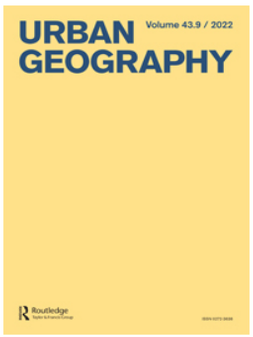

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Bunkering down? The geography of elite residential basement development in London

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ABSTRACT

Much has been written about the "luxified skies" – "high-rise", "super-prime" housing for the super-rich – that has been sprouting up across London. Thus far, less attention has been paid to what has been happening to the subterranean city. The "luxified skies" are highly visible reminders of elite "verticality" but, what we might term, "luxified troglodytism" is also an important aspect of London's changing geometries of wealth, power and architecture. In this paper, we map out in detail the emerging subterranean geography of residential basement development across London since 2008. The very wealthy, it turns out, have been "bunkering down" across certain parts of London, to an extent hitherto little understood. Some 7,328 new residential basements underneath existing houses had been granted planning permission up to late-2019. Over 1,500 of them are of a size that their locations might best be thought of as marking out a distinct plutocratic "basement belt".

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Introduction

Basements have not traditionally been associated with wealth. Indeed, quite the opposite. Through urban history, basements figure largely as the domain of the desperate: as dank, dirty and disease-ridden sites of extreme overcrowding, poverty, disease, malnutrition, and illegal housing, refuges and homes of last resort for those with little or no other choice (Heise, 2010). Othered and dehumanized, partly because of their often-desperate inhabitations buried into the dusty, filthy or water-logged "Underworld" of the very earth itself, basement dwellers have often been demonized and feared by political and social elites as sources of disease, unrest or insurrection (Moga, 2020). Long-standing vertical linguistic tropes imagining an "upper", "lower" or even "under" class, have led elites to equate distance down into the earth with closeness to an animalistic or uncivilized being, which only added to such processes of demonization (Otter, 2008). Indeed, in English the very word "basement" is derived from the word "base", a word that comes from the old French word *bas* meaning "low", "lowly" or "mean". The word "Low" in English, readers will recall, is also a synonym for deceit or deviousness.

Fueled by such pejorative, vertical traditions and tropes, the demonization of basement dwellers naturally followed. Riis, (1901/2010, p. 34), the influential reformer in late

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nineteenth-century New York, notoriously labeled the City's basement inhabitants as "cave dwellers" whose very physical descent into the city's subsurface paralleled a complete moral collapse to a point where, as Heise (2010, p. 61) puts it, "they were hardly worthy of life on the surface." Charles Booth, the famous cartographer-cum-reformer of late nineteenth-century London, was also keen to stress the correlation between basement living and the most desperate, insanitary poverty and "vice" in the city (Orford et al., 2002). London in the eighteenth and nineteenth centuries was particularly renowned for the high densities of the very poor crammed into its poorly constructed street-side cellars and basements. A shocked German traveler to London at the end of the eighteenth century noted that "a third of the inhabitants . . . live underground!" in "cellar dwellings" entered by steps leading down from streets (as cited in Ackroyd, 2011, p. 7). Roaming the densely packed courts and alleys of the basement communities of Clerkenwell in 1859, George Godwin, editor of *The Builder* periodical, recoiled in horror on inspecting one building, the basement storey of which was "filled with fetid refuse, of which it had been the receptacle for years . . . the floors were in holes, the stairs broken down, and the plastering had fallen" (Godwin, 1854, p. 67).

Not surprisingly, overcrowding within basements continues to be a (largely invisible) feature of many global cities, as they experience intensifying crises of housing affordability. For example, overcrowding within small, ill-equipped, dangerous and illegal basement conversions remains a notable feature of many urban districts welcoming new immigrant groups. Such overcrowding coexists within many cities that also exhibit the visible architectural transformations associated with the proliferation of new high-rise luxury apartment towers (Graham, 2015). Notable examples here include Vancouver (Francis & Hiebert, 2014), Toronto, (Murdie, 2008), New York (Bloom & Lasner, 2019), Beijing (Huang & Chengdong, 2015), Shanghai (Tao & Mustafa, 2015), and, of course, London (Butler, 2015).

In recent years, however, a startling reversal has emerged in the nature of basement living in the United Kingdom capital. As über-wealthy elites have begun to "pull away" from the rest of the population (Hecht et al., 2020), both their secessionary aspirations (Atkinson, 2016; Atkinson & Ho, 2020; Garrett, 2020), and their interest in living within highly secured, "capsularised" spaces (De Cauter, 2004), have intensified. Living within large-scale, new basements, excavated at an enormous cost beneath existing, ground-level elite housing, has now become one of several architectural and mobility strategies through which the contemporary super-rich manage to avoid proximate interactions with other urban denizens (Baldwin et al., 2019; Burrows & Knowles, 2019). A key motivation for the proliferation of luxury basements in inner London neighborhoods, where very tight, conservation-oriented urban planning controls often prohibit the expansion of upward or outward elite houses, has been the relative affordability of newly built basement space compared to that obtained by moving to a larger, existing property. Such relative affordability has made the excavation of large basements beneath elite housing a speculator's dream in terms of the impact it can have on adding further value to existing, elite housing. At its peak in prime central London postcodes, in 2015, it was claimed that for every 1000 USD invested in a basement development the overall value of the property it was under increased by about 2000 USD.[1]

It is important to position attempts at *subterranean* secession through super-luxury basements as an element within the broader geographical and mobility dynamics through

which the super-wealthy work to secede their lives and logistical dynamics from wider society. Complex three-dimensional dynamics were already at play here before the phenomenon of elite burrowing presented itself in London. Sometimes, it seems that if such groups are not in their penthouses atop the "luxified skies" (Graham, 2015), they are even higher up – in their private jets, helicopters (Budd, 2016), or even, soon, their own spaceships (Deudney, 2020). On other occasions, the super-wealthy are far out at sea in their "super-yachts" (Spence, 2017), on their private islands (Urry, 2013), or their "seasteads" (Steinberg et al., 2012). For the most part, the luxury towers, the aviation vehicles, the marine architecture and so on, are highly visible reminders of how the actions of ascendant wealth elites impact our environment. Basements, however – by their very nature – are, for the most part, largely invisible other than during the time (albeit, often many months) when they are being excavated and built. Until recently, we have known little about what has been termed London's emerging "labyrinth of deeply excavated super-luxury cocoons" (Graham, 2016a: 313; see Baldwin et al., 2019; McCarthy & Kilgour, 2011).

