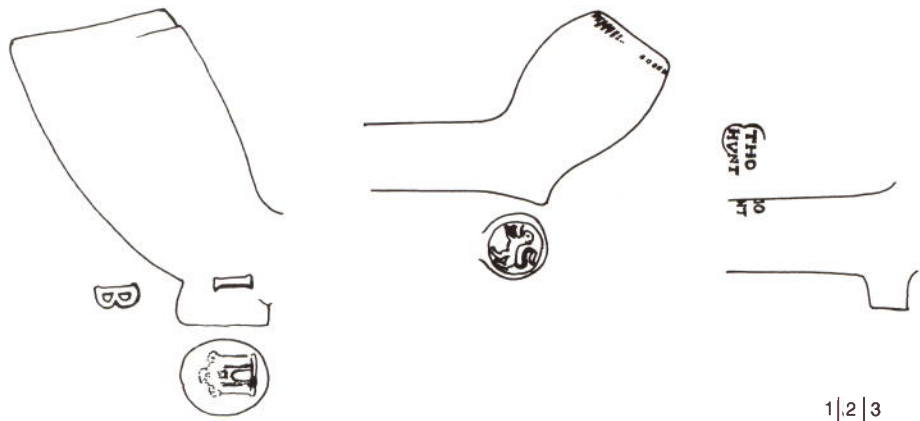


PERCEIVING THE PIPE

The development of scholarly archaeology throughout the world has rested upon the establishment over a very long period of techniques of study and of bodies of information which have been used in successive work. In particular, the importance of research on archaeological finds has been immense, allowing chronologies to be developed for the understanding of the development of excavated artifacts like pottery, coins and other metal wares which are crucial in establishing dates for sites and contexts where they are found. The archaeology of the post-medieval and industrial periods has been generally ill-served to date by this kind of work, since neither period has been studied seriously by archaeologists until recent decades. The compilation of precise typologies for finds is painstaking and extensive work, and will be needed for many decades to come.

The following article describes one major project which is developing a bank of information about one particular class of archaeological finds from the post-medieval and industrial periods: marked clay tobacco pipes. The results of the project will be of immense value to industrial archaeologists in helping them to understand finds of pipes upon sites they are examining, and to understand some of the important conclusions which can be drawn from their discovery. Similarly comprehensive and expert work is desperately needed for other kinds of artifacts, for example to create a better understanding of different types of slags, of low-class nineteenth-century pottery, of bricks and tiles, of metal wares, or of glass-wares. A better understanding of what can be learned from such objects in the industrial period is vital to the continuing development of our subject.

When Elizabethan explorers and sailors first introduced smoking to Britain they laid the foundations for an industry which now provides archaeologists with one of the most important classes of artifacts for the post-medieval and industrial periods: the clay tobacco pipe. During the late sixteenth century tobacco was an expensive luxury and pipemaking was confined to the largest cities. During the seventeenth century the price of tobacco fell rapidly. This was due both to increased imports from the new plantations in America and to widespread cultivation of the crop in this country. The result was that the habit of smoking spread quickly to all areas of the country and through all levels of society.



- 1 Edinburgh tobacco pipe c1695-99. The castle stamp on the heel identifies it as an Edinburgh product and the maker's initials 'IB' are moulded on the sides. This pipe was recovered from the ill-fated Scottish settlement of New Edinburgh (1698-1700) on the Darien coast of Panama.
- 2 Low countries pipe 1610-30. One of many found within the harbour area at Plymouth, representing some of the port's trading connections in the early seventeenth century.
- 3 Stem stamp made by Thomas Hunt c1680-1700 at Marlborough in Wiltshire, found at Egham in Surrey, which lies on the main route to London.

From the earliest days of smoking, white clay was used for making pipes. The manufacture of white clay pipes spread from this country to northern Europe and Scandinavia and vast numbers of exports from Britain reached to almost every corner of the globe. Clay pipes remained the principal way of taking tobacco until the end of the nineteenth century, when the introduction of briar pipes and cigarettes rapidly started to undermine the market. Even today, white pipes are still made and exported from this country using techniques which have not changed in over three centuries.

