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Jo Guldi
jguldi@smu.edu

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A History of the Participatory Map

Jo Guldi

What is the participatory map, and when did it emerge? In the online world, we're in the middle of a renaissance of popular cartography, enabled by big data and the comparative cheapness of distributing graphic information on the web. Some of these maps—including some maps enabled by platforms like Google Maps, Open Street Map, or Ushahidi—are compiled by many individuals, working atop a digital infrastructure that enables the contribution of specific place-names, topographical features, social data, or real-time observations (for instance, of police movements, natural disasters, sexual assault, ecological contamination, or political corruption), all collected into a single interface that makes for easy analysis (Hamilton-Page 2015; LEO Network 2015; Leson 2013; Meier 2011, 2012). Celebrated for their use in coordinating on-the-ground needs and volunteer support after the 2010 Haiti earthquake, these maps have become a powerful symbol for the way technology enables democracy (*Economist* 2009; Gangadharan 2013; Giridharadas 2010; Leson 2012; Marwaha 2008; Ulbricht 2012). Over the past decade, media outlets like the *New York Times* have urged us to believe that digital, participatory technologies—and in particular the Google Maps “mashups”—compose the newest chapter in the history of technologies that promise the power to radically transform government (Belson 2008; Brustein 2011; Lohr 2012a, 2012b, 2013; Sutter 2010; Pérez-Peña 2007; Sang-hun and Miller 2013).

Internet culture and development professionals both boast of having invented a piece of technology with the radical ability to destabilize power, with Internet enthusiasts dating the technology from the evolution of the mashup in 2004, while development analysts look back to paper maps of the 1990s that integrated the perspective of many villagers into one design (Batty et al. 2010; Tulloch 2007). Despite the importance of both of these horizons, an even longer genealogy is possible, one that locates participatory mapping as the descendant of an older school



1 of thought represented by twentieth-century urban planners and social movements
2 that sought to incorporate the perspective of populations traditionally excluded
3 from governance and use the maps, surveys, and hearings as their principal tools.
4 Recognizing these connections can illuminate many of the roots of the purported
5 power of many-to-many maps to overturn hierarchy and lead us to question how
6 much the maps' radicalism consists in the technology itself, rather than the social
7 movements in which such maps are embedded.

8 The term *participatory* first emerged from the 1930s to 1970s in the midst of
9 movements for rethinking cities and housing. From early in the life of the urban
10 planning profession, maps were already looked to as one tool among many for
11 breaking down power hierarchies. Following the evolution of planners' techniques
12 takes us from urban planning to development theory at the University of Sussex
13 in the 1970s, where a critique developed about the usefulness of survey, hearing,
14 and map compared to informal conversation, drawing, and game playing. Eventu-
15 ally, the insights of these debates were taken up by indigenous peoples' move-
16 ments in the 1980s, where maps compiling the input of hundreds of individuals
17 were first used by the Cree people to produce court-ready documents capable of
18 protecting their land from developers. These first recognizably participatory maps
19 also emerged in a climate of many tools, embedded in global social movements
20 where writers and activists stressed a variety of tools that social activists could use,
21 including informal conversation, graphic rather than literate instruction, attention
22 to gender and age hierarchies, effacing the role of the expert, the cheap dissemina-
23 tion of information, and international solidarity between indigenous movements,
24 workers' movements, trade unions, and other groups. Arguably, the Cree movement
25 maps and the many participatory maps that followed were only as socially radical
26 as the entire program of democratic information exchange that surrounded them.

27 The history of the participatory map gives us a point of comparison for judging
28 the success or failure of mapping technologies today. As a comparison of online
29 maps and their historical precursors will show, many ostensibly "democratic" or
30 "participatory" (or radical or revolutionary) movements regarding the map still
31 problematically rely upon the agency of a small elite. A longer history of the
32 subject offers a less magical, if more instructive, lesson about what participatory
33 maps look like when they are embedded in social movements.