In such a context, this paper aims to render visible and to map out the large and complex subterranean urban geography that has resulted, at least in part, from a decade-long alignment between the secessionary desires of the super-rich and a real estate market in which, for a time, it has made instrumental economic sense to spend huge amounts of money expanding the volumetric envelope of property downwards. We do this via a detailed empirical case study of London – the ultimate *Alpha City* (Atkinson, 2020) of the global super-rich, as it has recently been conceptualized – where, it turns out, huge plutocratic fortunes have found themselves, almost literally, being buried deep into the ground. The paper falls into five parts. In the first, we set the context for the luxury basement phenomenon by exploring the broader socio-geographic dynamics of über-wealthy London. Following this, we briefly outline the research strategy and methods used in our empirical analysis. The geographies of London's luxury basement boom are then presented in detail. We finish, in the fourth and final parts of the paper, by analyzing and interpreting the implications of our findings and briefly drawing some conclusions.

The socio-spatial dynamics of über-wealthy London

The implications of the changing income and wealth dynamics of London since the global financial crisis of 2008 have been extensively documented (Atkinson, 2020; Cunningham & Savage, 2017; Minton, 2017) and do not need to be repeated here in any detail. On any measure, London is a rich city, and this has long been the case (Atkinson et al., 2017; Webber & Burrows, 2016; Wilkins, 2013). It is home (for some of the time at least) to 89 of the 147 sterling billionaires who live in the UK, making it the global city with the most billionaire residents, ahead of San Francisco with 75 and New York with 71.[2] London is also home to over 500,000 of what the financial services industry calls High Net Worth Individuals (HNWIs): individuals with investable assets of 1 USD m or more. Almost 5 thousand of this group have 30 USD m or more of investable assets (and are thus in receipt of the Ultra-HNWIs moniker).[3] Wealth holdings in London overall were estimated to total some 2.7 USDtrn in 2017, and the wealthiest ten of London's 33 boroughs by property wealth are worth more than the whole of Scotland, Northern Ireland and North Wales put together (Atkinson, 2020, p. 15).

However, at the same time as all of this wealth has been sloshing around the city, the majority of its population has been subject to the deprivations invoked by over a decade of post-crash "austerity" policies: "disinvestment in local neighbourhoods, demolished estates, evictions, rising homelessness and . . . the . . . loss of an ethos of care as support for those in need was . . . withdrawn" (Atkinson, 2020, p. 3).

The global wealth that has poured into post-crash London has tended to be directed toward particular types of prosperous neighborhood. Atkinson, (2020, pp. 61–82) develops a typology of five rather different types of super-rich neighborhoods, what he terms *alphahoods*. The first, and long the most prestigious cluster (Wilkins, 2013), he terms the *patrician heartlands*. These are "the clearly demarcated space of the city's traditional West End . . . the unambiguously magnificent districts that London's rich have long occupied, alongside ambassadors, embassies, charming restaurants, mews houses and unique expensive shops" (Atkinson, 2020, p. 66). Berkeley and Grosvenor Squares in Mayfair are emblematic examples here.

The second type of *alphahood* is less distinct. *Ultraland* is better thought of as "a series of islands formed of new mega-mansion blocks" (Atkinson, 2020, p. 66) slowly being interwoven into the fabric of the patrician heartlands; the One Hyde Park development opposite Harrods is the most infamous example.

Prime London is the third *alphahood* and consists of some of the city's wealthiest inner suburbs – Hampstead, Highgate, Holland Park and Notting Hill would all be examples – which were originally the outer fringes of the city as it expanded in the nineteenth century. These are the neighborhoods of London's established – and often liberal and civically-minded – "merely wealthy" who, in recent years, have seen a huge influx of overseas investment with consequent radical changes in the built environment and the cultural politics of quotidian life (Burrows & Knowles, 2019; Webber & Burrows, 2016).

The fourth – "the most international and newest" – *alphahood* is the *waterfront alphahood*, "the linear development of the city that hogs access to much of the length of [the Thames] river as it winds through inner London . . . home to . . . the middle and upper-tier wealthy from around the world" (Atkinson, 2020, p. 74).

Finally, but of less interest to us here, are a more dispersed set of *suburban exclaves*, mostly to the west of London – Cobham, Esher, Henley are all prime examples – all commutable super-affluent towns; "an enclosed and super-comfortable land of private golf courses, unfeasibly large executive homes . . . and strings of gated communities to protect the more anxious among the super-rich" (Atkinson, 2020, p. 79).

It will come as no surprise that a wide range of factors determine where different types of wealthy individuals locate themselves across these different types of *alphahood* (Burrows et al., 2017; Knowles & Burrows, 2017). Factors such as the level of wealth, household type, the presence of children, and connections to existing London elites all play a role, as do family histories, cultural tastes and esthetic preferences for different architectural forms (Atkinson, 2020, p. 65). The willingness, or otherwise, to live in affluent urban neighborhoods that are, nonetheless, contiguous with areas of relative deprivation is also an influence (Webber & Burrows, 2018, pp. 141–149). These myriad factors also interact in complex ways with a strong tendency for different ethnic and national groupings to favor different parts of the city. For example, wealthy Russians tend to favor the *patrician heartlands* and the *prime London* neighborhoods of Highgate, Hampstead and St. John's Wood, close to long-established diplomatic locations. Wealthy

Chinese, Hong Kongers, Singaporeans and some from the Middle East, by contrast, tend to favor the "luxified skies" of the *ultralands* and the *waterfront* areas (Atkinson, 2020, p. 65; Knowles & Burrows, 2017; Webber & Burrows, 2018, pp. 189–215).

Not all of these *alphahoods* have been subject to the epidemic of basement development that we will describe below. London's proliferation of luxury basements is largely restricted to neighborhoods dominated by freehold houses in areas where planning and/or plot restrictions make it very difficult to extend properties laterally over existing terrain or to accommodate additional floors on the top of properties. It is also confined to neighborhoods where the housing market is such that the huge costs of excavation and construction – sometimes involving the expertise of mining engineers (Knowles, 2017) – will still generate a healthy return on the investment in terms of increased property value.

In such neighborhoods, many properties have been transformed by super-affluent newcomers commissioning high-end designers to undertake often-brutal structural conversions into "state-of-the-art" living spaces. Within such projects, maximizing the size of all interior spaces whilst infusing them with exterior light has now become *de rigueur*, as have various design and technological "solutions" to matters of privacy and security (Atkinson, 2020, p. 163; Webber & Burrows, 2016).

