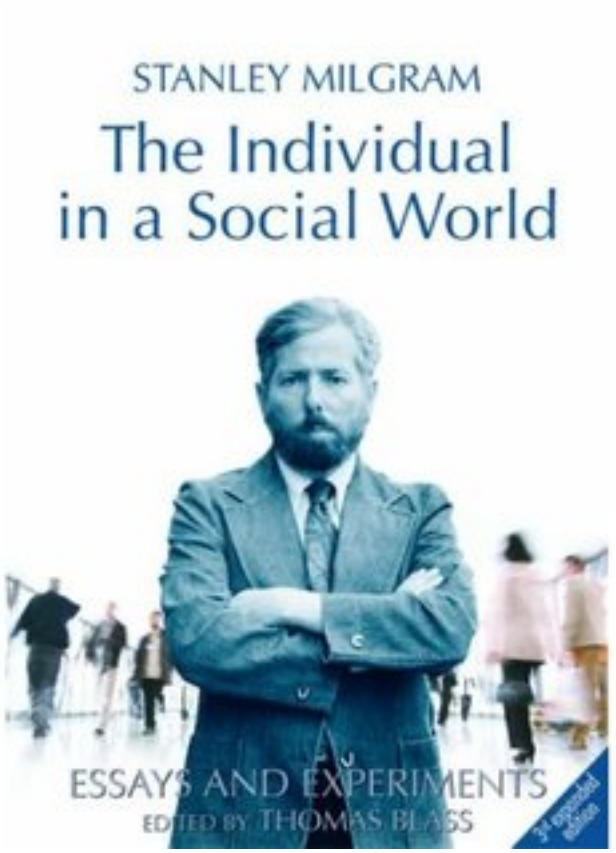
Psychological Maps Fifty Years Later: Crowdsourcing to the Rescue

Reading discussion



7 A PSYCHOLOGICAL MAP OF NEW YORK CITY[1]

A city consists of streets, squares and buildings that exist in objective, geographic space. But there is also a psychological representation of the city that each inhabitant carries around in his head. When a man comes to a strange city, at first he does not know his way around. He sticks close to a few known reference points, such as his hotel or the main shopping street, and quickly feels disoriented if he strays from these few familiar paths. With increasing experience, he begins to build up a picture in his mind of how the streets connect with one another, the relationship among paths, and specific turns he must take to move from one point to another. He acquires a representation of the city which we may call a psychological map. A psychological map is the city as mirrored in the mind of an individual. The acquisition of an adequate representation of the city may be a slow process, filled with confusion, and inevitably only partial in its achievement. Very few individuals, if any, have a total grasp of all of the streets and intersections of a major metropolis, but each of us holds at least the fragment of such a map.

In this paper, we shall describe a psychological map of New York City constructed by our research team. But before going further, I would like to raise some general questions about psychological maps and review some of the work that has been carried out in this field. We start with the notion that the person has a psychological representation of some features of the environment. The first question, then, in constructing a mental map, concerns the units of the environment that are to be mapped. In previous research, the scale of maps has varied from those of small campuses to the maps people have in their head of the entire world (Saarinen, 1971; Hooper, 1970; Stea, 1969; Gould, 1967). There is an important difference, of course, in acquiring a mental map of one's campus and that of the world. The campus map is mediated by direct experience, moving about the university buildings and piecing scenes together into some cognitive structure. The image of the world is learned not from direct exposure, but through formal schemata of it as represented in maps and atlases.

Once we have decided what units of geography are to be mapped, we need to decide which psychological features are of greatest interest. The most basic question

This paper was written in collaboration with Judith Greenwald, Suzanne Kessler, Wendy McKenna, and Judith Waters. It was first published in *American Scientist*, Vol 60, No. 2 (March–April 1972), pp. 194–200.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Crunch commuter data to track changing communities

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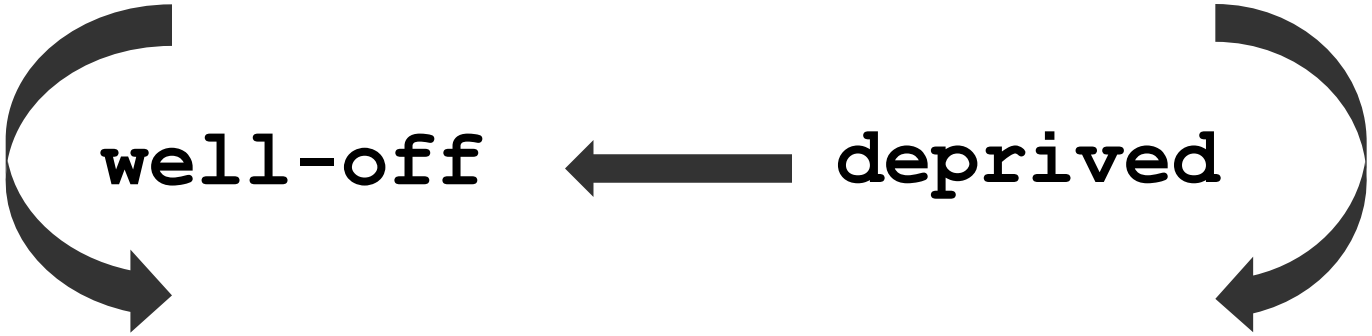
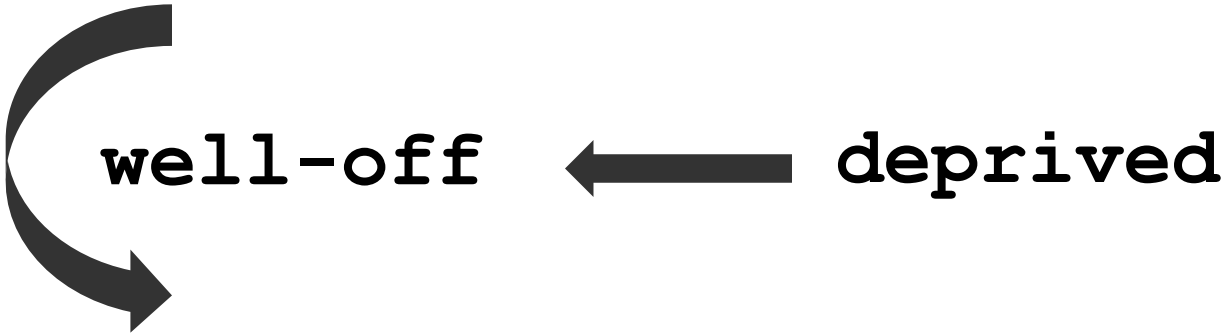
Editorial: "Train tracks of our tears put to good use"

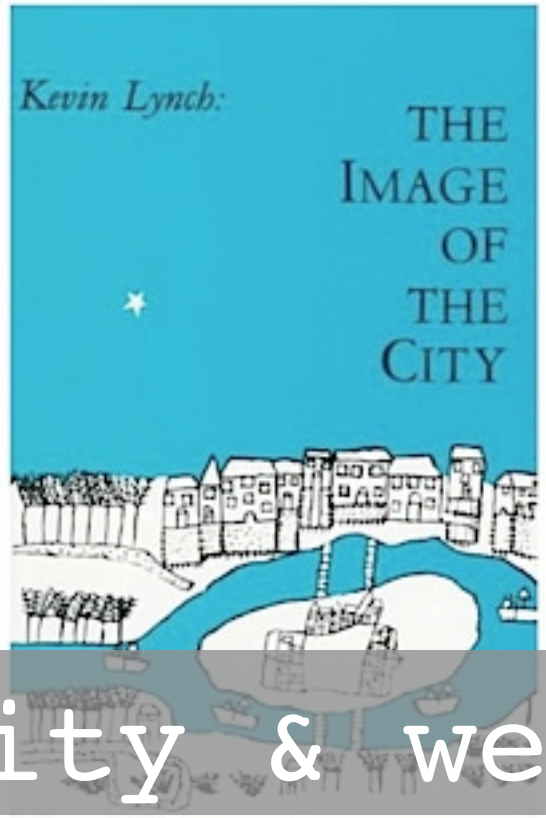
LONDON commuters are generally a surly bunch, grumbling as they battle through the city's underground train network each morning. Nevertheless, records of their journeys could be a key to improving urban well-being.