34

35 **Participatory Democracy's Search for New Techniques**

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37 It has long been accepted that participatory democracy has a longer history than
38 the Internet, one that has thrived on the possibility of connecting with strangers

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1 across gender, race, and class to forge new possibilities for the public. There is a
2 rich historiography on participatory and democratic movements in the twentieth
3 century, for instance, Jeremi Suri's work on global protest, Mark Kurlansky's work
4 on media and protest in 1968, and studies in Gandhian activism, nonviolence, and
5 protest. These studies tend to emphasize the twentieth-century birth of a culture
6 of out-of-doors protest, expanding the rights of minorities and the poor through
7 an unflinching, media-aware insistence on civil and human rights.

8 From the 1930s, one strand of activism concerning participatory democracy
9 took the form of an intellectual (and sometimes social) movement on involv-
10 ing community members in local planning and development decision making.
11 Debates over what participatory urban planning might look like began with urban
12 activists who engineered new techniques like the "survey" and the "hearing" to
13 enable collaborative responses to city resource problems.

14 In the 1960s and 1970s the success of the survey and the hearing was debated
15 in terms of privilege and exclusion by community organizers. Meanwhile, union
16 organizers and literacy teachers in India and elsewhere applied the tools of the
17 survey and the hearing to decentralized planning of village crops and water man-
18 agement and connected with other organizers from around the world at confer-
19 ences and regional meetings, building a global network.

20 By the end of the 1970s, debates over privilege and exclusion had given way
21 to a search for new techniques. Researchers at the University of Sussex began to
22 use the walking tour to look more closely at specifically geographic and local
23 structures of information gathering and decision making. In Canada, a British
24 geographer and a Native American tribe created a collaborative, many-authored
25 cartography that became a key tool in protecting the tribe's land from mining
26 encroachments. Thereafter, poor and indigenous communities around the world
27 began to use the technique for their own purposes (Feldman 2002).

28 This multiorigin story of the participatory map opens up a different history
29 of bureaucracy than those that originate with use of paper during the reform of
30 civil service since the French Revolution (Guldi 2012; Kafka 2012; Ogborn 2007;
31 Vincent 2011; Vismann 2008). More recently, scholars have emphasized how
32 decentralized twentieth-century bureaucratic technologies were and how social
33 movements increasingly turned to data—including microfilm, the Xerox, the gov-
34 ernment computer, and the bulletin board system of early networked computers—
35 as a mode of engagement with political aims (Gitelman 2014; Medina 2011; Silver-
36 man 2015; Turner 2006). These studies point to how centuries-long engagements
37 with ideas about open government both preceded and shaped the founding cul-
38 tures and techniques of information sharing on the Internet.

1 None of these scholars, however, has offered a global account of the participa-
2 tory movements in which geography was the key subject of analysis, although
3 there is a long history of political engagement with the techniques of sharing
4 maps. From the 1970s, participatory maps were harnessed by poor and indigenous
5 peoples in India, Africa, and North and South America to advocate for rights to
6 land and water. From the 1980s, individual members of the mapping movement
7 have reported on their own histories (Chambers 1994; Tulloch 2007). This story
8 necessarily takes us to communities outside of the information centers of Europe
9 and North America.

10 We need a critical history of the digital map that foregrounds the ways in
11 which the map operates to facilitate a public discussion of relationships to land
12 and water, questions of rights with which the survival of poor communities and
13 indigenous peoples are intimately bound. The prehistory of crowdsourced maps
14 from the “survey” and “hearing” to the global participatory mapping movement of
15 the 1980s and 1990s puts the promise of reform in a deeper perspective.

16
17 **The Birth of Participation: The Survey and the Hearing, 1937–1968**

18 The story of the search for ways to use data to transform government begins in
19 Britain on the eve of the Second World War. British cartographers influenced by
20 the writing of French radical Frederic Le Play organized mass mapping experi-
21 ments as a tool for synthesizing public knowledge about unemployment and mar-
22 ket opportunities (Beaver 1962; Evans 1986; Linehan 2003; Matless 1999; Rycroft
23 and Cosgrove 1995). From 1937 forward, the Mass Observation movement tar-
24 geted inequalities in home and workplace, using the format of an open-ended
25 survey to coax Britain into recognizing its own internal hierarchies (Calder and
26 Sheridan 1985; Hinton 2010; Hubble 2006; Mercer 1989; Summerfield 1985). The
27 labor of many was chosen to augment the data intended for expert use. The last-
28 ing legacy of experiments such as these was two new tools: the survey and the
29 hearing, both of them deployed to empower the poor and overturn existing power
30 structures (Beafooy 1997; Geddes 1909; Matless 1999; Pepler 1955).