With the rapid growth of interest in the post-medieval and industrial periods it is increasingly important for archaeologists and historians to understand the importance of pipes as a source of information. There are a number of reasons why this is so. First, pipes were extremely common. Tobacco was smoked at all levels of society from the court down to working women and children in rural areas. This means that pipes are found on almost every site where people have lived or worked during the seventeenth, eighteenth or nineteenth centuries. Being durable, they survive well under most conditions and are easily recovered in excavation or field walking. Second, pipes had an extremely short life expectancy. They were produced in very large numbers, being one of the earliest 'mass produced' or 'disposable' products. As they were cheap, extremely fragile and had no inherent or recyclable value they were

discarded very soon after manufacture. This sets them apart from other finds, such as pottery, which may have been used or displayed for a number of years before being discarded, or metal wares or coins, which had both long lives and a value for recycling even when worn out. Third, the social, regional and chronological variations exhibited by pipes allow them to be used as evidence in a number of ways for the dating and interpretation of a site. The shape of a pipe bowl often allows it to be dated to within twenty or thirty years of manufacture, and the style of bowl will indicate in which part of the country it was made. Trade routes from production centres can therefore be traced. Likewise, the quality and finish of a pipe affected its cost and can thus be used as an indication of the social status of the site where it was found: for example showing whether a domestic waste heap belonged to a poor or a relatively well-off family. All these factors combine to make pipes one of the most rewarding classes of artifact to study. They provide a commonly available and reliable dating medium, and they can be used to study social status and trade links.

The archaeological importance of pipes is further enhanced by the fact that many of them bore the mark of their maker. Makers' marks are particularly important because of the way in which pipes were made. From the early seventeenth century onwards small family run workshops were set up all over the country. Most

towns had a pipemaker or two to supply the local demand and it is not uncommon to find pipemakers working in rural areas or pipes being produced as a sideline on small farms. This pattern of small-scale local manufacture combined with the fact that many makers marked their products means that it is possible to carry out very detailed studies of the local trade and market patterns by studying the marks. It is possible in many cases to identify where and when pipemakers lived by examining the types and distribution of their wares which have been found, and by comparing all the archaeological evidence with the dates and addresses at which particular pipemakers are found in documentary sources. Patterns of trade can then be assessed. We find, for example, west-country marks at coaching inns on the routes to London or Dutch pipes at ports trading to the low countries. On a more local scale, studies in Lincolnshire have shown that pipes were distributed between 16 and 47 miles from the various production centres, thus suggesting the market areas of those towns. Pipemakers have stamped their names, initials or other decorative devices on pipes since the earliest days of the industry. These marks vary by period and region, but the initials or name of the maker is by far the most common type. The marks were applied in a number of ways. In 1693 John Houghton referred to 'a stick at head hollowed and cut for the purpose' of marking-pipes. Such a wooden stamp for marking pipes has been found in the Thames. From Chard in Somerset a pipeclay stamp used by the seven-

teenth century maker George Webb has been found, whilst in the nineteenth century metal dies appear to have been most frequently used.

Given the potential of pipes for dating and interpretation it is clearly a great advantage if the marks can be readily identified and attributed to individual makers. For many years makers' lists have been built up from contemporary records such as parish registers, directories, poll books and taxation schedules which name individual people and their occupations, so that now details exist for many thousands of individual workers from all over the country. Research funded by the Leverhulme Trust is underway at the University of Liverpool to compile an illustrated catalogue of the makers' marks which can be used in conjunction with this list. The aim is to produce a standard reference work of pipe marks in which there will be a twice life-size illustration of each different die recorded. This is a substantial job since many thousands of different marks are known to exist. In one extreme case a maker has already been found who used over 100 different marks during his career.