Every day, millions of Londoners touch their Oyster card to the underground's wireless ticket readers each time they enter and exit the system, building up a detailed database of travel through the city. Computer scientist Daniele Quercia and colleagues at the University of Cambridge have now compared this data with official measures of social deprivation and found that a community's prosperity is reflected in the comings and goings of its residents.


well-off
deprived

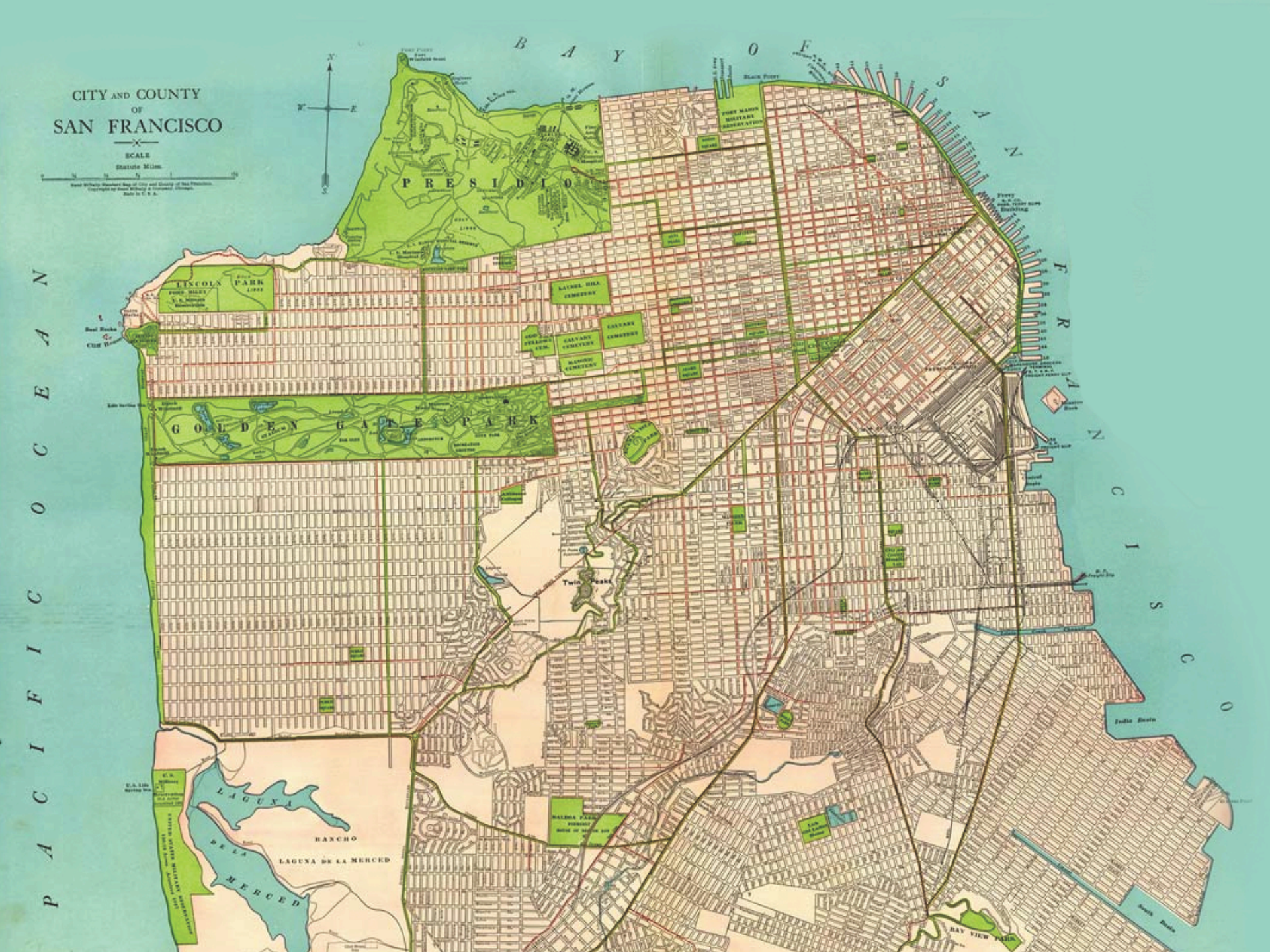


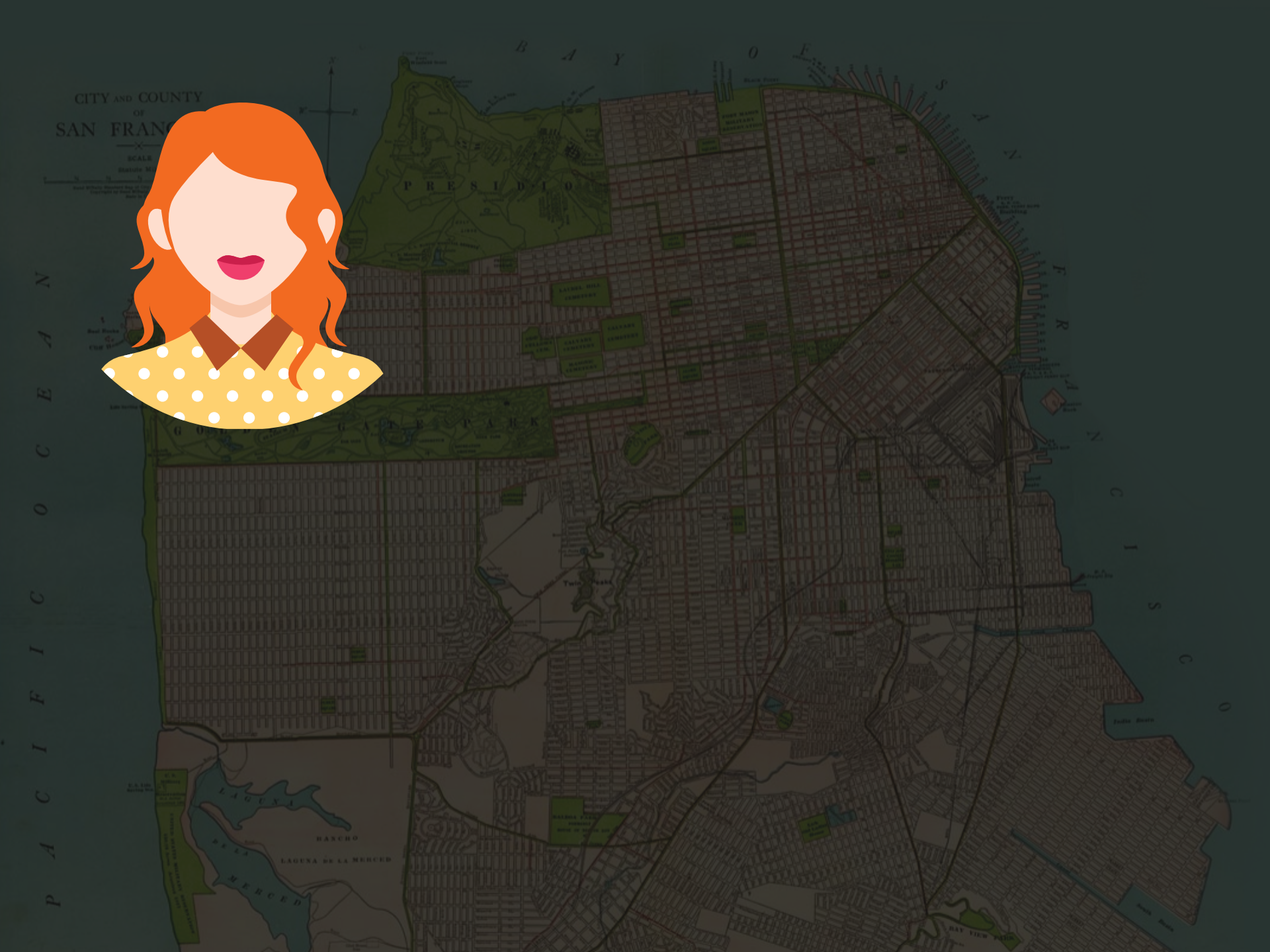
Visibility



visibility & well-being

Psychological Maps


CITY AND COUNTY
OF
SAN FRANCISCO
SCALE
Statute Miles
BAY OF SAN FRANCISCO
PACIFIC OCEAN
PRESIDIO
GOLDEN GATE PARK
LINCOLN PARK
LAUREL HILL CEMETERY
CALVARY CEMETERY
MASONIC CEMETERY
FORT MASON MILITARY RESERVATION
Twin Peaks
LAGUNA DE LA MERCED
RANCHO LAGUNA DE LA MERCED
Seal Rocks
Islais Creek
South Basin


