museum of Design in Plastics and Vestry House Museum collections through photogrammetry. The score she developed for the film drew on archival research, including colour experiments listed in a British Xylonite Company laboratory formula book (c.1888), symptoms of plastics degradation, and extracts from philosopher Roland Barthes' essay 'Plastics' (in his book *Mythologies*, 1957), which were read by Dr. Miriam Wright, scientist and laboratory technician at the Institute of Sustainable Heritage.

In addition to archive and collection visits with the Steering Group, Frances' research encompassed interviewing Dr Susan Lambert, Director of MoDiP and several UCL academics, and visiting the library of the Plastics Historical Society with the Project Manager. Frances also took part in a panel discussion at a UCL event led by Slade School of Art, to introduce the intention to develop a Material Innovation Network for plastic in east London.

Her 13-minute film was a popular exhibit in the Raw Materials: Plastics exhibition at the Nunnery Gallery, with the soundtrack forming an ambient presence in the first gallery of the exhibition, and the animations relating to nearby exhibition displays.

PHX [X is for Xylonite] was subsequently selected for the 57th New York Film Festival, MUBI 'Projections' programme where Frances participated in two public events discussing the commission. UCL's Institute of Making 'Makespace' ran an evening event screening the film followed by Frances in conversation with the Project Manager and a Makespace technician. *PHX [X is for Xylonite]* was presented at in Edge of Frame / London International Animation Festival in London in early December 2019.


Frances commented:

My practice is research-led and process-oriented, and often, during the making of a moving image work, I will draw on materials held in archives, collections, libraries and other institutions, to inform the development of a script, shooting material, or to support conversations with specialists in a particular field. In this instance, this is the first time I have worked directly with heritage museum objects – in this case using photogrammetry to capture items held at the Museum of Design in Plastics – which were animated in the final film. The relationship established with MoDiP, in particular with Chief Curator, Professor Susan Lambert, has potential to go forward into other works as Susan has suggested that she would be open for me to propose future collaborations. The research conducted in the Plastics Historical Society archives at the Institute of Materials, Minerals and Mining in Grantham, revealed certain key aspects to the chemical and industrial history of cellulose nitrate – in particular the use of Xylonite in props production for the film adaptation of Moby Dick (1956) – that fed in conceptually and practically to the final film work, in which elements from the sound track were incorporated into the mix. I benefitted from the support of the Project Manager Natasha Vicars, who deftly organised connections with archives and museums. Where ordinarily I would undertake these approaches myself, having the relationships and visits set up by Natasha, allowed me to give my energies to the research content.

Technically, the commission has allowed me to develop new ways of working – compositing hand-processed 16mm with processes involving 3D modelling through photogrammetry and laser scanning – which have already informed my onward approach to other moving image projects. It was also the first time I have worked directly with science practices, notably the polymer chemists at UCL in both Institute of Sustainable Heritage and Department of History of Art. I am delighted that the film has been screened beyond the parameters of the initial exhibition; in the MUBI 'Projections' programme at 57th New York Film Festival at Lincoln Center, New York in October 2019, and in London at Institute of Making, UCL and Close Up Film Centre as part of the Edge of Frame 'Surface Memory' programme in London International Animation Festival.

7.4 Evaluation Tools

Exhibition visitor evaluation survey:

Raw Materials: Plastics Exhibition Evaluation				
Date:				
"I enjoyed the exhibition" / "my children/family enjoyed the exhibition"				
1 Disagree	2	3 Agree somewhat	4	5 Completely agree

Why? Tell us more:

"I have learnt about the history of plastic in east London"				
1 Disagree	2	3 Agree somewhat	4	5 Completely agree

Explain your rating:

"I enjoyed seeing an artist/maker's creative response to plastic history"				
1 Disagree	2	3 Agree somewhat	4	5 Completely agree

Why? Tell us more:

"I have learnt new things about plastics/sustainability"				
1 Disagree	2	3 Agree somewhat	4	5 Completely agree

Explain your rating:

Event participant evaluation survey:

Raw Materials: Plastics Event Evaluation



Location:

Date:

"I enjoyed the event" / "my children/family enjoyed the event"

1	2	3	4	5
Disagree		Agree somewhat		Completely agree

Why? Tell us more:

"I have learnt about the history of plastic in east London" (When relevant)

1	2	3	4	5
Disagree		Agree somewhat		Completely agree

Explain your rating:

"I enjoyed seeing an artist/maker's creative response to plastic history"

1	2	3	4	5
Disagree		Agree somewhat		Completely agree

Why? Tell us more:

"I have learnt new things about plastics/sustainability"

1	2	3	4	5
Disagree		Agree somewhat		Completely agree

Explain your rating:

Equal opportunities monitoring form (for all participants/volunteers/visitors):



Equal Opportunities Monitoring Form

Bow Arts Trust is committed to promoting equal opportunities.