Researchers from the project are examining as many substantial collections of pipes as can be located, for example at county archaeological unit stores, at local museums throughout the country, and in private collections. Details of each marked pipe, its findspot, date and storage place are being collected and all the information entered into a computer database. In addition an impression of each mark is made in

plasticine and a permanent reference copy made in plaster. It is only through the systematic collection and analysis of this data that the full potential of the information carried by the pipes can be realised. This will not only make an accurate identification and dating of the makers' marks possible for the first time but also make a substantial contribution to the methodology of post-medieval and industrial artifact analysis.

This study has a number of important implications for industrial archaeologists. It is one of the first comprehensive studies to deal with a class of artifact commonly found on industrial sites. As such it should both enable a much more accurate dating and identification of excavated deposits and stimulate research into other post-medieval finds. It will also allow researchers to study a wide range of secondary topics, such as local trade patterns, in far greater detail than has been possible from artifacts before. It is only through the systematic study of artifacts and their proper analysis and integration with classes of information that we can hope to arrive at the fullest possible understanding of the past.

If readers know of any collections of pipes with stamped marks which could be included in this survey, or if you need advice on the excavation and recording of pipes, they should contact Dr David Higgins, National Pipe Stamp Catalogue, Department of Continuing Education, The University of Liverpool, PO BOX 147, Liverpool L69 3BX.

D A Higgins

1992 AND ALL THAT

With the coming of a single European market at the end of 1992, Industrial Archaeology as well as other facets of our daily lives may have to take on a more international bent if it is not to seem out of step. This can only enrich our understanding of the industrial heritage and stimulate us in our contributions to the subject. Two recent books on international European subjects are reported here by Dr Barrie Trinder, Editor of *World Industrial History*, which **ATA** members receive once a year as part of their subscription.

Water Towers by Bernd and Hilla Becha is an English language edition of a collection of photographs originally published in Germany as *Wasserturme*. It is now published by MIT Press

of Cambridge, Massachusetts, and London (1988) for 39.95. The Bechers themselves contribute a short note of about a third of a page on the functional aspects of water towers, but the two longer introductory essays by Rayner Banham and Weston J Naef are concerned with the artistic qualities of the photographs. The collections itself consists of views of over 200 watertowers, in timber, steel and concrete, and in almost every possible architectural style from the Romanesque to the Modernist. This approach to industrial monuments is more familiar in Germany than in England, and the publication of an English version of one of the outstanding examples of the genre is to be welcomed.

The Various and Ingenious Machines of Agostino Ramelli: a classic sixteenth-century illus-

trated treatise on technology is a welcome contribution to the international study of the history of technology. It is a reprint by Dover Publications of New York and the Scholar Press of Aldershot (1987) of the edition of 1976 by John Hopkins University Press. It has been translated into English by Martha T. Gnudi with technical annotations and a pictorial glossary by Eugene S. Ferguson. However it is essentially a facsimile edition of one of the classics of Renaissance technology, originally published in French and Italian in Paris in 1588. Agostino Ramelli was an Italian military engineer employed by Henry III of France. The drawings include numerous devices intended for use by artillerymen, as well as devices for raising water, windmills, pontoon bridges, and equipment for drawing heavy loads.

WORK AT WET EARTH

Work has begun clearing the overgrown site of the Wet Earth colliery complex at Clifton, half way between Manchester and Bolton. The work is being carried out by Greater Manchester Archaeological Unit, with additional outside funding. It will include repair to some of the low walls of the former buildings, and the erection of notices interpreting the site for visitors.

This is an important early industrial site, since the Gal or Engine pit was the first deep mine in the area. Sinking commenced in the late 1740s, supervised by the young Matthew Fletcher, to exploit the Doe seam which had earlier been worked by bell pits. The Doe was reached at 260ft, and later the shaft was deepened to the Five Quarters seam at 330ft. However, flooding soon became a problem, and this is probably how the colliery received its name of Wet Earth. In the 1750s James Brindley was consulted about the flooding and proposed working bucket pumps by cranks driven by a wooden

waterwheel 22ft in diameter sited in a chamber some 20ft below ground. To drive the waterwheel Brindley took water from a weir upstream on the River Irwell, bringing it by a tunnel 2,440ft long to the left bank of the river. To reach Gal pit, on the other side, he constructed an inverted siphon of 220ft horizontal length under the river bed. On emerging from the siphon, 20ft above river level, the water flowed along a leat some 3,300ft long to the wheel chamber. An underground tailrace led the water back into the river, along with the water pumped up from the mine. Brindley carried out this work some three years before he commenced work on the Bridgewater Canal.