31 One of the earliest advocates of the urban survey, Patrick Geddes (1909), con-
32 ceived of the survey and the hearing as ways to remedy class bias (Goist 1974).
33 As early as 1945, the methods had traveled to America, where the Tennessee
34 Valley Authority (TVA) was designing hearings so that black communities could
35 formally protest programs of forced removal (Augur 1945). By 1951 Geddes-style
36 hearings on urban planning were being organized in miners’ neighborhoods in
37 Lancashire (Presthus 1951). In the same year, Geddes-style surveys and hearings
38

1 also factored into the design of the Michael Reese Hospital on Chicago's racially
2 embattled South Side with the intent of better serving the 85 percent black popula-
3 tion of the neighborhood.¹

4 Observers across the social sciences concurred that participatory planning
5 implied a new direction in the engineering of democracy. In 1947 Nicholas J.
6 Demerath of the University of North Carolina explained to sociologists reading the
7 professional journal *Social Forces* that urban planning had been transformed by
8 the new civics of Geddes, Ebenezer Howard, Henry Wright, and Lewis Mumford.
9 They preached, alongside the rehabilitation of slums into safe neighborhoods, a
10 new directive of "community participation in each phase of the planning pro-
11 cess in the determination of goals as well as in plan implementation" (Demerath
12 1947: 63).

13 It was not until the 1960s that early experimental strategies of participatory
14 urban planning were formalized into a professional movement supported by a
15 political mandate from above.² In the United States, the Economic Opportunity
16 Act of 1964 urged the state programs it funded to seek "maximum feasible partici-
17 pation" in their enrollments. In 1965 the Planning Advisory Group in the United
18 Kingdom handed down a directive calling for public participation in plans issued
19 under the Town and Country Planning Act of 1947 (Long 1976: 70). "Participa-
20 tion" had been mandated by the state, but it was up to the people to decide exactly
21 what that meant. New methods of consulting the people, contended Tracy B.
22 Augur of the TVA, were creating a historical revolution in citizens' control of
23 land. Participation had even greater aims than the civil rights movement: rather
24 than contain itself to issues of racial discrimination, the participatory movement
25 intended to dissolve all the privileges that historically structured access to state
26 and market.

27 28 **The Rise and Fall of Participation in the West, 1969–1978**

29 In 1969 the burgeoning movement at last got its first formal manifesto. Appro-
30 priately, the document came from below—from an organizer in the field, not
31 from an academic—and it was published in the annals of urban planning. The
32 essay in question, "A Ladder of Citizen Participation," was written by Sherry R.
33

34 1. The planning staff of Michael Reese Hospital, working under Geddes's inspiration on the
35 South Side of Chicago in the late 1940s, put themselves in "the role of catalyst or 'irritant,'" work-
36 ing to arouse conversations about housing, health, and racial discrimination in city offices (Blucher
37 1951: 352–53, 355, 356).

37 2 For the history of the word *participation* and a comparison to the earlier language of *grass*
38 *roots*, see Neuse 1983.

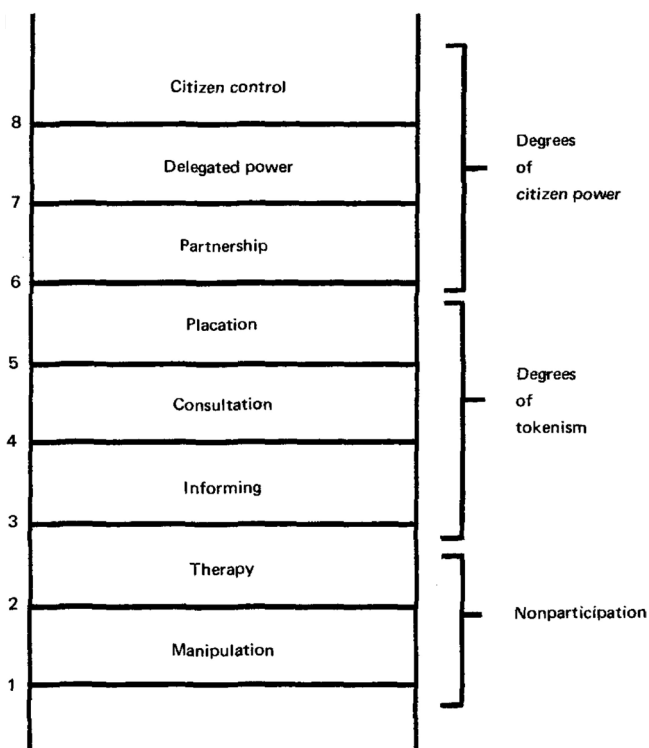


Figure 1 Sherry R. Arnstein's "ladder of citizen participation" (1969: 217)