However, especially in the *patrician heartlands* and across *prime London*, the nature of the original architecture combined with the aforementioned planning restrictions mean that, for some, the only solution has been to "go down". Much has been written about the "luxified skies" that have been sprouting up in certain parts of London; "high-rise", "super-prime" housing for a particular fraction of the very wealthy. Thus far, less attention has been paid to what has been happening to the subterranean city, as some elements of the urban super-rich have begun to "bunker down" (Garrett, 2020). The luxified skies are highly visible reminders of elite verticality (Graham, 2015) but, what we might term "luxified troglodytism" (Baldwin et al., 2019) is also an important aspect of the changing geometries of wealth, power and architecture. In what follows, we map out in detail the emerging subterranean geography of residential basement development across London since 2008.

Analyzing London's "basement belt": the research strategy

Greater London is sub-divided into 32 boroughs (administrative authorities) as well as the City of London. Each is responsible for the granting, or otherwise, of permission to make major structural changes to existing residential properties. All such applications are publicly available via the online planning portals of each authority. For our analysis, we gathered data from these portals from the beginning of 2008 until the end of October 2019.[4] The majority of portals allowed us to search for applications containing the keywords "basement" and/or "excavation" and then to examine in detail the nature of each via inspection of architectural drawings and plans. The majority of applications containing these keywords were, in fact, not new basement developments under existing properties, but about one-fifth of them were. In eight cases the planning portals did not include a search function sophisticated enough to allow us to do this, and in these cases, we made Freedom of Information (FOI) requests to obtain the necessary data. In just one case – that of the London Borough of Waltham Forest – the FOI requests were rejected, and we were unable to obtain any data. However, given what we know of the existing

housing stock and the socio-demographics of this area of London – it suffers relatively high levels of deprivation – the number of cases we have missed are likely to be negligible.

Once we were able to ascertain that the application was for a new basement development under an existing residential property,[5] and that it had been granted permission to be built,[6] we recorded data on a range of variables about it. This enabled us to: precisely locate the development; ascertain its size, shape and the number of subterranean floors (or storeys) envisaged; to note if it contained a swimming pool, a cinema, staff accommodation and a range of other amenities; and, finally, to record the architects responsible for drawing the plans. We used the data on the size, shape and number of floors to classify each development into one of three different types: *standard; large*; or *mega*. We defined a *standard* development as a new one-storey basement contained within the footprint of a house. We defined a *large* development as a two-storey basement contained within the footprint of a house or a one-storey basement that extends well beyond this footprint under the garden or other outside space. We defined a *mega*-development as a three-storey (or greater) basement (or the equivalent in height) under the existing footprint of a house or a two-storey basement that extends beyond this footprint. This sounds complicated but, in practice, the allocation of developments to each category proved unambiguous. Figure 1 attempts to give an ideal-typical diagrammatic representation to this typology.[7]

Images of such London basements – and the plans for them – can be easily accessed via a simple internet search. However, although these are obviously of interest, they do not always give a sense of how often such excavations cluster together. To remedy this, Figure 1 also includes a schematic drawing of eight semi-detached houses located in Chelsea, on a road with the highest concentration of large and mega basements in London, under which six separate excavations – two with swimming pools – have taken place since 2008. The drawing is to scale (although just showing the front elevation)

Figure 1. Schematic representations of London basements.

and it gives a good sense of just how much additional space has been carved out of the Chelsea soil here.

Geographies of über-wealthy basements: emerging patterns

In total, we identified 7,328 basement developments granted planning permission across Greater London over the nearly 12-year period that we focused on.[8] The overwhelming majority of these have either been built or were in the process of construction at the time of writing. The great majority, some 79.3% (5,813), were of *standard* one-storey construction, 18.3% (1,344) were of *large* construction, and a total of 2.3% (171) could only be described as *mega*-basements. Some 85.8% (6,286) were one storey basements, 12.6% (925) were two-storey and 1.6% (117) were three storeys. If we assume that the average depth of a storey is 3 meters, then the three-storey basements on their own total an aggregate depth of some 1,053 meters; to put this in perspective, the tallest structure on Earth, the Burj Khalifa in Dubai, is (only) 830 meters tall. If we include all 7,328 basements in our calculations, we estimate that basements totaling a depth of 25,461 meters – that is 15.82 miles – have been excavated under London since 2008. If we assume that the average footprint of a single storey of a basement is 70 meters squared, then each storey, on average, would involve the removal of some 210 cubic meters of earth. This means that, in total, just over 1.782 million cubic meters of earth have been removed from under Greater London to construct these basements since 2008, and then deposited elsewhere.[9] Again, to provide some sense of perspective, it is estimated that the interior of St Paul's Cathedral, including its large dome, is 152 thousand cubic meters. Thus, almost 12 times this volume of earth has been removed to facilitate the wealthy's bunkering down.[10]

The cost of basement construction in London starts at about £4,000 per square meter but can be considerably greater than this depending upon ceiling heights, the quality of finish, the inclusion of swimming pools, and so on. This means that even the most modest of one-storey basements added to a terraced house can cost anything from about £200,000; the luxurious nature of many standard constructions means that, very often, they cost much more than this. Many of the large and mega-developments can cost many millions of pounds.

The construction of these basements follows a very clear geographical pattern. Table 1 details the number of different types of basement built in each of the London boroughs from 2008 up until the end of October 2019. Hammersmith and Fulham accounts for over 18% of all basement builds – 1,337 in total – but here the great majority have been of *standard* construction. This is also the London Borough with the highest ratio of basement builds per resident household (using 2020 projections of the number of households); the number of new basements amounts to fully 1.66% of the total number of households.

Kensington and Chelsea and Westminster – at the very heart of the *patrician heartlands* – account for the second and third most excavations – 1,152 and 745, respectively – but here we find significant numbers of *large* and *mega*-developments; indeed, these two boroughs alone account for over 45% of all such basements across Greater London. The borough of Hammersmith and Fulham is a very affluent part of London – average house prices in March 2020 were over £936,000 – but its location and housing stock are such

Table 1. Number of basements (by type) given planning permission in London boroughs and the City of London, 2008–2019, basements as a percentage of number of households (2020 Projections) in the borough, ordered by total number of basements.