To assist us in monitoring our policy, we would be grateful if you could complete this form. This information is for statistical purposes only and the data is used in an aggregated and anonymised form. This form may be returned under separate cover if required.

Please tick the appropriate boxes:

Which age group are you in?

- | | |
|--------------------------------|--|
| <input type="checkbox"/> 0-19 | <input type="checkbox"/> 60-64 |
| <input type="checkbox"/> 20-34 | <input type="checkbox"/> 65+ |
| <input type="checkbox"/> 35-49 | <input type="checkbox"/> Prefer not to say |
| <input type="checkbox"/> 50-59 | |

What is your gender?

- | | |
|-------------------------------------|--|
| <input type="checkbox"/> Female | <input type="checkbox"/> Other |
| <input type="checkbox"/> Male | <input type="checkbox"/> Prefer not to say |
| <input type="checkbox"/> Non-binary | |

Do you identify as transgender?

- | | |
|------------------------------|--|
| <input type="checkbox"/> Yes | <input type="checkbox"/> Prefer not to say |
| <input type="checkbox"/> No | |

What is your sexuality?

- | | |
|---------------------------------------|--|
| <input type="checkbox"/> Bisexual | <input type="checkbox"/> Other |
| <input type="checkbox"/> Heterosexual | <input type="checkbox"/> Prefer not to say |
| <input type="checkbox"/> Homosexual | |



Continued on following page

How would you describe your ethnicity?

- | | |
|---|---|
| <input type="checkbox"/> Asian / Asian British - Bangladeshi | <input type="checkbox"/> Mixed - white and black African |
| <input type="checkbox"/> Asian / Asian British - Chinese | <input type="checkbox"/> Mixed - white and black Caribbean |
| <input type="checkbox"/> Asian / Asian British - Indian | <input type="checkbox"/> Mixed - any other mixed background |
| <input type="checkbox"/> Asian / Asian British - Pakistani | <input type="checkbox"/> White - British |
| <input type="checkbox"/> Asian / Asian British - Any other Asian background | <input type="checkbox"/> White - Irish |
| <input type="checkbox"/> Black / Black British - African | <input type="checkbox"/> White - Traveller |
| <input type="checkbox"/> Black / Black British - Caribbean | <input type="checkbox"/> White - any other white background |
| <input type="checkbox"/> Black / Black British - Any other black background | <input type="checkbox"/> Other - Arab |
| <input type="checkbox"/> Mixed - white and Asian | <input type="checkbox"/> Other - Any other ethnic group |
| | <input type="checkbox"/> Prefer not to say |

Do you self-identify as disabled?

- | | |
|------------------------------|--|
| <input type="checkbox"/> Yes | <input type="checkbox"/> Prefer not to say |
| <input type="checkbox"/> No | |

What is your religion or belief?

- | | |
|--|--|
| <input type="checkbox"/> Buddhism | <input type="checkbox"/> Prefer not to say |
| <input type="checkbox"/> Christianity | |
| <input type="checkbox"/> Hinduism | |
| <input type="checkbox"/> Islam | |
| <input type="checkbox"/> Judaism | |
| <input type="checkbox"/> Sikhism | |
| <input type="checkbox"/> Other | |
| <input type="checkbox"/> No religion or belief | |

Steering Group evaluation survey:



Evaluation Survey: Steering Group

In this survey we ask a short set of questions to give feedback to our funder, the National Lottery Heritage Fund. For each question you are asked to give a rating and explain your answer... **a sentence of explanation for each** is the key part for us. Please also complete a separate equal opportunities form.

For each:

1 2 3 4 5
Disagree Agree somewhat Completely agree

Statement	Rate your agreement (1 to 5)	Tell us why - explain your rating...
I have learnt about the history of plastic in east London		
I have enjoyed volunteering on the project		
I have enjoyed the final exhibition		
I have learnt new things about plastics and plastics sustainability		
I have developed my writing skills		
I have developed my skills in archival research		

I have learnt about undertaking oral histories		
I have developed my skills in giving tours / speaking skills (if this applies to you)		
How did you benefit from taking part in the project?		
Please feel free to give further feedback on your experience of participating in the Steering Group...		

UCL Slade student participation evaluation survey:



Evaluation Survey: Slade attendees

In this survey we ask a short set of questions to give feedback to our funder, the National Lottery Heritage Fund. For each question you are asked to give a rating and explain your answer... **a sentence of explanation for each** is the key part for us. Please also complete a separate equal opportunities form.

