

SOME OTHER WAYS IN WHICH GLASS ALTERED LIFE IN THE WEST

The story of the development of glass is given excitement, but also added complexity, by the fact that it has so many uses and these spread across the intellectual, material and practical world. It is not just a tool to think with but principally a tool to improve comfort. Samuel Johnson was indeed right that the early users of glass could not possibly 'have imagined that in this shapeless lump lay concealed so many conveniences of life as would, in time, constitute a great part of the happiness of the world.'¹ The period between the thirteenth and eighteenth centuries in Europe saw many of these potentialities unfold and they are an important part of the story of glass and its effects. Furthermore, as we have already seen, the intellectual and the material are interlinked. Many of the ways in which glass began to embed increased reliable knowledge in shaping human kind's artefactual world then fed back into increasing the possibilities of further rapid advances in reliable knowledge.

Just as it improved comfort and the length of the workingday, it probably affected health. Glass lets light into interiors and is a hard and cleanable surface. This, as we saw, was one of its attractions to the fastidious Romans in relation to utensils, and likewise for one of the great glass-using and representing civilizations, the Dutch, 'with their enormous windows', so that 'it was in the Netherlands that the use of glass and its manifold applications went farthest'. Mumford explained the basic idea. 'Transparent glass lets in the light: it brings out, with merciless sincerity, moats dancing in the sunbeams and dirt lurking in the corner: for its fullest use, again, the glass itself must be clean, and no surface can be subject to a greater degree of verifiable cleanliness than the slick hard surface of glass.' Glass thus both practically and symbolically encouraged cleanliness and health. 'So, both by what it is and by what it does, glass is favourable to hygiene: the clean window, the scoured floor, the shiny utensils, are characteristic of the eotechnic household; and the plentiful supply of water, through the introduction of canals and pumping works with water pipes for circulation throughout the city, only made the process easier and more universal...Sharper eyesight: a sharper interest in the external world: a sharper response to the clarified image - these characteristics went hand in hand with the widespread introduction of glass.'²

If this sounds fanciful, it is a point made specifically by a mid nineteenth century observer, writing of (Holland??). 'The spaciousness of these farm-houses, the abundance of window-lights by which the inmates can see to be clean, and the cleaning and scouring habits of the people, formed, no doubt, by the absence of all dark corners for dirt to be hid in, make this arrangement of house and household by no means so unsuitable as we would suspect for working proprietors.'³ Of course, the Japanese houses achieved even greater cleanliness by

¹McGrath, Glass in Architecture, 5

²Mumford, Technics, p.128.

³ Laing, Observations, 487

other methods and without glass.⁴ But in a cold northern climate windows were probably a very important factor.

The effects on health and hygiene may have worked in other ways. Firstly there is the effect of glass windows on the germs themselves. We are told that the 'window allowed sunlight to kill a lot of germs, including tubercles'.⁵ The same author therefore believes that 'panes of transparent glass and cotton underwear did more to increase the average life of nineteenth-century Europeans than all the world's patented drugs and medical graduates combined'.⁶ Dubos likewise believed that the 'greatest advances in the health of the people were probably the indirect results of better housing and working conditions' and these included soap, linen and 'glass for windows'.⁷ Again this seems to have been a contemporary view. Dr Short believed that improvements in health were related to a number changes including 'Rooms and Windows built loftier'.⁸

The new substance did not merely alter the private home, but in due course transformed the growing consumer society. Here the focus shifts northwards to England and a century later. 'In a nation of shopkeepers it was only natural that the recent improvements in the manufacture of glass should be turned to advantage by the predominant trade. The connection between glazed windows and shops had not been, previously to this, a long one. At the beginning of the eighteenth century the shops in London were for the most part unglazed....' ⁹ The change was well captured by a French visitor to England in relation to shop-windows. 'What we do not on the whole have in France,' he notes, 'is glass like this, generally very fine and very clear. The shops are surrounded with it and usually the merchandise is arranged behind it, which keeps the dust off, while still displaying the goods to passers-by, presenting a fine sight in every direction.'¹⁰

As well as houses and shops, the new substance began to transform agriculture and knowledge about plants. The use of glass in horticulture was not an invention of the early modern Europeans. 'The greenhouse had been anticipated in the forcing houses of the Romans; Martial referred to a grape house which compelled the wind[??] to produce autumnal fruits, Columella recommended the use of glass if early cucumbers were wanted and Pliny mentioned that Tiberius had cucumbers forced in his garden by means of stoves.'¹¹ Mumford also notes

⁴ See Savage Wars, xxx

⁵ Nikiforuk, Fourth, 141; only, of course, if the window glass was removed by opening.