London Boroughs & City of London	*Total Basements*	*. . . of which Standard*	*. . . of which Large*	*. . . of which Mega*	*% of All Basements in Greater London*	*% of All Large & Mega Basements in Greater London*	*All Basements as % of all HHs in Borough*
Hammersmith & Fulham	1,337	1,285	49	3	18.25	3.43	1.66
Kensington & Chelsea	1,152	731	353	68	15.72	27.79	1.48
Westminster	745	479	229	37	10.17	17.56	0.62
Wandsworth	648	605	43	0	8.84	2.84	0.49
Camden	615	444	162	9	8.39	11.29	0.57
Richmond upon Thames	430	280	140	10	5.87	9.90	0.50
Barnet	375	318	42	15	5.12	3.76	0.25
Haringey	331	286	45	0	4.52	2.97	0.29
Islington	295	268	27	0	4.03	1.78	0.28
Hackney	208	200	7	1	2.84	0.53	0.17
Brent	133	104	26	3	1.81	1.91	0.11
Merton	116	73	39	4	1.58	2.84	0.14
Ealing	114	93	19	2	1.56	1.39	0.09
Hounslow	97	93	3	1	1.32	0.26	0.09
Southwark	89	71	16	2	1.21	1.19	0.07
Redbridge	83	74	9	0	1.13	0.59	0.08
Lambeth	82	69	13	0	1.12	0.86	0.06
Croydon	65	56	5	4	0.89	0.59	0.04
Kingston upon Thames	57	46	11	0	0.78	0.73	0.08
Bromley	55	30	24	1	0.75	1.65	0.04
Enfield	51	39	8	4	0.70	0.79	0.04
Lewisham	45	37	8	0	0.61	0.53	0.03
Greenwich	44	24	20	0	0.60	1.32	0.04
Newham	37	29	7	1	0.50	0.53	0.03
Havering	30	13	15	2	0.41	1.12	0.03
Hillingdon	21	14	5	2	0.29	0.46	0.02
Harrow	20	10	10	0	0.27	0.66	0.02
Bexley	19	15	3	1	0.26	0.26	0.02
Tower Hamlets	16	15	0	1	0.22	0.07	0.01
Sutton	12	7	5	0	0.16	0.33	0.01
Barking & Dagenham	5	4	1	0	0.07	0.07	0.01
City of London	1	1	0	0	0.01	0.00	0.03
Waltham Forest	-	-	-	-	-	-	-
Totals	*7,328*	*5,815*	*1,344*	*171*	*100*	*100*	*0.20*

that it appeals more to very prosperous families able to expand their living space in quite practical ways, rather than to the unambiguously global super-rich who might be looking for something rather more impressive. Average house prices in Kensington and Chelsea and Westminster are much higher – £1,611,000 and £1,497,000 respectively – and the motivations for major investments in larger excavations are likely to differ from those that pertain in Hammersmith and Fulham. If we were just to focus on the 171 largest developments, we would find almost 40% (68) of them located in Kensington and Chelsea and almost 22% (37) in Westminster.[11]

Beyond these three, other boroughs display a significant propensity toward residential basement builds at a range of scales. Wandsworth is the most significant of these to the

south of the Thames, with 648 developments, but, as in Hammersmith and Fulham, the great majority are *standard* constructions. Camden, in northwest London, records 615 excavations, but well over a quarter of these are *large* or *mega*-developments – over 11% of the total for Greater London, and the third-ranked borough for such builds after Kensington and Chelsea and Westminster. Richmond upon Thames in the southwest of London has had 430 excavations but here over one-third have been *large* or *mega*, forming almost 10% of the total for Greater London.

After this, Barnet, Haringey, Islington, Hackney (although mostly *standard* constructions), and Brent, Merton and Ealing all record over 100 excavations at various scales. However, if we were to focus on just the *large* and *mega*-developments we would also need to point toward Southwark, Bromley, Greenwich and Havering, all of which contribute over 1% of the total of such excavations. Greenwich, for example, has had only 40 basement developments in total, but 50% of these were *large*. Unsurprisingly perhaps, we find a very strong positive correlation (a Spearman's rank correlation coefficient of 0.76) between average house prices in each borough and the concentration of basements per head of population. A similar correlation coefficient (0.72) is found when we examine the relationship between the concentration of basements per head of population and levels of multiple deprivation (using a rank of average rank measure) in each Borough.

One can get a much better sense of all of this data when it is mapped out across all of Greater London. Figure 2 shows the distribution of all 7,328 basements split across three maps (a, b and c). These shows, in turn, the 5,815 *standard* constructions, the 1,344 *large* excavations, and the 171 *mega*-basements.[12]

Although our analytic focus in this paper is on the geography of elite residential basement development, it is worth noting the extent and distribution of the (more modest) standard one-storey excavations. As we will detail below, it turns out that a fair number of these standard constructions are, in reality, really quite well equipped (some containing swimming pools, for example) and, as such, are better regarded as being similar to the large and mega excavations in terms of expense, extent and salubriousness. However, the majority of such constructions are better conceptualized as part of an ongoing trend of asset investment by an expanding London cadre of "merely wealthy" (super-)gentrifiers (Butler & Lees, 2006) – a more lucrative and expansive alternative to loft conversion perhaps? Certainly, the spatial distribution of these smaller excavations (concentrated in Hammersmith and Fulham but with considerable activity in Wandsworth, Camden, Islington, Haringey, Hackney and so on) suggests a rather different spatial dynamic to that which pertains to the concentration of large and mega-developments in the *patrician heartlands*. Indeed, as Adkins et al. (2020) argue, the recent (but understandable) analytic focus on the increased proportion of wealth flowing toward the global super-rich via increased asset accumulation, consequent on the hugely influential work of Piketty's (2014) *Capital in the Twenty-First Century* (Burrows et al., 2017; Savage, 2014), has sometimes distracted us from the realization that a new – and far broader – logic of inequality has recently taken hold in which asset ownership (home-ownership in particular) is playing a fundamental role. The proliferation of standard basement excavations in previously gentrifying parts of London could then perhaps be better understood within this context. Such basements are being built as part of a far broader process of asset accumulation and investment, which is particularly potent