CITY AND COUNTY
OF
SAN FRANC
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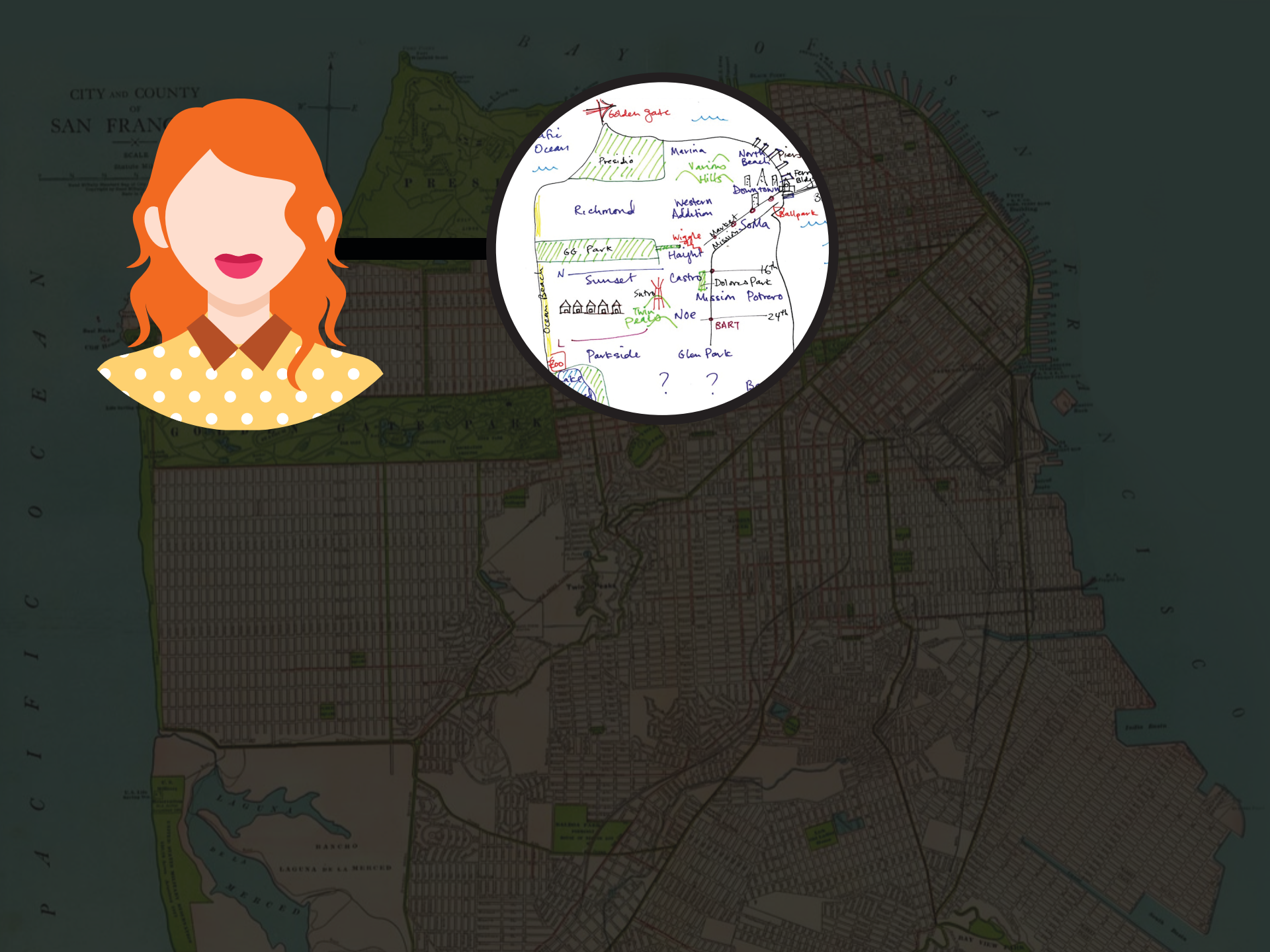
RANCHO
LAGUNA DE LA MERCED
PACIFIC OCEAN
BAY OF SAN FRANCISCO


Golden Gate
Ocean
Presidio
Marina
Richmond
Western Addition
Downtown
Ballpark
SoMa
GG Park
Haight
Wiggle
Sunset
Castro
Dolores Park
Mission
Potrero
Twin Peaks
Noe
BART
Parkside
Glen Park
Ocean Beach
Zoo
?
?


Golden Gate
Presidio
Marina
Richmond
Western Addition
Downtown
Ballpark
SoMa
GG Park
Haight
Sunset
Castro
Dolores Park
Mission
Potrero
Noe
BART
Parkside
Glen Park
Ocean Beach
Twin Peaks
RICHMOND
GOLDEN GATE PARK
SUNSET
MISSION
POTRERO
BAYVIEW
BERNAL HTS.
EXCELSIOR
SLEEPY HOLLOW


Golden Gate
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BART
Parkside
Glen Park
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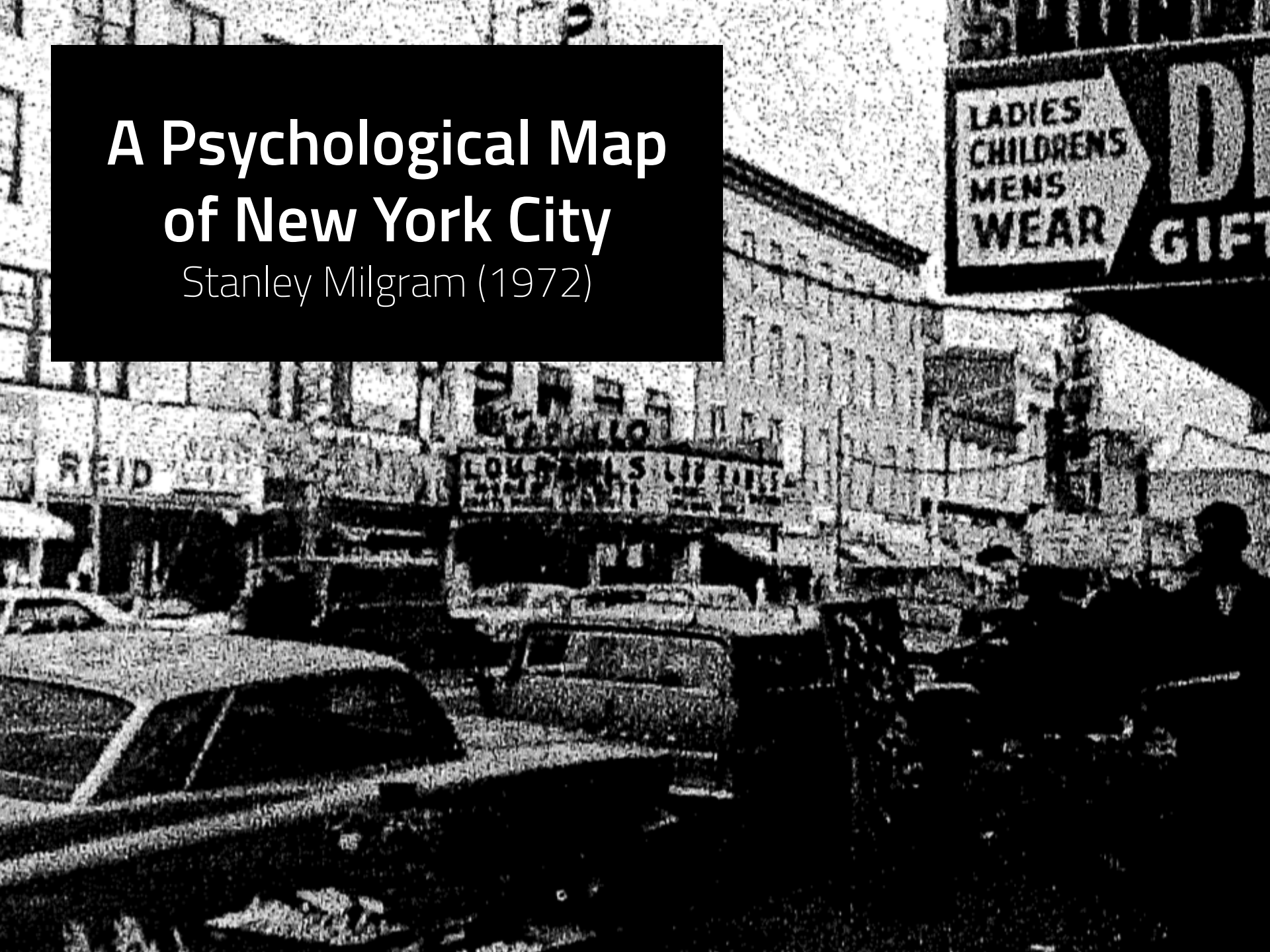
Richmond
Golden Gate Park
Sunset
Marina
Presidio
Mission
Castro
Potrero
Bayview
?