For each:

1 2 3 4 5
Disagree Agree somewhat Completely agree

Statement	Rate your agreement (1 to 5)	Tell us why - explain your rating...
I have learnt about the history of plastic in east London		
I have enjoyed taking part in the project		
I have enjoyed the final exhibition		
I have learnt new things about plastics and plastics sustainability		
I have developed my skills in archival research		

Further comments:
Please feel free to give further feedback on your experience of participating in the archive & collection visits...



7.5 Raw Materials: Plastics exhibition list of works

Raw Materials is Bow Arts' on-going series exploring the industrial history of east London along the River Lea, funded by the National Lottery Heritage Fund.

Raw Materials: Plastics reveals the story of east London's central role in the invention and early development of plastics. Beginning with the invention of Parkesine – the world's earliest man-made plastic – by Alexander Parkes in Hackney Wick in 1865, this exhibition traces plastics' remarkable journey through the objects and people that shaped its life-changing development.

Vitrine I

1. Replica of 1862 International Exhibition medallion awarded to Alexander Parkes
Parkesine c.1860s
Courtesy Harry Mernick
2. Replica of 1862 International Exhibition medallion awarded to Alexander Parkes (one side red, one side green)
Parkesine c.1860s
Courtesy Harry Mernick
3. Toothbrush blanks
Parkesine c.1860s
Courtesy Harry Mernick
4. Pen knife
Parkesine and steel c.1860s
Courtesy Harry Mernick
5. Pin holder with pin
Parkesine c.1860s
Courtesy Harry Mernick
6. Box lid
Parkesine with inset gold and mother of pearl c.1860s
Courtesy Harry Mernick
7. Buckle with ivy pattern
Parkesine c.1860s
Courtesy Harry Mernick
8. Hair slide
Parkesine with inset gold and mother of pearl c.1860s
Courtesy Harry Mernick

Vitrine 2

9. A small sample of decorative edging made from Parkesine inlaid with mother of pearl
Parkesine, mother of pearl c.1860s
Museum of Design in Plastics, Arts University Bournemouth
10. Knife handle
Parkesine c.1860s
Museum of Design in Plastics, Arts University Bournemouth
11. Prayer book cover
Compression moulded Parkesine 1860s
Plastics Historical Society collection, Museum of Design in Plastics, Arts University Bournemouth
12. British Xylonite Company Process and Formula Book
This volume served two purposes: a description of processes in the manufacture of xylonite, and in a later section of the book the numbered formulas for batch processing and an index of colouring materials. It is open at a page that notes the 'recipe' for plastic collars and cuffs. c.1884-89
Suffolk Record Office, Ipswich branch
13. Samples of differing coloured Parkesine cut and mounted on a block of wood in a mosaic pattern
Parkesine, wood c.1860s
Museum of Design in Plastics, Arts University Bournemouth
14. Sample of Ivoride pierced in one corner
The sample bears two decorative moulded stamps. One has the image of an elephant in the centre and is surrounded by the words 'Daniel Spill, Ivoride Works Homerton, London E. Patentee and sole manufacturer'. The other stamp has the words 'IVORIDE substitute for Ivory Patent, which will not discolour by age of use, is durable and tough.' c.1870s
Plastics Historical Society collection, Museum of Design in Plastics, Arts University Bournemouth
15. Snooker ball
Compression moulded Parkesine c.1865
Plastics Historical Society collection, Museum of Design in Plastics, Arts University Bournemouth
16. An advertising card for Xylonite collars and cuffs
The text is in French and declares that Xylonite is economic to launder and has the appearance of fabric. The elephant and tortoise logo of the Xylonite company appear in the bottom right hand corner of the card.
Museum of Design in Plastics, Arts University Bournemouth
17. Monica Perez Vega, *While It Lasts*, 2019.
Formed acrylic cut-off and spray paint.
As part of our partnership with University College London, Slade School of Fine Art

students were invited to take part in the project's steering group-led research and archival visits, with a view to using the inspiration of plastics heritage in their own work. Monica Perez Vega has responded to the precarious nature of Xylonite – prone to degrading with time and light exposure - and the experimental nature of the earliest plastics fabrication. Typically using fire to form her sculptures, she refers to using this as a 'catalytic element' to guide her process, and enjoying the impulsive moments of trying to capture or salvage a work just on the brink of demise.

18. Frances Scott, *PHX [X is for Xylonite]*, 2019.
Single channel film, 13 minutes, 16mm film transferred to digital and 3D animation, colour / black and white, stereo.