Arnstein, a social worker in Oakland, California, and published in the *Journal of the American Institute of Planners*. Arnstein argued that participatory processes needed to transfer authority and decision making from expert elites to citizens, workers, or neighborhood councils. "Participation without redistribution of power," she explained, "is an empty and frustrating process for the powerless" (Arnstein 1969: 218).

Bound up with Arnstein's manifesto was a rejection of previous tools of urban planning, including the survey and the hearing. Here Arnstein went further than Geddes and his followers had: the ladder in her article's title referred to a visual aid, paired with the text, which showed the possible levels of authority and democratization in the planning process (see fig. 1). It suggested a hierarchy of inclusion practices from "manipulation" and "therapy" up to "delegated power" and "citizen control." The survey and the hearing ideally

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25 lent themselves to the sixth rung of Arnstein's ladder, "partnership," where experts
 26 and neighbors would collaborate in creating a city plan.

27

28 Arnstein's theory offered a critical view of government that implicitly drew
 29 upon the experience of generations of poor people whose attempts at self-
 30 management had been denounced by the very reformers seeking to better their
 31 condition. In the late nineteenth century during the era of the Charity Organization
 32 Society, women reformers traveled the slums of New York and London, going
 33 door-to-door to survey working families on their spending and eating habits,
 34 only to denounce the poor in their reports as collectively incompetent (McKibbin
 35 1990: 167–97). Arnstein's (1969: 222–23) examples of failed meetings included
 36 meaningless "advisory groups" created under the US Department of Housing and
 37 Urban Development in Philadelphia and an empty "citizen veto" installed by the
 38 mayor of Richmond, California. For Arnstein, the survey and the hearing were
 staged in contexts where experts had already made decisions contrary to citizens'

1 desires, and they thus belonged on the bottom of the ladder, in the categories
2 defined as “manipulation” or “informing.”

3 A new generation of planners, jolted by Arnstein’s denunciation, turned
4 back to the drawing board. Academics in urban planning departments filled the
5 journals of the 1970s with a literature on how personhood and collectivity could
6 be mobilized to create a truly participatory city. Capitalizing upon wider theories
7 of civic society, the public sphere, and privilege, they offered a new synthesis of
8 ideas about inclusion (Bruton 1980; Damer and Hague 1971; Fagence 1977: 1–14;
9 Hague and McCourt 1974; Johnson 1984; Long 1976; Reynolds 1969). No planner
10 was more central to this new wave of theory than John Friedmann, a student at the
11 University of Chicago taught by both left-wing antiracist Rexford Tugwell, TVA
12 director and sociologist, and right-wing economist Milton Friedman. Friedmann’s
13 first employment out of school was with the TVA, where he witnessed, firsthand,
14 the ineffectiveness of high-minded consultations with black communities subject
15 to relocation. Drawing upon both the antiracism of Tugwell and the libertarian
16 individualism of Friedman, Friedmann (1973: 77–78) proposed a new vision for
17 participatory processes in which open deliberations styled on “the old-fashioned
18 New England town meeting” would generate moral visions of future cities. He
19 believed that a new age of “transactive planning” would grow from the grass roots
20 and called for a diminished role for his own profession. Urban planners would no
21 longer create and analyze plans; instead, they would facilitate the visions of those
22 whom the plans would affect. “The process of societal guidance,” he wrote, “is
23 too important to be left entirely to experts” (ibid.: xvii).