A Psychological Map of New York City

Stanley Milgram (1972)

Recognizability

[LYNCH 60]

The ease with each [a city's] parts can be recognized and organized in a coherent pattern

Recognizability

[LYNCH 60]

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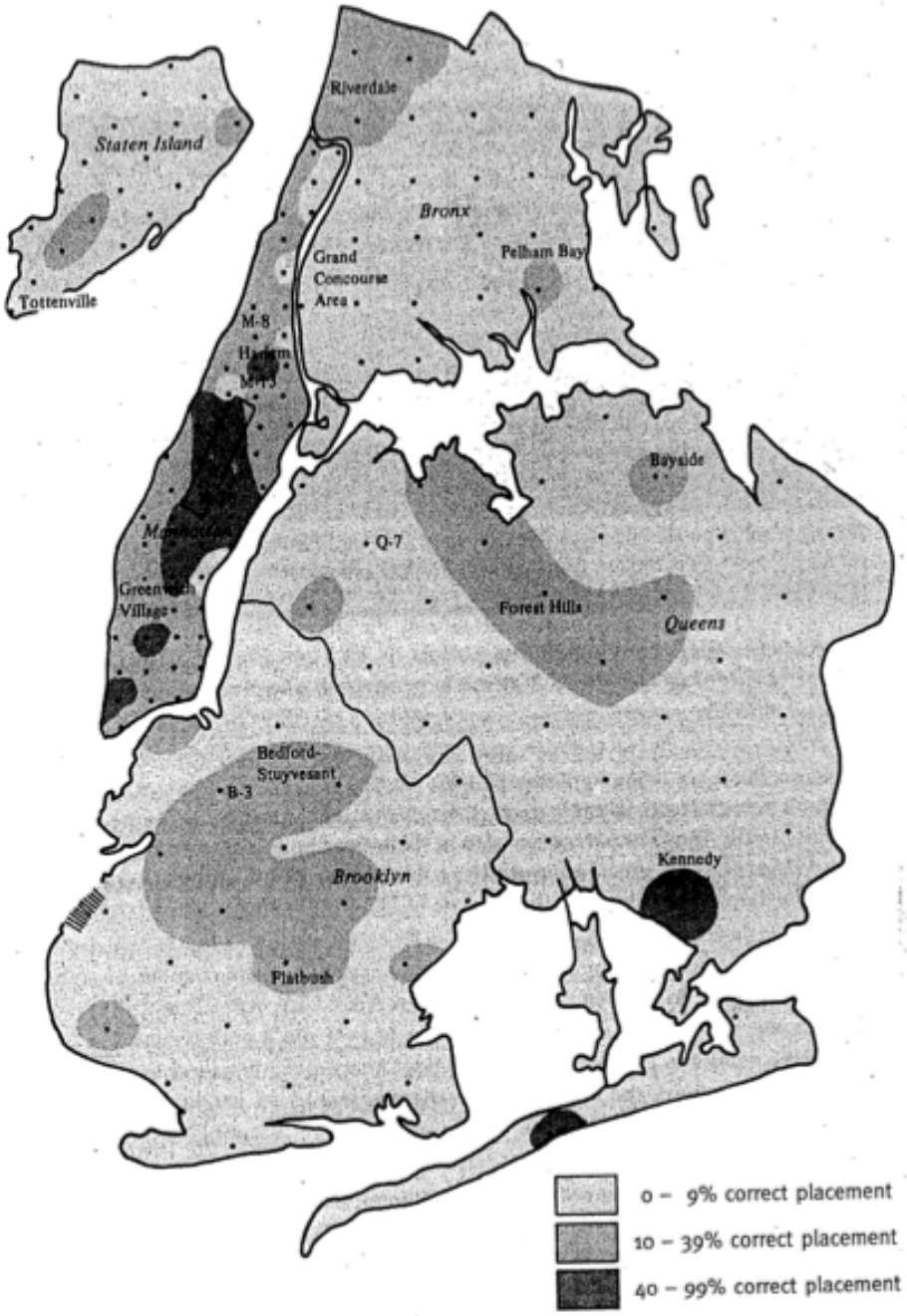
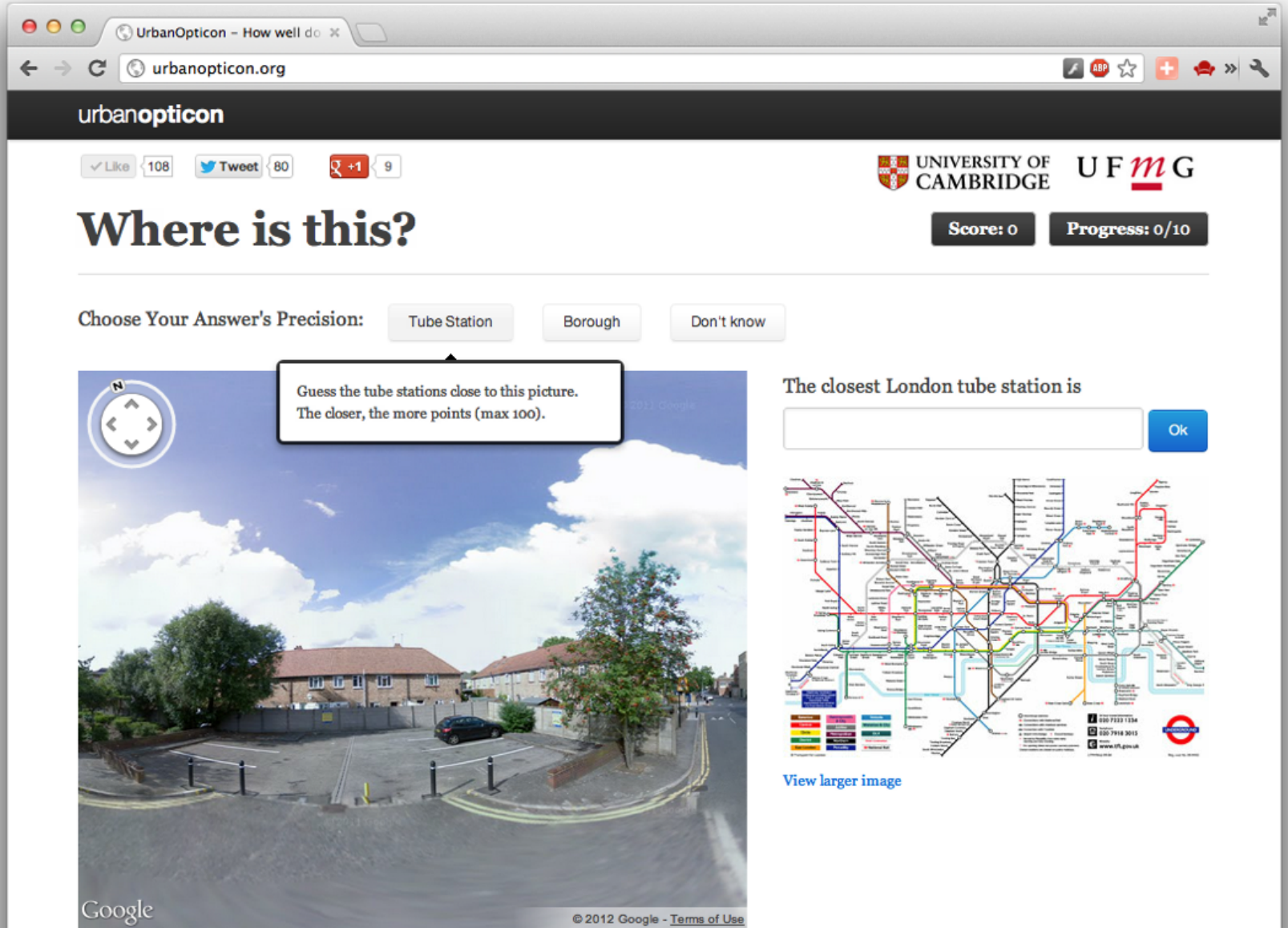


FIGURE 7.4 This stylized map of New York City shows the correct placement of scenes at 152 viewing points in the city, placed according to neighborhood.