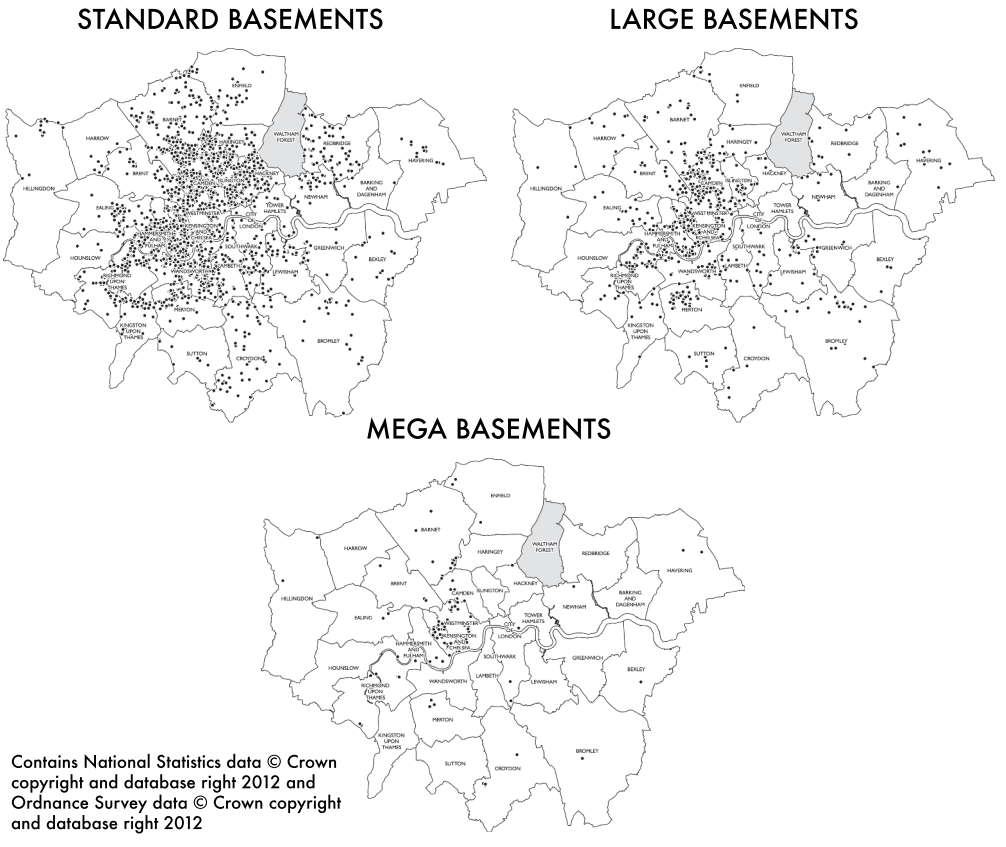

Figure 2. Spatial distribution of (a) Standard, (b) Large and (c) Mega basements across London.

amongst the very wealthiest, but which is now having a much more general impact. This issue certainly demands further investigation, but for now our primary focus will remain on the activities of those at the very pinnacle of contemporary asset accumulation.

The granting of planning permission to build these basements has varied over time. Figure 3 shows the number granted in each year since 2008. In 2009, for example, 334 standard, 93 large and just 12 mega-basements were approved – a total of 439 across the year. The figures peaked in 2014 when 645 standard, 161 large and 36 mega–basements – a total of 842 across the year – were approved. Since that date, numbers have declined overall, consequent on the introduction of stricter subterranean planning regulations introduced by some boroughs (discussed below), house price falls due to Brexit uncertainties and now, no doubt, the impacts of the Covid-19 pandemic. In the last full year for which we have data, 2018, just 4 mega, 104 large and 391 standard basements gained planning approval – a total of 499.

Leading up to the peak of this digging epidemic in central London, many established residents and local politicians voiced grave concerns about the consequences of all of this burrowing for adjacent properties and the urban landscape more generally. Indeed, the topic has become a useful conduit through which to better understand the cultural politics of spatial struggles between different elite factions across London, as examined

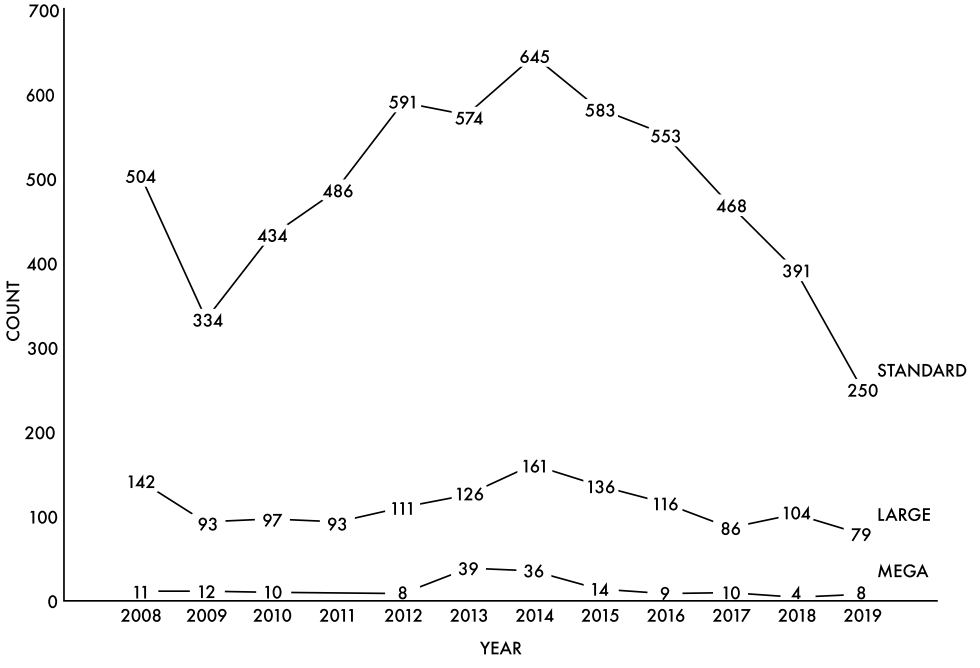

Figure 3. Number of basement applications of different types approved 2008–2019.

within the academy (Burrows & Knowles, 2019), the media[13] and even in some notable fiction.[14] Such developments can, of course, have a considerable environmental impact (McCarthy & Kilgour, 2011): the mass extraction of soil required can kill deep-rooted flora; it can increase flood risk through the interruption of groundwater flow; it can also alter ground acoustics as the deflected noise from subterranean transport (and other) systems change direction; and it can alter urban thermal patterns (Bidarmaghz et al., 2019). Construction, moreover, can take many months, or even years in some cases (Burrows & Knowles, 2019; Webber & Burrows, 2016). Such work is inevitably dirty, noisy and generative of, sometimes damaging, vibration. The large lorries required to remove extracted material and to import concrete can also dramatically increase noise and pollution and can cause traffic and access disruptions for surrounding neighborhoods. In some instances, basement construction can undermine or destabilize both the property under which the basement is being built and neighboring properties, sometimes with devastating results.[15]

Despite these obvious problems, until quite recently London Boroughs had little in the way of regulatory guidance to shape and control the proliferation of major residential basements developments, and all of their attendant difficulties and externalities. In the precursor to the current *London Plan* – written under the auspices of the (then) London Mayor, Boris Johnson – there was not a single mention of the challenges of managing basement development (Greater London Authority, 2008). Thus, at a regional, London-wide level, there was no wholesale regulatory guidance for basement developments from 2008 onwards (and, indeed, before this). As property prices increased, and with such lax regulations, the number of excavations began to climb. It was only in 2011 (updated in

2016) (Greater London Authority, 2016) that basement development was mentioned in the regional guidance – and then only fleetingly – briefly addressing their potential impact on conservation and groundwater.