Vitrine 3

19. Boxed manicure set (ivory effect)
Cellulose nitrate c.1910-19
Museum of Design in Plastics, Arts University Bournemouth.
20. Smoker's compendium
Compression moulded phenol formaldehyde, British Xylonite Company. c.1930-39
Comprised of a cigarette box with hinged lid at one end, an ash tray (of 'no-fume' design
with a metal insert) opposite, with a pipe rest in the centre.
Victoria and Albert Museum
21. Dressing table box
Cellulose acetate with lead phosphate additives to create marbled effect, Halex brand.
c.1934.
Victoria and Albert Museum
22. Powder bowl
Green pearlescent cellulose acetate, with amber-coloured cellulose acetate details, Halex brand. c.1934.
Victoria and Albert Museum
23. British Xylonite sales catalogue
Typed sales memo and product flyer, belonging to travelling salesman of British Xylonite Company. 1934
Courtesy of The Plastics Historical Society

Vitrine 4

24. 'Lactoid: The Casein Plastic' booklet
Sixteen numbered pages with illustrations, photographs.
British Xylonite Co. Ltd booklet, published by Lund, Humphries & Co. Ltd.
Featured in 1938 edition of 'Art & Industry' journal. c.1938
Victoria and Albert Museum
25. 'Bexoid Special Purpose Material' booklet

Printed booklet with plastic cover and metal spiral binding. Seven pages with illustrations.

British Xylonite Co. Ltd booklet, published by Lund, Humphries & Co. Ltd. 1936
Victoria and Albert Museum

26. Bexoid trade literature
Folder with five booklets.
Design by Edward McKnight Kauffer.
British Xylonite Co. Ltd booklet, published by Lund, Humphries & Co. Ltd. 1930s
Victoria and Albert Museum

NAVE GALLERY

27. Bow School Project
FORMCard Experiments, 2019.

Vitrine 5

28. Xylonite 'Ivory' Salad Servers with box
Xylonite (cellulose nitrate) c.1930s
Courtesy of Vestry House Museum, London Borough of Waltham Forest
29. Combs
Cellulose acetate / cellulose nitrate
Includes 1934 iridescent marbled effect cellulose acetate comb (to match dressing table box in vitrine 3) and various Halex branded combs. c.1930s
Courtesy of Vestry House Museum, London Borough of Waltham Forest
30. Halex baby set
c.1960
Courtesy of Vestry House Museum, London Borough of Waltham Forest
31. Halex toothbrushes
Various: cellulose acetate; cellulose nitrate; hog / natural bristles; nylon bristles
c.1920-1939
Courtesy of Vestry House Museum, London Borough of Waltham Forest
32. 1905 & 1906 Hale End Pocket Calendars
Xylonite (cellulose nitrate)
Produced 1904, 1905.
Suffolk Record Office, Ipswich branch
33. Halex table tennis balls and box
Cellulose nitrate, manufactured by Halex.
c.1951-1959
The table tennis balls are made in two halves from cellulose nitrate. The box describes them as 'Manufactured under strict control and tested at every stage by Halex (a division of the British Xylonite Co. Ltd.) London, England, makers of table

tennis balls for over 50 years.' And also notes that the balls are 'Specially recommended by Johnny Leach, World Singles Champion 1948-49 & 1950-51. Johnny Leach always chooses a Halex Ball.'
Museum of Design in Plastics, Arts University Bournemouth

34. Two Halex toothbrushes with branded packaging
c.1960s
Courtesy of The Highams Park Society

35. B.X. Plastics, Halex Factory Rules leaflet 1942
Courtesy of Vestry House Museum, London Borough of Waltham Forest

B.X. Plastics Factory Rules leaflet (reverse side shown) 1943
Courtesy of The Plastics Historical Society

36. Shagreen tray, hairbrush and hand mirror
Xylonite (cellulose nitrate)
c.1930-39
Hand mirror and brush with backs and handles made from green coloured imitation shagreen (shark skin) and matching tray. These items are part of a set comprising tray, boxes, brush and hand mirror.
Museum of Design in Plastics, Arts University Bournemouth.

37. Flora Bradwell, *Memorabilia and Sundries*, 2019.
Series of limited edition Risograph prints on paper (each image an edition of 100).

You are welcome to take a print away with you

As part of our partnership with University College London, Slade School of Fine Art students were invited to take part in the projects steering group-led research and archival visits, with a view to using the inspiration of plastics heritage in their own work. Flora Bradwell was interested in British Xylonite Company catalogues and trade literature, in which illustrations of toothbrushes and combs with only slight variations are lined up, grouped and categorised. She says "for me, these visual lists spoke equally of the intimacy of daily routines and the possibilities of mass production ushered in as plastics became more widely adopted and manufacturing developed." The prints are available for gallery visitors to take away, as a comment on our often single-use relationship with plastics today.