WWW Game!


urbanopticon

urban**opticon**.*org*



Gamifying Recognizability

1. Keeping score
2. Social Media integration
3. Different places every game
4. Not too hard
5. Feedback to the player
6. Sense of purpose
7. Allow multiple answer precisions

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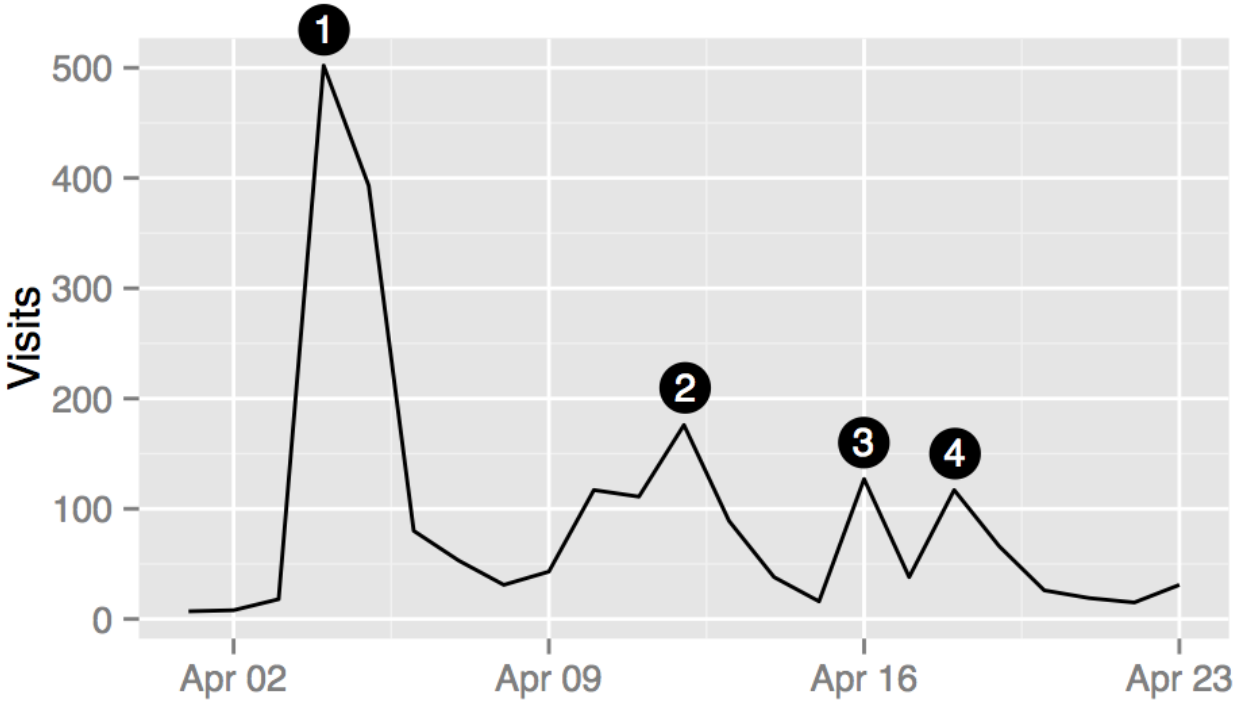
Release



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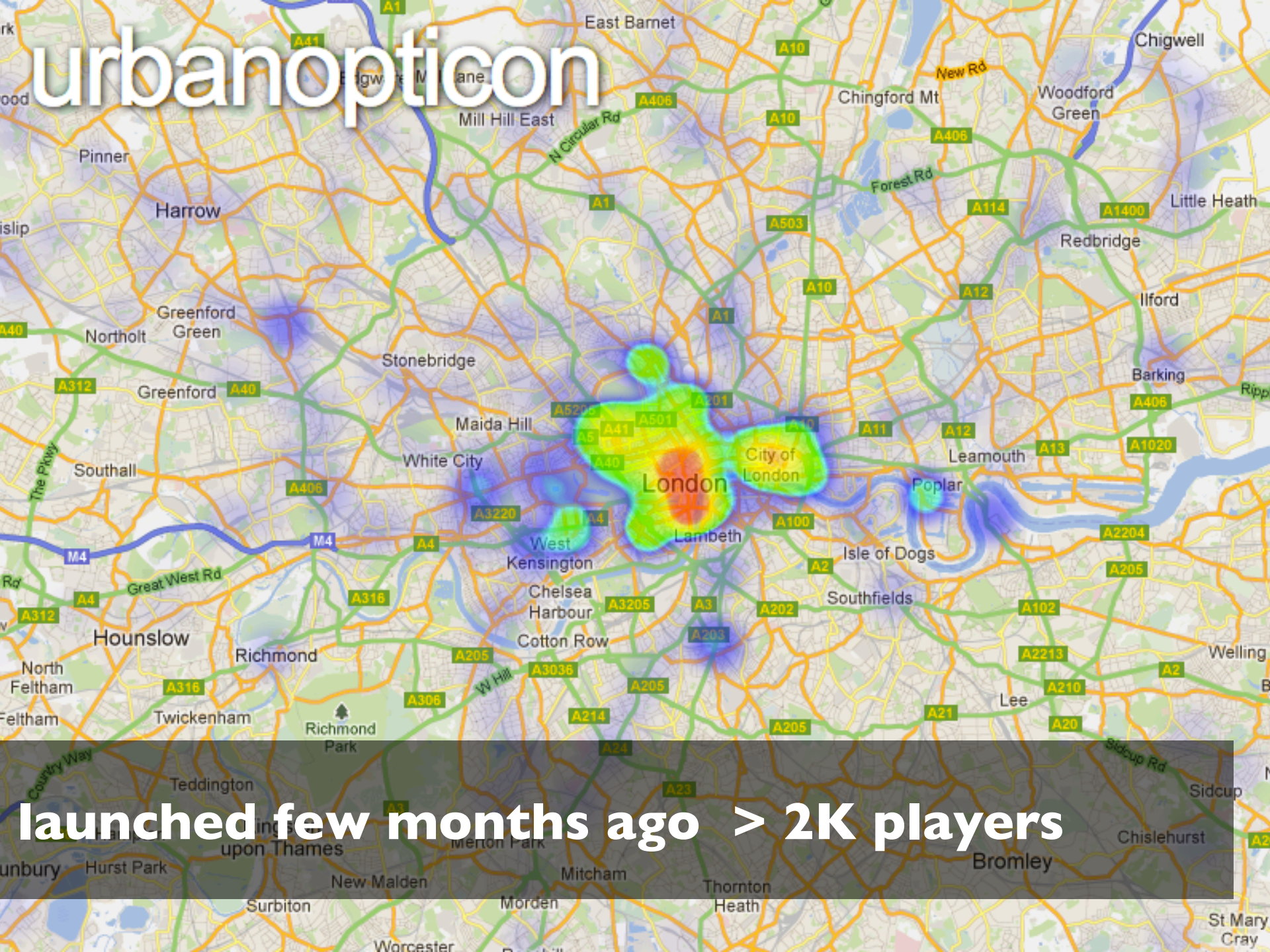
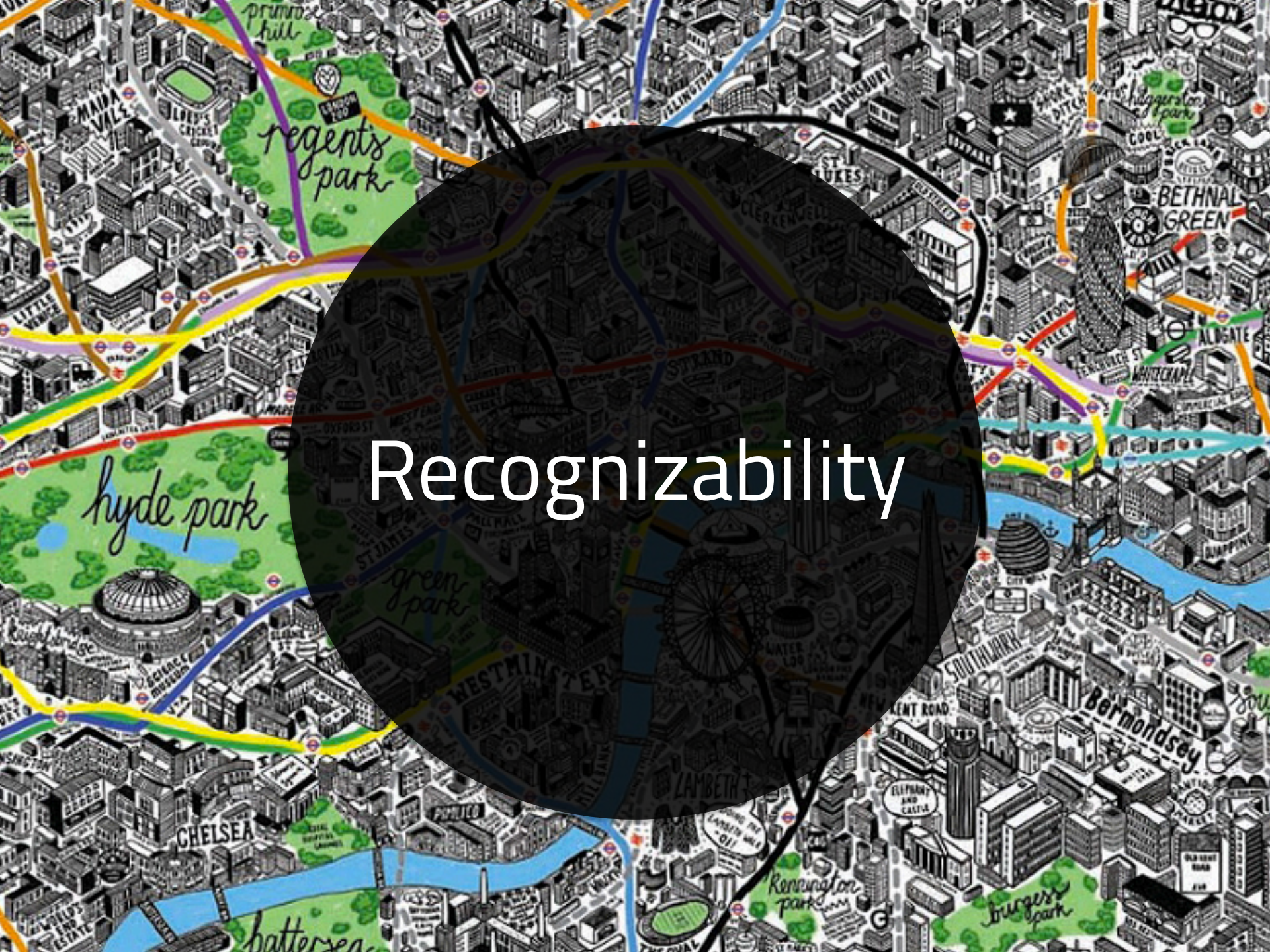