⁶ Nikiforuk, Fourth, 141

⁷ Dubos, Adapting, 365

⁸ Short, Increase, 36

⁹ McGrath, Glass, 141

¹⁰ Braudel, Wheels of Commerce, 69-70

¹¹ McGrath, Glass in Arch., 114

that 'Hothouses, which used lapis specularis, a species of mica, instead of glass, were used by the Emperor Tiberius', but he believes that 'the glass hothouse was probably an eotechnic invention.' Yet it took some time for Europe to return to the Roman level. 'In the Middle Ages there are scanty references to any form of forcing house or frame, but a letter dated 1385 and signed John relates that 'at Bois-le-Duc there are marvellous machines, even for drawing water, beating hides, and scraping cloth. There, too, they grow flowers in glass pavilions turned to the South.'¹²

As glass became cheaper and particularly flat window glass improved in quality, the development began to exceed the Roman use. 'The heated and ventilated wooden frame structure erected by Solomon de Caus at Heidelberg in 1619 to shelter orange trees is the first recorded example. The earliest record in Britain concerns a room, with glass windows in the wide walls and an opaque roof, heated by hot embers placed in a hole in the floor, built in 1684 in the Apothecaries Garden at Chelsea.'¹³ As this happened, we are told that 'Glass cloches and greenhouses transformed market-gardening... Greenhouses vastly improved the cultivation of flowers, fruit, and vegetables, bringing a healthier and more abundant diet, previously known only in the Mediterranean. ' ¹⁴ As Mumford wrote, the glasshouse 'lengthened the growing period of Northern Europe, increased, so to say, the climatic range of a region, and utilized solar energy which would otherwise have been wasted: another clean gain.'¹⁵

Finally we can note a plethora of other useful inventions which altered material life. Among these are 'storm-proof lanterns, enclosed coaches, and watch-glasses. '¹⁶ To this could be added light-houses and street lighting. On the last of these De Saussure when he came to London in the early eighteenth century wrote of London streets: 'Most of the streets are wonderfully well lighted, for in front of each house hangs a lantern or a large globe of glass, inside of which is placed a lamp which burns all night.'¹⁷ Thus travel and navigation was improved. Or again there is the effect of glass bottles, which increasingly revolutionized distribution and storage. For example we are told that the 'glass bottle effected a revolution in drinking habits. It not only allowed wine to be distributed more widely, socially and geographically; it also permitted provincial beers, whose merits often depended on local peculiarities of the water-supply, to reach the capital as well as other parts of the kingdom.'¹⁸

¹²McGrath, *Glass in Arch.*, 114

¹³ Chambers Encyclopedia, s.v. Glasshouse

¹⁴ Davies, *Europe*, 369

¹⁵ Mumford, *Technics*, 125; for further discussion of artificial heating and glass-houses in the seventeenth century, see Drummond, *Food*, 115.

¹⁶ Davies, *Europe*, 369

¹⁷ De Saussure, *Foreign*, 67

¹⁸ Pounds, *Culture*, 204

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In fact, of course, glass has become such an ubiquitous feature of our lives, as earlier noted, that it has become like the air we breathe, invisible. Yet if one contemplates for one moment how our world of cars, computers, hospitals, laboratories, air-planes, houses, electric lights etc. would look if this amazing substance were suddenly withdrawn it is clear that our modern world and glass are totally interdependent. We are creatures who live in glass and survive through glass, we view our world through glass (powerful television lenses and photographs) and move across space guided by it. It does seem strange that we should have paid it so little attention.

(1500)