38. Ivory effect oversized display comb
Cellulose nitrate, made by British Xylonite Company. c.1930s
Courtesy of Vestry House Museum, London Borough of Waltham Forest
39. Inside Out East: British Xylonite Company in Brantham
Excerpt from Inside Out current affairs television programme
October 2013
Courtesy of the BBC (BBC TV, Inside Out)
40. Photo Display: British Xylonite Company

Column 1 (far left):

Xylonite Factory, Larkshall road, Highams Park c. 1905
Hale End transport for deliveries c.1900
Hale End Works from the main office 1923
Halex drawing office 1947

Column 2 (next left):

Table tennis Shop 81 at Hale End Works, March 1945
Table tennis Shop 81 at Hale End Works, March 1945
Hair brush filling machine at Hale End Works
Toothbrush filling machine at Hale End Works

Column 3 (centre):

Halex Fire Brigade, August 1945
Halex Fire Brigade exercises, 1945
The victorious Larkswood team with 6 out of 7 cups (in the British Xylonite Company's annual fire brigade competition)
Air raid precautions, 1939

Column 4:

Trimming and inspecting Bakelite shell caps, Hale End Works
Compression moulding examining, Hale End Works
Spraying transparent lacquer onto metallised components, Hale End Works
Cutting up shop, Hale End Works, 1944

Column 5 (right):

Aerial photo of Halex site
B.X. Plastics stand, British Industries Fair 1948
Halex stand, British Industries Fair, 1947
Halex factory, Larkshall Road, 1970

Images courtesy of Vestry House Museum, London Borough of Waltham Forest, except for Hale End transport for deliveries c.1900 and Hale End Works from the main office 1923, which are reproduced by kind permission of Suffolk Record Office, Ipswich branch.

41. Oral Histories

MP3 player with headphones
Four excerpts of oral history interviews from former British Xylonite employees at Hale End and Brantham sites.
Recording 1: Mrs Jarvis (interviewed March 1987)
Recording 2: Mr Henry Nash (interviewed April 1980)
Recording 3: Mr Mike Ewart (interviewed March 2019)
Recording 4: Mr Mike Ewart (interviewed March 2019)
Recording 5: Mr Albert Hancock (interviewed February 1977)

Obtained from the archives of Waltham Forest Oral History Workshop (recordings 1, 2 & 5). Copyright held by Waltham Forest Oral History Workshop. Recordings 3

and 4 thanks to Mike Ewart, interview by Massimo Iannetti, Raw Materials: Plastics steering group.

Vitrine 6

42. Card for Halex Factory celebration event
3 October 1960
Courtesy of Waltham Forest Local Studies Library, London Borough of Waltham Forest
43. Xylonite Magazine
Issue 131, published by British Xylonite Company Ltd. December 1959
Courtesy of Waltham Forest Local Studies Library, London Borough of Waltham Forest
44. Xylonite Magazine
Issue 130, published by British Xylonite Company Ltd. September 1959
Courtesy of Waltham Forest Local Studies Library, London Borough of Waltham Forest
45. Plastics at War brochure
Brochure detailing the World War II achievements of B X Plastics Ltd, and the contribution of the plastics industry to the war effort. 1946
Courtesy Suffolk Record Office, Ipswich branch
46. Peter Marigold, *Semi Synthetic* (series) 2019.
Wood moulded bio-plastic cladding on cabinets.
47. Bow School Project
THREE VANITAS, 2019
Single channel film, 2 minutes 34 seconds, 16mm film transferred to digital, colour, silent.

Wall quotes

In main gallery, first quote from memorial card of Alexander Parkes, 29 June 1890, and second from *The Rape of the Lock* by Alexander Pope, 1714, describing how ivory and tortoiseshell were commonly used to make combs.

In nave gallery, quote from British Xylonite Company Managing Director, C.P. Merriam, c. 1948 describing his approach to management.

Wall image credits

Main gallery

Alexander Parkes' catalogue entry from 1862 International Exhibition, reproduced by kind permission of Suffolk Record Office, Ipswich branch.

Ivorie Works in Homerton, engraving, source of image London Borough of Hackney Archives.

Page 63 of souvenir catalogue, 1935 British Art in Industry exhibition, Royal Academy, London, and two pages from exhibition catalogue, 1935 British Art in Industry exhibition, Royal Academy. Photos © Royal Academy of Arts, London.

Nave gallery

B.X. Plastics Festival of Britain poster, 1951 (both sides) and Halex Souvenir edition of London Evening Standard, October 1960. All images reproduced by kind permission of Suffolk Record Office, Ipswich branch.