urbanopticon
East Barnet
Chigwell
Mill Hill East
Chingford Mt
Woodford Green
Pinner
Harrow
Redbridge
Little Heath
Ilford
Greenford Green
Northolt
Stonebridge
Barking
Greenford
Maida Hill
White City
Southall
City of London
London
Poplar
Leamouth
West Kensington
Lambeth
Isle of Dogs
Chelsea Harbour
Cotton Row
Southfields
Hounslow
Richmond
North Feltham
Twickenham
Richmond Park
Teddington
Sidcup
Chislehurst
Bromley
Hurst Park
New Malden
Mitcham
Thornton Heath
Surbiton
Morden
St Mary Cray
launched few months ago > 2K players

Demographics

	London	UK	World	Total
Answers	7,238	8,705	3,972	19,915
Users	739	973	543	2,255
Gender (%)				
Male	59.13	64.34	46.51	59.58
Female	40.87	35.66	53.49	40.42
Age (%)				
<18	0.87	0.78	0.00	0.70
18-24	16.52	24.81	9.30	19.16
25-34	41.74	38.76	51.16	41.81
35-44	16.52	13.95	20.93	16.03
45-54	13.91	13.95	6.98	12.89
55-64	5.22	6.20	9.30	6.27
65+	5.22	1.55	2.33	3.14
Mean (years)	36.39	33.88	34.52	34.98


Recognizability
primrose hill
regent's park
hyde park
green park
WESTMINSTER
CHELSEA
Bermondsey
Kensington park
BETHNAL GREEN
ALDGATE
SOUTHBANK
LAMBETH
STRAND

Recognizability *by Region*

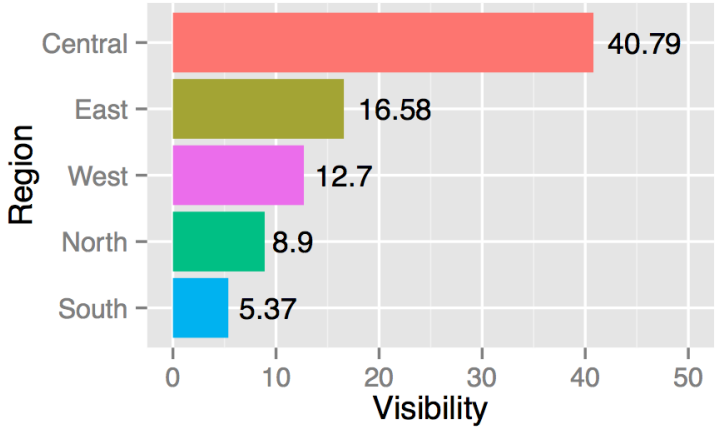
North London
1 Barnet
2 Enfield
3 Haringey
4 Waltham Forest

West London
21 Hammersmith & Fulham
22 Hounslow
23 Ealing
24 Hillingdon
25 Harrow
26 Brent

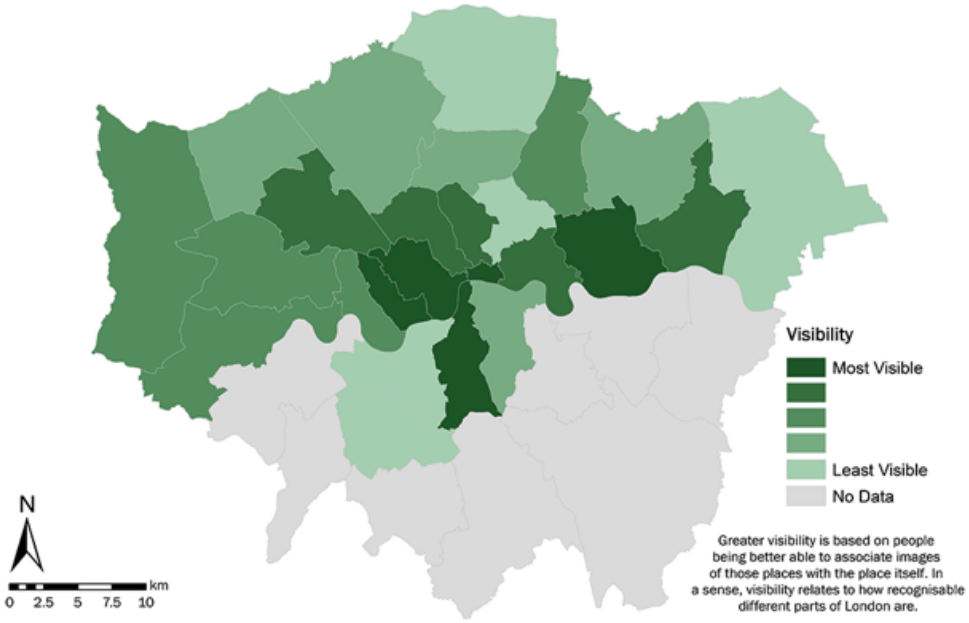
Central London
27 Camden
28 Islington
29 City of Westminster
30 Kensington & Chelsea
31 Wandsworth
32 Lambeth
33 Southwark