Around 1790, Fletcher cut a canal to join the Manchester, Bolton and Bury Canal at Clifton Junction, and constructed a terminal basin at Wet Earth so that coal could be more easily transported from the colliery to local markets. Once the canal basin was in use, water for the waterwheel was taken from there, and the earlier tunnel, siphon and leat fell into disuse.

Pumping by waterwheel had begun in 1756 and continued until 1867 when the wheel was replaced by a turbine. Water power thereafter continued to be used until 1924, making a run of nearly 170 years.

A second shaft was sunk in 1805 which was later deepened to reach the Trencherbone seam at 600ft. A colliery railway was built to connect Wet Earth to the Lancashire and Yorkshire Railway, and a third shaft was sunk in the 1860s. The colliery finally closed in 1928 and all buildings were demolished soon afterwards.

The clearing of the site is expected to uncover and make safe where necessary the old Gal pit, the site of the underground wheel chamber, the exit from the inverted siphon, the canal basin and dry dock, a locomotive shed, a winding engine house, and several other buildings associated with the colliery complex.

Bill Jones

DIFINING OUR TERMS

As well as dealing with physical remains of sites and monuments, industrial archaeologists are used to studying the materials and products of industries when surviving examples can be found, and documents describing those goods when they cannot. A large new research project is being undertaken which should substantially assist in this task of studying goods and commodities.

The project is to compile a dictionary of goods traded in England and Wales in the period leading up to the Industrial Revolution, from about the mid sixteenth century to the beginning of the nineteenth. The project is funded by the Leverhulme Trust and is based at Wolverhampton Polytechnic, where work will continue for several years, with publication proposed in about 1994 in book form and some years later on computerised compact disk. The principal people undertaking the project are Nancy Cox, an Honorary Research Fellow at Wolverhampton, and Angela Brown, a Research Fellow funded by the Leverhulme Trust. Two industrial archaeologists are closely involved: Dr Barrie Trinder of the Ironbridge Institute, and Peter Wakelin of the Portbooks Programme at Wolverhampton Polytechnic (and editor of this Bulletin!). A large number of volunteers are also becoming involved in the collection of evidence for the Dictionary.

One of the greatest problems for students of trade and material culture in the pre-industrial period is to understand precisely what was meant by the terms for goods and commodities which are found in contemporary sources. Some words may be obscure in meaning, such as 'pennadice', probably some kind of sugar product. Others, like 'household goods', may have clear general meanings but be elusive in definition. It is perhaps even more difficult to understand the historical significance of particular goods or commodities. For instance it may be known that 'alamode' was a thin, light glossy silk; but little can be inferred from its occurrence unless it is known when and where it was produced, what it was used for, and whether it was more akin in value to, say, modern polyester or an expensive Liberty's silk. Accessible studies exist for very few types of goods to provide such a systematic understanding of the contemporary context for their production, trade or use. The Dictionary of Traded Goods will contain some 4,000 entries and offer definitions and discussions of perhaps 8,000 different terms in contemporary usage. The dictionary in book form will be

about 500,000 words in length. The database version of the dictionary will be much longer, containing fully referenced arguments for all the definitions derived and various systems to allow rapid cross-referencing of subjects and more sophisticated analysis of the information contained.

Many of the terms for traded goods contained in contemporary sources are ill-defined or not defined at all in existing dictionaries, which reflect the sources they have used. The Oxford English Dictionary and most of its successors have drawn upon literary sources. Wright's and other dialect dictionaries have studied the spoken word. No major dictionary has drawn significantly upon the manuscript and printed documents of tradeland industry; yet these were written by people expert in their separate fields and familiar with contemporary terminology in a way that the more widely quoted literary figures could never be. The Dictionary of Traded Goods will use quotations from a variety of printed sources in the traditional way pioneered by the OED. However it will also derive definitions and further information from systematic analysis of extensive sources which have not previously been used, such as the Port Books, Books of Rates, industrial account books, probate inventories and newspapers.