7.6 Raw Materials: Plastics exhibition and events leaflet

thank you

This project was made possible through the support of the National Lottery's Heritage Fund and University College London. Bow Arts would like to acknowledge supporting partners MoDiP (Museum of Design in Plastic, Arts University Bournemouth), the Plastics Historical Society, V&A, the Science Museum, Vestry House Museum, and Barking & Dagenham, Hackney, Suffolk, Newham and Waltham Forest archives. A special thanks also to our community steering group, who have driven much of the content for this exhibition.



nunnery gallery

181 Bow Road, London E3 2SJ

gallery open

Tuesday to Sunday, 10am – 5pm

nunnery café & shop

Tues to Sun: 10am – 4pm

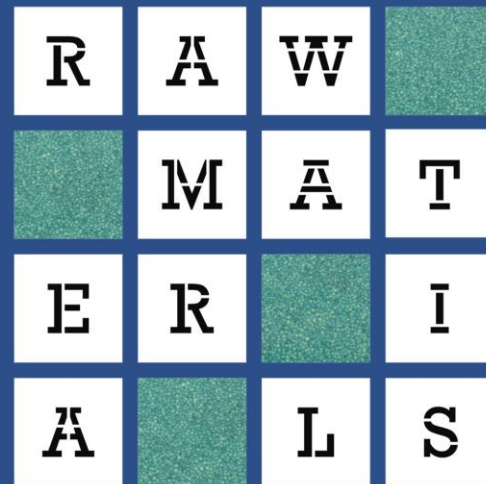
find us

Tube Bow Road, DLR Bow Church.
Buses 8, 25, 108, 205, 276, 425, 488.
Cycle CS2

Wheelchair accessible

contact

020 8980 7774
nunnery@bowarts.com
bowarts.org/nunnery
free entry



Raw Materials: Plastics

Uncovering the extraordinary invention and history of plastics in east London

17 May – 25 August



Raw Materials: Plastics

Raw Materials explores the extraordinary history of plastics in east London around the River Lea. The exhibition reveals the story of east London's central role in the invention and early development of plastics, showcasing some of the very first plastic objects alongside newly commissioned artwork which tells the story of this material's remarkable journey. The project is supported by the National Lottery's Heritage Fund, as well as by academic partner University College London.

In Hackney Wick, 1865, Victorian inventor Alexander Parkes created Parkesine – a precursor to celluloid – looking to mimic rare and endangered natural materials such as ivory and tortoiseshell. Parkesine led to the development of the Ivoride Works in Homerton in the late 1860s and eventually to the establishment of the industrially successful British Xylonite Company, which included the eponymous Hallex brand in Hale End, Walthamstow.

The exhibition includes the earliest Victorian plastics made by Parkes in the 1860s; surprisingly ornate pieces inlaid with mother of pearl and precious metals, coloured with brilliant blues and greens through recently invented dyes. An early billiard ball illustrates the game changer Parkes' invention provided in replacing ivory, the material previously used to make the balls of this common game. The British Xylonite Company then went on to produce Europe's supply of table tennis balls.

New commissions from resident artist makers Peter Marigold and Frances Scott accompany the historic displays. Marigold responds to the early mould-making techniques of inventor – and artist – Parkes, using FORMCard, his own brand of compostable bio-plastic. Scott exhibits a new film PHX [X is for Xylonite] which draws upon photogrammetry and laser scanning techniques to develop and animate 3D images of early plastic objects.

With an event programme running across the summer – including family workshops with recycled plastics, boat tours and more – get involved with Bow Arts' flagship heritage project, which invites you to remember and explore east London's often forgotten industrial history and innovation.

rawmaterials.bowarts.org

Images: on frontcover logo 'shagreen' from Xylonite dressing table tray, courtesy MoDiP (Arts University Bournemouth); centrefold Parkesine toothbrush blanks, courtesy Harry Merrick, photo Rob Harris.