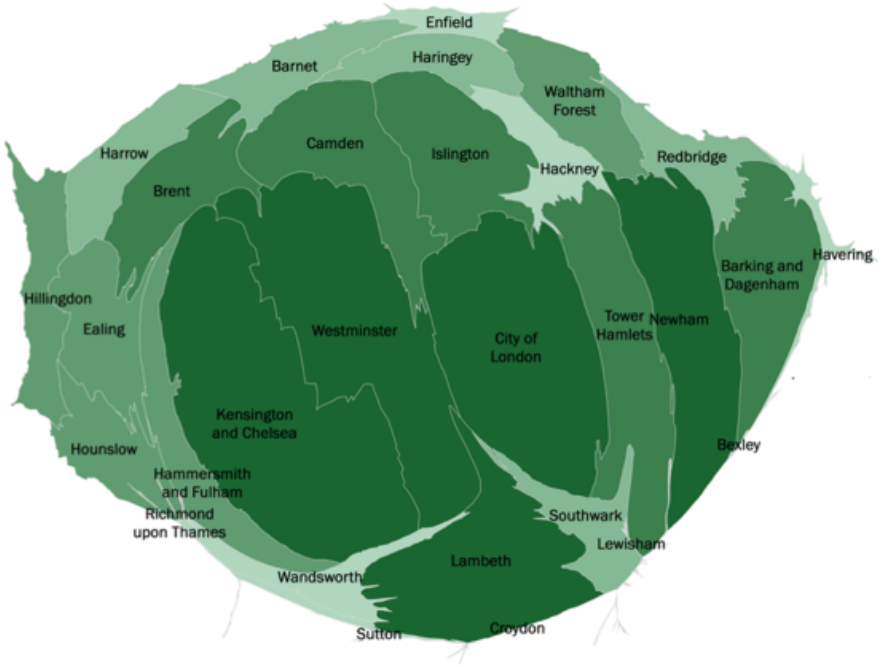
South London
15 Bromley
16 Croydon
17 Sutton
18 Merton
19 Kingston Upon Thames
20 Richmond Upon Thames

East London
5 Redbridge
6 Barking & Dagenham
7 Havering
8 Hackney
9 City of London
10 Tower Hamlets
11 Newham
12 Lewisham
13 Greenwich
14 Bexley

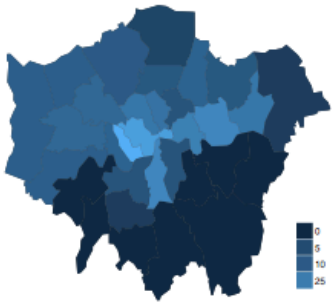


Collective
Recognizability Map

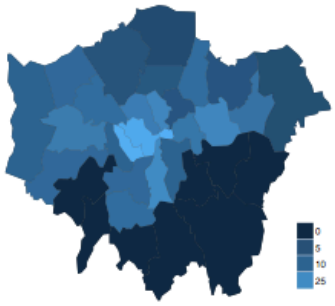




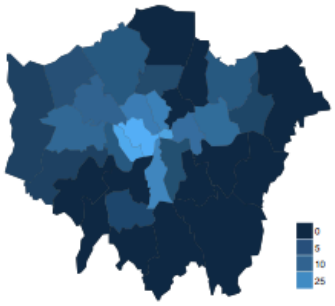
Londoners vs. UK vs. World



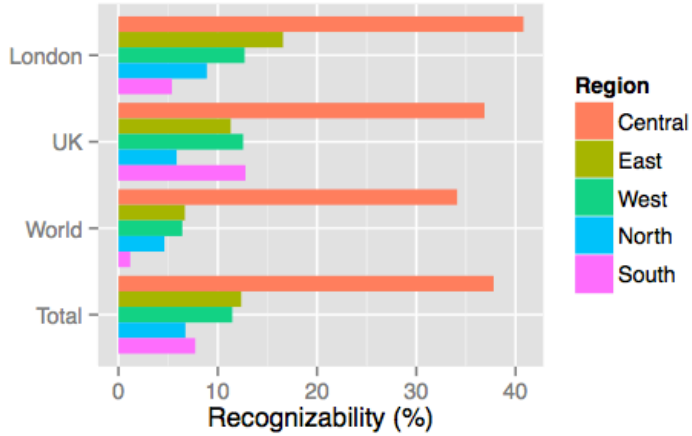
(a) Londoners



(b) UK



(c) Outiside UK



(d) All

Misclassifications

Region actually is	But identified as C	E	W	N	S	Combined Errors	Don't Know
Central	**40.79**	4.52	4.33	1.03	2.13	12.02	47.19
East	6.97	**16.58**	6.80	6.30	7.46	27.53	55.89
West	10.10	6.42	**12.70**	5.77	5.92	28.21	59.09
North	6.85	4.79	12.67	**8.90**	7.53	31.85	59.25
South	6.04	5.37	11.41	3.36	**5.37**	26.17	68.46
Response Bias (popular among wrong guesses)	29.96	21.1	**35.21**	16.46	23.04		

Recognizability

[MILGRAM 72]

$$R = f(C \bullet D)$$

centrality (exposure)

distinctiveness


Recognizability
vs
Distinctiveness

Distinctiveness

name	R	C	r_R	r_C	D
Blackfriars	9.09	4583	30	2	15.00
Park Royal	20.00	13119	61	5	12.20
Pinner	10.00	13823	37	6	6.17
Royal Oak	10.00	16681	37	8	4.63
Westbourne Park	16.66	24593	54	13	4.15
Hornchurch	7.14	11988	16	4	4.00
Essex Road	5.55	2027	4	1	4.00
Oakwood	11.11	22321	41	11	3.73
Hillingdon	6.67	9482	11	3	3.67
Acton Town	40.00	33022	73	22	3.32

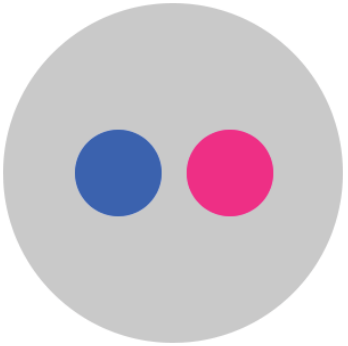

ON HER MAJESTY'S SECRET SERVICE (1969)


SHERLOCK HOLMES (2009)