The main systematic technique to be used has already been developed successfully by Barrie Trinder and Nancy Cox in work on probate inventories. By studying the context of words in a large number of inventories it is often possible to infer definitions. For example, the word 'tamarine' is defined in the OED simply as 'some kind of cloth', but from mercers' inventories it can be inferred that it was popular in the second half of the seventeenth century, it was grouped with the stuffs as opposed to the cloths, it was sometimes made of worsted and sometimes of other fibres, and it was ready dyed or patterned. This method of deriving definitions can be applied to several sources, including Port Books, and is greatly enhanced by the computerisation of evidence for rapid and thorough analysis.

The dictionary will define general terms like 'Manchester wares' and 'timberstuff' as well as more specific words such as 'plod' or 'magnus'. The information provided will allow the commodities to be set in their context of trade, suggest their uses and technological significance, and indicate how terms changed in meaning or fell from use. In many cases the dictionary will therefore not just provide definitions of terms but permit readers to build up

an understanding of broader topics such as the implications of different colours in textiles, the rapid growth in the range of hardwares, or the technological development of glass products. This will make the dictionary an important tool for those working on all aspects of trade or studying industry or domestic conditions in the seventeenth and eighteenth centuries. Until this tool is provided, historical understanding of early industrialisation and trade will remain severely handicapped by inadequate comprehension of terminology.

The work of compiling such a major Dictionary sets huge needs for the discovery and analysis of appropriate evidence. Any readers will be welcomed who would be interested in assisting the project by helping to find documentary or artifactual evidence to contribute to the definitions of the words. Detailed guidelines for extracting relevant evidence can be provided for any volunteers who would like to read documents in local archives, or even put their feet up at home with some contemporary published sources or early novels. Anyone who might be willing to help the project should contact Angela Brown or Nancy Cox, School of Humanities and Cultural Studies, Wolverhampton Polytechnic, Castle View, Dudley, DY1 3HR ☎ 0902 313001 extension 2333.

THE GOLD RUSH

Readers who enjoyed the recent centenary season of Chaplin films may be itching to follow in the snowy footsteps left behind him in *The Gold Rush* (1925). If, unlike the little tramp, you already have some gold to spend, then you can both relive the film and see some of the industrial remains from the real thing. The (American) Society for Industrial Archaeology is arranging a study tour of the Yukon and Alaska gold mining regions in August or September next year. It has written to ask members of the **AIA** to join in the excursion and has provided the following details. If you decide to go, do check your accommodation is not teetering on an icy cliff-edge, and make sure you get back in time for next year's **AIA** conference.

Yukon 1990

Explore the dredges and gold field of Bear Creek, near Dawson. Ride the narrow gauge White Pass and Yukon Railway. Tour the steamers that once plied Yukon waterways. Operate the most northerly navigation lock in North America. Enjoy a 'flightseeing' tour by vintage DC3s between Whitehorse and Dawson. These are some of the highlights of the 1990 SIA Fall Tour of the Yukon and Alaska.

The Society for Industrial Archaeology in cooperation with the Canadian Parks Service and the United States National Parks Service invite you to join this unique experience. Spend nine days in the North touring historic industrial sites. The major destinations are Whitehorse, Skagway and Dawson.

The tour will occur in either the last week in August or the first week in September, 1990 (the date is to be confirmed). The trip starts in Vancouver with air travel to Whitehorse. Travel through the Yukon and Alaska will be by bus, rail and charter plane. The fare of \$1,800 (US) covers all travel, accommodation and most meals.

Plan now to journey north in the Fall of 1990.

Further details from the Society for Industrial Archaeology, Room 5020, National Museum of American History, Smithsonian Institution 3



Drawing: Susan Isaac

← New surveying methods for mines occupied by bats. See 'Metal Mining Conference', p6