There are now indications that any new *London Plan* – a draft of which has been circulating for several years now – will begin to address some of the negative impacts already described, especially where *large* and *mega*-basement construction is involved.[16] As and when (or if) it is enacted it is likely to significantly hinder the approval of such excavations; *standard* basement development, however, is likely to be viewed as more appropriate, often enabling London-based families to gain much-needed living space without having to relocate, perhaps even with some small environmental advantage in terms of insulation and nudges toward greater urban densification (McCarthy & Kilgour, 2011).

If *regional* systems of regulatory governance have been missing in action, then the same cannot be said of more *local* planning policies, especially in some affluent London neighborhoods. Here, the traditionally exclusive focus of planning law and regulations on above surface domains has been dramatically exploited by the architects and developers that have sustained the proliferation of luxury basements. Ademir Volic, one influential basement architect, recalls how he "analysed the planning laws and realised that they cover everything above the surface of the ground, but nothing beneath it. There was nothing whatsoever," he recalls, "that could stop us from drilling all the way to the South Pole" (as cited in Wainwright, 2012).

In such a context, London's central Boroughs have scrambled to invent regulatory and legal planning controls for their subterranean realms. The powerful lobbying of London's more indigenous "merely wealthy" elites – mobilizing in response to the damaging effects of, what they often perceive as, vulgar and outlandish basement excavations by global super-rich "incomers" – have been influential here (Burrows & Knowles, 2019).[17]

At the time of writing, twenty-five of the London boroughs had developed supplementary planning policies and guidance concerning basement development. Not surprisingly, those with the greatest number already built being the most likely to have the most extensive documentation on the matter. Only two boroughs – Ealing and Havering – had these in place in 2008; the majority were developed after 2011, as the wave of large basement constructions continued to spread. All boroughs with an explicit policy permit the excavation of single-storey basements up to 3 meters in depth, but many oppose – in principle if not always in practice – further basement excavation to create a second storey. Some are explicit in allowing single-storey excavations of 4 meters or more, whilst others find a form of words that allow, for example, the construction of basement pools that require greater depths. Others are more liberal in their approach. Islington, for example, suggests that basements "should generally not exceed" a single storey. Haringey's policy suggests that two-storey basements will be considered where evidence can be provided that demonstrates that no harm to the surrounding environment will be caused. The basement policies of Kingston upon Thames and Richmond upon Thames do not state any depth restrictions.

In addition to depth considerations, it is also suggested that basement extensions should not occupy more than 50% of garden space. But there are significant variations around this general rule. Haringey and Wandsworth, for example, allow development in *front gardens* (up to 50%) but do not specify a maximum scale for back gardens.

Hounslow and Brent permit no basement development outside of rear gardens. Brent restricts such development to a width of 3 meters. Greenwich and Hillingdon generally limit basement development to within the footprint of the dwelling to minimize disturbance. Kensington and Chelsea restrict development to 50% of both the front and back gardens. Camden, meanwhile, discourages basement excavations that exceed the footprint of the original house, although support excavations up to 50% in each garden when accessible from the front and rear.

The introduction of such planning guidance has contributed to the curtailment of the construction of large and mega-basements in many areas of London. As Figure 3 shows, the number of large basements peaked in 2014 when 161 were given planning permission; in 2018 the figure was 104. The number of mega-basements peaked the year before this, in 2013 when 39 were granted planning permission; in 2018 the figure was just 4.

Interpreting the data: "luxified troglodytism"?

An urban mythology has grown up about exactly what the wealthy are doing in their subterranean lairs (Graham, 2016a, p. 314). As we have already hinted, in the case of *standard* basement constructions, the concealed amenities are likely to be quite mundane, associated with the expansion of domestic functions that might otherwise have found their way into loft conversions or larger vertical and/or lateral extensions – additional bedrooms, bathrooms, dining kitchens and the like. Such amenities are also found within many *large* and *mega*-basements developments, but here they often adjoin more opulent facilities. Table 2 shows the distribution of a range of 15 different amenities[18] that appear in the plans and drawings for all of the basements given planning permission across London. The level of detail provided varies considerably, and we have only recorded an amenity when it is explicitly included in the documentation available via the planning portals. In the cases of large architectural features, such as swimming pools, cinemas or subterranean car parking spaces, these are easily identified and can be unambiguously coded. However, on some plans, rooms and other spaces are not necessarily labeled by their proposed function, whereas on other plans and drawings they are. They could, for example, serve as bedrooms or living rooms or they could just as well end up being used as media rooms, libraries or as staff accommodation. Thus, what we provide here are very much *minimum estimates* of the extent of (some of) the amenities found beneath the wealthiest parts of London.

The range of amenities identified in the plans and drawings are ordered here in terms of their overall popularity across all types of basement. So, the most popular type of amenity is a gym, found in over 23% of all of the basements granted planning permission. This is followed by a cinema, found in over 11%. The size of a basement impacts the number and type of amenities that can be accommodated. Amongst mega-developments, the most popular amenity is, perhaps not surprisingly, a swimming pool – found in over 83% (143) of these huge excavations. What is perhaps more surprising are the number of pools found in basements classified as standard single storey developments: a total of 26. This finding, alongside the fact that at least 533 of these standard basements have a cinema, 495 a wine cellar, 76 staff accommodation, 48 an underground car park and 23 a bar, might suggest that not all of these developments are as modest as they might initially appear. As we have already indicated, a proportion of these standard basements –

Table 2. Distribution of 15 different luxury amenities in basements granted planning permission in London, 2008–2019.