Recognizability
vs
Exposure

Recognizability
vs
Exposure

Datasets



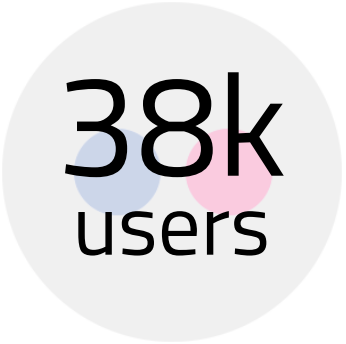
flickr

foursquare

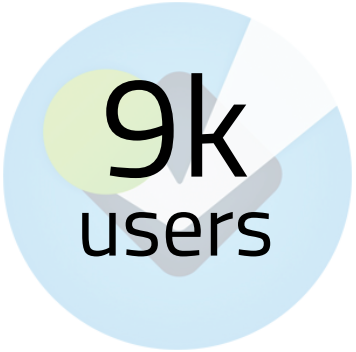
twitter

tube
passengers

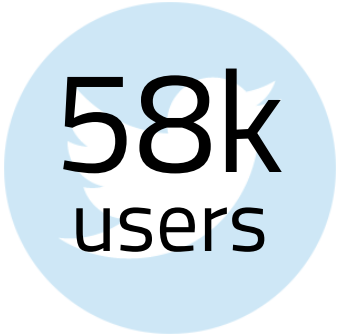
Datasets



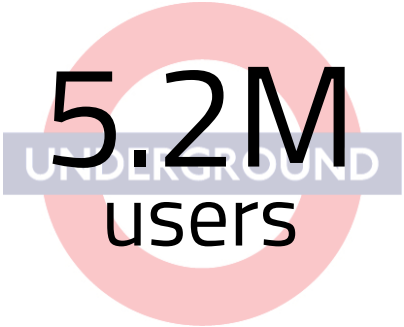
flickr



foursquare



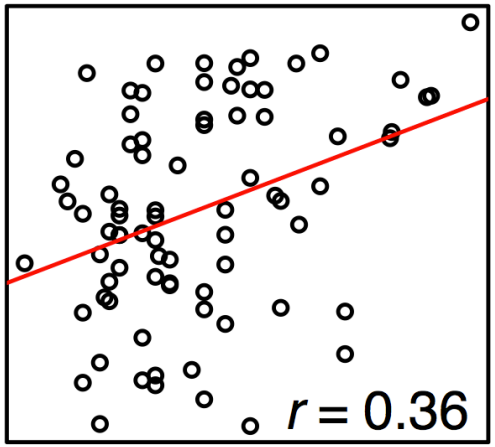
twitter



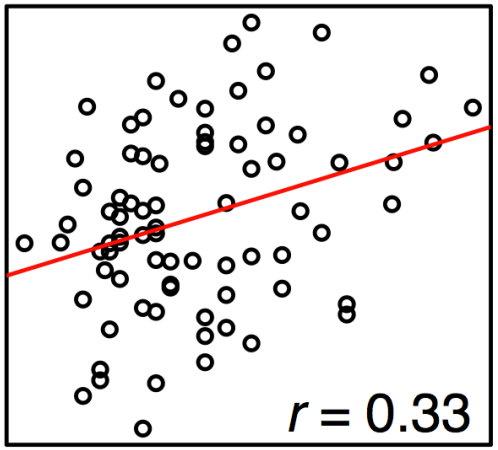
tube passengers

Recognizability *vs* Exposure

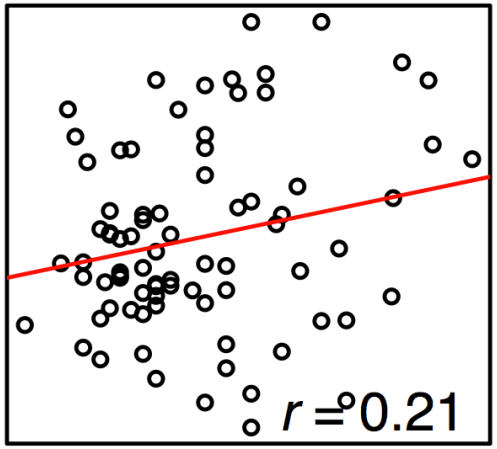
flickr



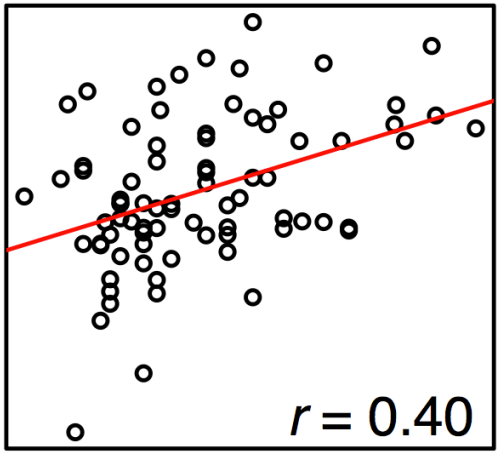
four square



twitter



tube

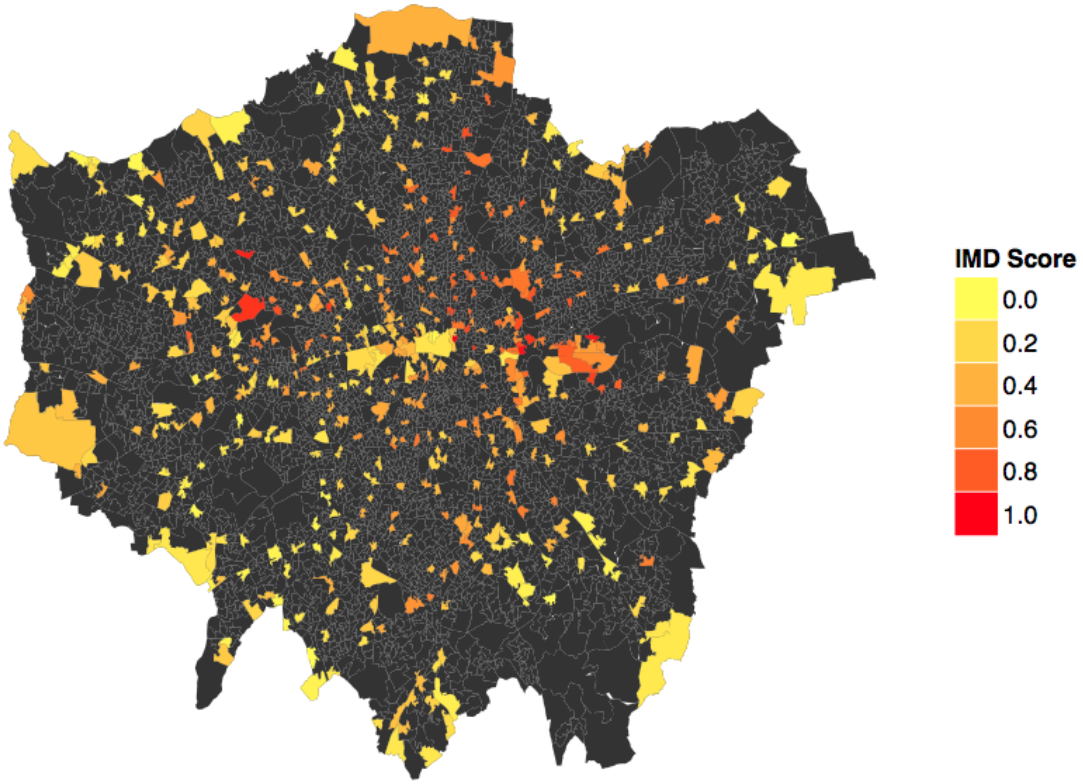



Recognizability
vs
Well-Being

IMD

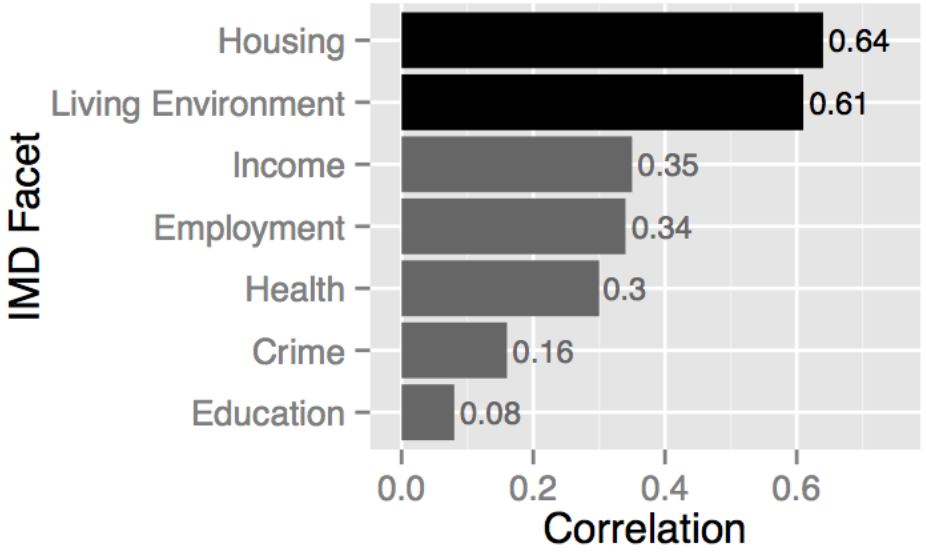
(Index of Multiple Deprivation)

1. Income
2. Employment
3. Health
4. Education
5. Housing
6. Crime
7. Living Environment

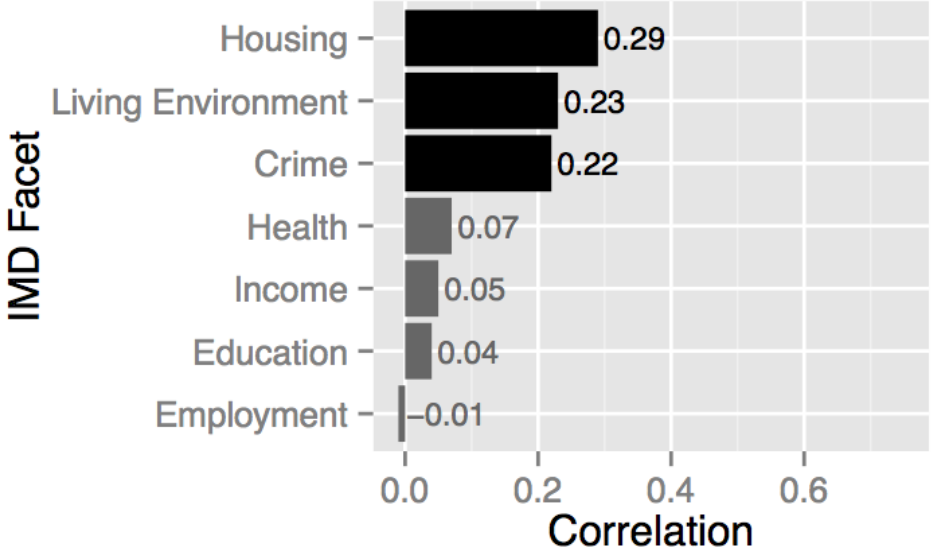


Recognizability *vs* Well-being

borough-level



census area-level



[www'13] Psychological Maps 2.0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Choose a city
BARCELONA
Daejeon? Seoul?
PLAY!
or maybe you fancy the
GLOBAL VERSION


THANK
YOU!
@danielequercia

Questions