Events

- | | |
|--------------------|---|
| Saturday 18 May | Exhibition Tour learn more with this guided tour 3-4pm FREE |
| Saturday 25 May | Family Workshop with Colour of Water making masks from recycled plastics 11am-1pm FREE (open to all ages) |
| Saturday 1 June | Community Celebration Day join us to celebrate our project volunteers with free food, drink & activities 12-3pm FREE |
| Thursday 6 June | First Thursday: Alexander Parkes & Parkesine hear the story of east London's plastics inventor with Susan Mossman 7pm FREE |
| Wednesday 12 June | Sustainable Innovations in Plastics Today with Sally Beken from the UK Circular Plastics Network 7-8pm (doors 6pm) £3/5 |
| Thursday 20 June | Parkesine to Perspex the history of plastics with Carolyn Clark, from the Plastics Historical Society 7-8pm (doors 6pm) £3/5 |
| Saturday 22 June | MaterialDriven Bioplastics Workshop learn to make bioplastics in this family-friendly workshop 11am-1.30pm £3/5 |
| Sunday 30 June | River Lea Boat Cruise explore the River Lea itself, hearing stories of industrial history along the way 12.30-3.30pm £5/10 |
| Thursday 4 July | First Thursday: Artist Talks hear from the project's resident artist makers Peter Marigold & Frances Scott 7-8.15pm FREE |
| Sunday 7 July | River Lea Boat Cruise explore the River Lea itself, hearing stories of industrial history along the way 12.30-3.30pm £5/10 |
| Saturday 13 July | Drawing on Film a unique workshop exploring plastic and 16mm film with artist Bea Haut 11am-1pm £3/5 (all ages welcome) |
| Thursday 18 July | Perspectives on a better future for plastics with UCL's Plastic Waste Innovation Hub 7-8.30pm (doors 6pm) £3/5 |
| Saturday 27 July | MaterialDriven Plastics Recycling Workshop family-friendly creative activities working with recycled plastic 11am-1.30pm, £3/5 |
| Saturday 3 August | FORMcard Workshop play with this malleable bioplastic with its inventor Peter Marigold 2-3pm, £3/5 (family friendly) |
| Sunday 11 August | River Lea Boat Cruise explore the River Lea itself, hearing stories of industrial history along the way 12.30-3.30pm £5/10 |
| Saturday 17 August | Visit from UCL's Mobile Heritage Lab bring your own plastics in for analysis & meet UCL scientists 12-4pm FREE |
| Sunday 25 August | Exhibition Tour learn more with this guided tour 3-4pm FREE |

For full event details and to **book tickets** visit our website or the gallery. **bowarts.org/whats-on** (prices are listed £full price/concession)



7.7 Katherine Curran UCL ISH research summary

We ran two Knowledge Exchange events alongside environmental charity Thames21. Using spectroscopic equipment from our Mobile Heritage Lab we worked with the public to analyse plastic waste found on the banks of the Thames. We analysed them to discover what types of plastic were present. We found many different types, including poly(propylene), poly(ethylene) and poly(styrene). While more work would be needed to provide a statistical sample, we proved that a citizen science approach can be used to provide new data about plastic waste.

We interviewed visitors to the Raw Materials: Plastics exhibition at the Nunnery Gallery to explore whether viewing plastic in a heritage context had an impact on public perceptions of plastics in general. We hoped to challenge the current perspective of plastic as a worthless, disposable material and encourage people to reflect on the value of plastic. There was some evidence that the presentation of plastic in a gallery context, where it is demonstrably cared-for and valued could make people think again about plastic, with one interviewee saying: "I'd forgotten how beautiful how some of these early products were". On the other hand, negative attitudes to plastics were certainly in evidence.

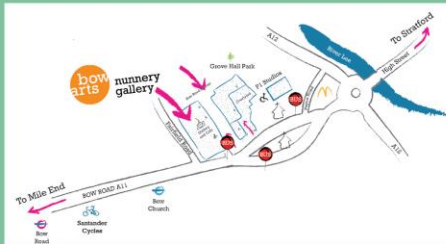
We also interviewed members of the public to capture their attitudes towards ordinary plastic objects. Using pairs of objects, one a disposable plastic and one more durable (e.g. a ceramic cup and a plastic cup) we asked questions such as "Would you throw this away after a single use?". Our results showed various factors that people take into account when making decisions about disposability such as function, convenience or design.

Katherine Curran UCL

7.8 Heritage map

thank you

This project was made possible through the support of the National Lottery's Heritage Fund and University College London. Bow Arts would like to acknowledge supporting partners MoDiP (Museum of Design in Plastic, Arts University Bournemouth), the Plastics Historical Society, V&A, the Science Museum, Vestry House Museum, and Barking & Dagenham, Hackney, Suffolk, Newham and Waltham Forest archives. A special thanks also to our community steering group, who have driven much of the project content.



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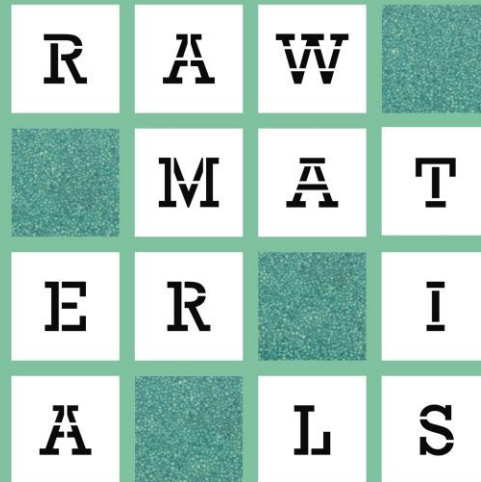
Raw Materials: Plastics
Uncovering the extraordinary invention and history of plastics in east London

Heritage Map

@BowArts #RawMaterialsPlastics



Raw Materials: Plastics Heritage Map

Raw Materials is Bow Arts' on-going heritage project, tracing the industrial history of east London along the River Lea, one material at a time.