	Type of Amenity																
Basement Type	Gym	Cinema	Media Room	Wine Cellar or Store	Games Room	Swimming Pool	Steam Room or Sauna	Staff Accommodation	Garage or Car Park	Library	Bar	Music Room	Art Space	Jacuzzi	Pilates or Yoga Room	Spa Room	*Total*
Standard	1,122	533	634	495	456	26	105	76	48	50	23	21	17	3	8	5	5,813
% Within	19.3	9.2	10.9	8.5	7.9	0.4	1.8	1.3	0.8	0.9	0.4	0.4	0.3	0.1	0.1	0.1	
Large	484	239	132	169	124	363	176	55	44	19	13	5	6	8	4	4	1,344
% Within	36.0	17.8	9.8	12.6	9.2	27.0	13.1	4.1	3.3	1.4	1.0	0.4	0.4	0.6	0.3	0.3	
Mega	89	42	18	25	27	143	61	23	19	2	5	4	7	7	4	4	171
% Within	52.0	24.6	10.5	14.6	15.8	83.6	35.7	13.5	11.1	1.2	2.9	2.3	4.1	4.1	2.3	2.3	
Total	*1,695*	*814*	*784*	*689*	*607*	*532*	*342*	*154*	*111*	*71*	*41*	*30*	*30*	*18*	*16*	*13*	*7,328*
% Within	*23.2*	*11.1*	*10.7*	*9.4*	*8.3*	*7.3*	*4.7*	*2.1*	*1.5*	*1.0*	*0.6*	*0.4*	*0.4*	*0.2*	*0.2*	*0.2*	

the ones with such features – might well be better thought of alongside the great majority of the large and mega-developments as examples of "luxified troglodytism" – lavish subterranean dwellings.

Rather than just considering the size of each of these basement developments an alternative marker of wealthy elite residential status – given the huge costs involved – might well be the presence, or otherwise, of a subterranean swimming pool. Table 2 shows that, in total, there are 532 of these. The largest number, 119 (over 22% of the total) in both instances, are located in Kensington and Chelsea and Westminster. Significant numbers, however, are also found in the wealthier parts of Camden (86), Barnet (45), Haringey (40), Richmond upon Thames (20) and Wandsworth (20).

Another measure of super affluence might be those basements constructed with space explicitly configured as accommodation for "staff": housekeepers, nannies, gardeners, security guards, and so on. As Table 2 shows, there are 154 instances where this is unambiguously the case, but there could easily be three times this number as many other developments have a layout and amenities that could easily be used for this purpose (rooms otherwise labeled as guest suites, family annexes, and so on). Again, it is in Kensington & Chelsea (35 instances) and Westminster (23) where most of these examples are found, but there are significant outposts in both Camden (27) and Hammersmith & Fulham (24). If one were interested in locating the most lavish developments it would likely be those that combine a swimming pool with a number of these other amenities – there are, for instance, 30 basements that combine a swimming pool, staff accommodation and a cinema – half of them located in Kensington & Chelsea. This, then, is the very epicenter of where the London super-rich are "bunkering down". Figure 4 shows the locations of basements of all sizes (including those with swimming pools) across the core "basement belt" of Kensington and Chelsea, Westminster, Hammersmith and Fulham and Camden, and gives a good sense of the streets and neighborhoods where such developments are at their most prevalent.

Atkinson et al. (2017), in their examination of the deeper impacts of the super-rich on wider urban life, develop the concept of the "minimum city" – a city that functions to advantage the already advantaged and, in doing so, offering little either to its public realm or the wider majority of its citizens. Such an observation is often cast in the language of the 99% and the 1%, but, as we have hinted at here, it is more likely that only a tiny fraction of the 1% itself can enjoy or relax in a city now so extensively being rebuilt both above and below ground for the needs of capital (Atkinson, 2020; Burrows & Knowles, 2019). As we have already indicated, such a minimum city continues to expel its poorest while destroying hard-won social projects that defined the postwar settlement. The idea of the minimum city is an attempt to capture the revanchist and class-based attack on London's capacity to collectively support and provide for the wider urban population.

Our analysis of London's elite residential basements offers up a stark means to better *spatialize* this observation. In mapping out the new subterranean geography of plutocratic London (Burrows et al., 2017), it becomes clear at several points that, although the great bulk of such development is buffered by the extensive hinterlands of the various *alphahoods*, there are always neighborhood limits and borders. Indeed, many plutocratic bunkers have been built at the very edges of elite zones, some in plain sight of very different worlds – the remainder city characterized by an increasingly disinvested public sphere. Nowhere is this starker than in the observation that a total of 163 of the

Figure 4. Detail of basements of all types and those with swimming pools across central areas of London's "basement belt".

privatized, individualized, super-luxury basements we have been discussing have been built – often at a huge cost – within just 1000 meters of the fateful site of Grenfell Tower where 72 people lost their lives in a horrendous fire on the 14 June 2017. The tragedy of

Grenfell has been extensively debated elsewhere (MacLeod, 2018; Shildrick, 2018), and the horror and injustice of the event, and all that led up to it, do not need repeating here, other than to make just one point. The costs of just one or two of even the most modest of these excavations would have been more than enough to pay for adequate cladding of a type that would have prevented the fire and all that has followed from it.

Conclusions

Our analysis in this paper suggests that critical urban research needs to attend to dramatic reconfigurations of the urban subterranean realm. Specifically, research on the urban transformations that surround the increasing power of the super-rich to dramatically and rapidly reshape the landscapes and geographies of global cities needs now to look below ground. In London, especially, an understanding of the spectacularly visible building of forests of super-tall, luxury housing towers must now be combined with an appreciation of the equally dramatic construction booms surrounding the luxury basement belt elucidated in this paper. The two dynamics are both consequent upon its emergence as the global *Alpha City* and must be considered together (Atkinson, 2020).

The calculations are complex, but the volume of soil excavated by the wealthy in London to create their luxurious bunkers since 2008 – equivalent, as we have seen, to a volume that could be occupied by 12 St Paul's Cathedrals – needs to be thought of alongside the capacity of the new apartments built in the "luxified skies" over the same period. The movement of earth and the costs of construction have been considerable in both instances. The politics of elite verticality within London's elite urban geographies, crucially, thus now moves both *up* and *down*, and we hope that this paper has offered a useful, albeit largely descriptive, corrective to any perspective that suggests otherwise. What has happened in London since the global financial crash of 2008 is without precedent; as Atkinson (2020) makes clear, the city has been captured by the super-rich. They have had a profound impact on the structure, shape and cultural politics of the built environment and the changing urban geographies of London but, as we have shown, not all of this activity has always been visible. The super-rich, it seems, are bunkering down in their "private arks of the underworld" all over the world, in anticipation of all manner of imagined "end times" (Garrett, 2020, pp. 1–19).

In London, the impact of this ideology became enmeshed with a relatively unregulated real estate market that, for a time at least, led them, virtually without planning control, to dig big holes under their houses in which to bury both their fortunes and – sometimes – themselves (Atkinson, 2016). The city's luxury "basement belt," elucidated here, amounts to an unprecedented mass geological excavation to commodify the subterranean realm as luxury living and leisure space within a preeminent global city. We have witnessed a stealthy consolidation of hyper-low density, supremely luxurious, and highly securitized domestic and privatized, capsular leisure spaces into the clay and alluvium of London's subterranea, as such the process represents dramatic suburbanization and luxification of the subterranean urban core.

The luxury basement phenomenon in London has resulted from the intermeshing of a variety of factors. Here we must consider London's status as the city *par excellence* of UHNWIs seeking to invest large amounts of mobile capital in relatively secure real estate

assets. We must take into account the relatively low cost of creating space through subterranean excavation compared to that through property purchase within a period of rapidly accelerating real estate prices. We must be cognizant of the role of importance of tight restrictions on the upward or outward expansion of houses within many elite central housing districts.

Finally, not to be ignored, it is important to explore the roles of the particular architectural and urban inheritances of London's urban form in predisposing the city to the luxury basement building boom. This is significant as it means that widespread excavations of similar belts or districts of super-luxury basements are likely to remain relatively uncommon amongst other top-tier global cities. This is because London's unusual inheritance amongst major global cities of large, central areas comprising elite, Georgian townhouse geographies means that it must inevitably remain an uncommon case (see Rasmussen, 1934). Indeed, crucially, amongst major global cities, London is one of only of a relatively small number where central elites' residential space, rather than being accommodated either in raised apartment or condominium complexes or in apartment houses structured within above ground or basement-level commercial, cultural or retail spaces, rests directly over ground level (parts of New York, Amsterdam, San Francisco and Washington D.C. offer other cases). The relative softness of London's surface geology also makes the excavation of mega-basements much less expensive than it would be in cities built on solid rock foundations.

Relatively few of the world's most important global cities afford central residential elites even the technical and architectural possibility of launching a process of mass burrowing down to create extra space that is directly contiguous with their original residential space. Where they do, however, there are emerging signs that the phenomenon of the hyper-spacious luxury mega-basement is starting to emerge beyond London. In one notorious recent case, for example, the construction by (absent) French owners of an 11.5-meter-deep mega-basement below two merged, 100 USD million townhouses in Manhattan's Upper West Side – replete with a 15-meter meter pool, recording studio, underground theater, staff accommodation and large jacuzzi/sauna complex – shows that other global cities are starting to echo London's luxury basement boom.

The development, which also involved the complete rebuild of the houses behind their preserved facades, caused debilitating disruption to an entire block for a period of over four years. The disruption was made much worse than for an equivalent excavation in London because, below its crust of human-made ground (Graham, 2016b), Manhattan is built on super-hard, igneous schist rather than the soft chalk, clay and alluvium that underpins central London.

Capturing the secessionary excesses that surround the packaging of urban subterranea into extraordinarily luxurious and spacious lairs for the world's super-rich, David Margolick (2019), a journalist neighbor, wrote a searing critique of the development in the *New York Times*. "This is about how the whims of a plutocrat can upend the lives of an entire city block, challenging the culture and the well-being of the people who live there," he wrote. "It's about coming to terms with everyday existence in New York, where the rich run rampant and the rest of us have to deal with it." Indeed, many in London know this only too well.

Notes

1. See, for example, the CNN report on 6 September 2015, by Eoghan Macguire. "Swimming Pools and Golf Ranges in Londons Insane Luxury Basements, https://edition.cnn.com/style/article/going-underground-london-luxury-basements/index.html [Accessed 12 May 2021].
2. See, *The Sunday Times Rich List 2020*. Available at: https://www.thetimes.co.uk/sunday–times–rich–list [Accessed 12 May 2021].
3. See, *The Knight Frank Wealth Report 2019*. Available at: https://www.knightfrank.com/publications/the-wealth-report-2019-6214.aspx [Accessed 12 May 2021].
4. This work was carried out by a skilled group of architects, urban planners and others able to interpret the drawings, plans and descriptions. They are all noted in the acknowledgments to this paper.
5. We excluded developments where existing properties had been demolished and new ones with basements had been built. However, we did include developments where existing facades had been maintained and new construction, including a basement, had been constructed behind this. We also included cases where cellars had been substantially expanded and/or consolidated into other excavations to make new useable subterranean living space.
6. The data set contained many applications that were initially rejected and/or amended. We only include those cases where the application was finally approved.
7. All elements in Figure 1 were drawn by Sophie Baldwin and Elizabeth Holroyd.
8. Some interim results, covering just seven boroughs between 2008 and the end of 2017, were presented in a format designed to be of interest to an architectural audience in Baldwin et al. (2019).
9. On the role of urban activity such as this on the radical remaking of earth, soil and the very ground on which we live see Graham (2016b).
10. There are etymological debates about the use of the term "bunkering" as opposed to "hunkering" down. As should be clear, we use the term here simply as a semi-ironic way of conceptualizing the phenomena under discussion.
11. With another 9% in Barnet, 6% in Richmond upon Thames, 5% in Camden and the other one–fifth or so scattered across the city.
12. Larger, higher resolution, versions of these maps are available upon request.
13. See, in particular, the 2015 BBC documentary *Millionaire Basement Wars* available at: https://www.youtube.com/watch?v=sLJ0zZQb9x0 [accessed 12 May 2021] and Wainwright (2012).
14. Jonathan Coe's novel *Number 11* (London: Penguin, 2015) is an excellent example.
15. See, for example, this coverage of a particularly spectacular instance: https://www.theguardian.com/uk-news/2020/nov/03/london-street-evacuated-after-two-houses-collapse-during-building-works. [Accessed 12 May 2021].
16. One might also ponder about the extent to which this new antipathy toward "iceberg houses" is emblematic of shifts amongst the British ruling elite against some of their hitherto criminal plutocratic allies (Atkinson, 2020: 83–107; Bullough, 2018).
17. See also *Construction Lines*, a short film by Max Colson released in 2017 in this regard: https://maxcolson.com/portfolio/construction-lines/[accessed 12 May 2021].
18. The data presented exclude amenities that appear 5 times or less: golf simulators; gun stores; and panic rooms.

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