Raw Materials: Plastics explores the extraordinary history of plastics in east London, revealing the area's central role in the invention and early development of this life-changing material. On this map you can see some of earliest sites of plastics production in the world, drawn to the thriving industrial area along the River Lea.

The river enabled easy transportation of raw materials from the River Thames and London Docklands, as well as a rather unsanitary dumping ground for waste chemicals. As east London became more densely populated, companies would move further up the river – as you can see from the dates on the map points – and, finally, out of London altogether. Use this map to explore the riverbanks of the Lea yourself, walking along the towpath and imagining the sites of past industry.

You can find out more about these map points and other raw materials on rawmaterials.bowarts.org

- 1 **Parkesine Works 19th C, Wallis Rd, Hackney Wick**
This was the site where Alexander Parkes first manufactured Parkesine, from 1866 to 1868. Parkesine was the world's first semi-synthetic plastic, which Parkes originally presented at London's 1862 International Exhibition, winning a medal for his outstanding innovation. His desire to make products affordable 'for the masses' led to his using cheap and unreliable materials, which became the company's downfall.
- 2 **British Xylonite Co / Ivoride Works 19th C, 124 Homerton High St**
Daniel Spill – who had been Parkes' factory manager and bought the Parkesine patents when the company went under – set up Ivoride Works here (named as his products imitated ivory) and the British Xylonite Company Ltd. in 1877 (after xylon, the Greek word for wood).
- 3 **British Xylonite Company 19th C, 122 Homerton High St**
The site of Levi Parsons Merriam's manufacturing company, who bought

Xylonite from Spill to make plastics goods, mostly imitation coral jewellery and later combs. Merriam would go on to merge with Spill's company and become sole Director of the British Xylonite Company.

- 4 **Halex Works, British Xylonite Company 19-20th C, Larkshall Rd**
BXL's Hale End Works made Halex branded goods, such as vanity sets, combs, toothbrushes and table tennis balls – on which, by the early 20th century, they had a virtual monopoly on production in Europe. BXL expanded to include sites out of London, notably Brantham, Suffolk. In 1963, this site became part of the Bakelite Xylonite Company Ltd. in a merger with Distillers Ltd. and later part of British Petroleum. Plastics continued to be produced on this site until its closure in 1981.
- 5 **Pluton Works 20th C, 90 Shernall St**
The Pluton Manufacturing Company manufactured plastics here until 1912, when the site was taken over by Thomas De La Rue.
- 6 **Thomas De La Rue Co. 20th C, 60-68 & 82, 84, 86, 90 Shernall St**
De La Rue pioneered many moulded plastics products, including televisions, radios and TVs, as well as laminate plastics – known as formica – in the 1930s, which went on to become a staple kitchen surface in the '50s.
- 7 **Thomas De La Rue Co. / National Plastics 20th C, Walthamstow Ave**
De La Rue's second bigger site, which later became De La Rue Plastics Ltd. and, from 1947, National Plastics Ltd.
- 8 **Parker Hardcastle Ltd. 20th C, Forest Rd**
Manufactured 'Parker' brand plastics products, well known for making smoking pipes and tobacco cases.
- 9 **Stadium Ltd. 20th C, Queensway, Ponders End**
Stadium produced multiple plastics mouldings, including lamps, door knobs, sunglasses and crockery. By the 1960s, their products included cycle and motorcycle accessories, including "Stadium" goggles and crash helmets.

Images on frontcover logo 'shagreen' from Xylonite dressing table tray, courtesy MoDiP (Arts University Bournemouth)



MAP KEY

- 1 Parkesine Works
19th century, Wallis Road, Hackney Wick
- 2 British Xylonite Company / Ivoride Works
19th century, 124 Homerton High Street
- 3 British Xylonite Company
19th century, 122 Homerton High Street
- 4 Halex Works, British Xylonite Company
19th and 20th century, Larkshall Road, Walthamstow
- 5 Pluton Works
20th century, 90 Shernall Street, Walthamstow
- 6 Thomas De La Rue Company
20th century, 60-68 & 82, 84, 86, 90 Shernall Street, Walthamstow
- 7 Thomas De La Rue Company / National Plastics
20th century, Walthamstow Avenue, North Circular
- 8 Parker Hardcastle Ltd.
20th century, Forest Road, Walthamstow
- 9 Stadium Ltd.
20th century, Queensway, Ponders End
- 10 Bow Arts Nunnery Gallery
181 Bow Road