24 Despite a growing number of academic sociologists and geographers writing
25 critically about urban planning and expertise (P. Hall 1980; Harvey 2009 [1973];
26 Massey and Catalano 1978; Massey and Meegan 1979), theory did little to
27 change practice. Bureaucrats preferred to pursue “participation” in the benign
28 form of hearings, polls, and citizens’ boards. And many institutions contrived
29 to silence the voices of the least privileged, scheduling hearings during the day
30 when working people could not attend them. In Britain, sporadic nods to the
31 new model appeared in projects such as the London Docklands scheme, where
32 planners scheduled meetings in the community. Yet locals never achieved the
33 political power necessary to redistribute resources, leaving behind, according to
34 one planner, “a legacy of frustration and alienation” (Johnson 1984: 8; Long 1976:
35 70; Taylor 1973). Participatory planning, in other words, was already dead by
36 1978 in both the United Kingdom and the United States. Even earlier, in 1972,
37 one group reacting to public pronouncements of a new age in democracy titled its
38 report “The Participation Swindle” (cited in Long 1976: 83, 133).

Participation in Social Movement Strategy in the Global South in the 1970s

Despite its ill-founded start in the United States and the United Kingdom, participation had an altogether different career in the global South, where there was a high demand to replace colonial structures with new institutions and organizational forms. Starting in 1972, a dozen Asian scholars began meeting at the Chinese University of Hong Kong. They created a new group made up of organizers of worker cooperatives and women's groups, networks of people eager to compare methods for creating more avenues for equal participation. Through the 1970s, members of the Asian group joined up with organizers from around the world, meeting in Canada, Yugoslavia, Venezuela, the Philippines, Korea, Australia, and the Bahamas. Groups were united by their commitment to overturning the rule of experts and investigating not merely the theory but also the practice of participation (Ellis 1983; Couillard 1980; de Vries 1980; Divassón and Martínez 1980; International Council for Adult Education and Public Enterprises Centre for Continuing Education 1979a, 1979b; Tandon 1979). They were influenced by the Chilean education reformer Paulo Freire and were increasingly aware of how particular kinds of knowledge, including literacy itself, were used to dominate colonial populations.³ They too quoted Arnstein and began to theorize a new kind of government: one where, as one activist wrote, "work on the drawing board becomes work on the settlement" (Lankatilleke and Jayaratne 1988: 3).

Organizers, many of whom had begun their careers in the adult education movement, started to expand their concerns to the structure of government itself. In Asia, the doctrine of participation was developed by a network of conferences, from which emerged a technology and a methodology that would replace the hearing and survey as a formula for participatory governance. Broadly, they targeted many kinds of imperialism and coercion, formulating participation as the key to a broad-scale, grassroots movement of liberal reform. At a conference at the University of Sussex, one activist reported on his work in a village in Bangladesh in 1974–75: he had used participatory surveys to create a report on exploitation of the rural poor that emphasized the many avenues through which the poor were kept in place, including "tenancy, labour, moneylending, the market, lineage status, patron-client dyads, the co-operative, the systems of access to public resources

3. Freire, the former minister of education in Brazil, whose *Pedagogy of the Oppressed*—published in Portuguese in 1968 and translated into English and French in 1970—formulated a case for liberatory pedagogy at the village level in the making of larger political movements, warning against Western-style hierarchies and encouraging teachers to create a "distance between the teacher and the taught" (Freire 2005 [1968]: 76).

1 and justice, and straight-forward coercion” (G. Wood 1980: 4). In these settings,
2 collecting information about injustice was understood as key to future action.
3 Among those who composed the movement, intercontinental travel and frequent
4 publication—much of it buoyed by the United Nations (UN) Food and Agriculture
5 Organization (FAO) and the UN Educational, Scientific, and Cultural Organization
6 (UNESCO)—helped to forge a new consensus, a faith in the power of
7 dialogue and deliberation to transform society. Rajesh Tandon’s (1973: 3) group
8 the Society for Participatory Research in Asia (PRIA), headquartered in New
9 Delhi, presented participatory methods as a tool for undoing “the dominant form
10 of knowledge produced and articulated throughout the history from the point of
11 view of the rulers, the Kings, the Brahmins.” “In this new approach,” wrote participatory
12 organizers of their work in Sri Lanka, “the community becomes the
13 decision makers while the officials support the process” (Lankatilleke 1988: 3).

14 Although they read Arnstein and Freire, most of the participants were interested
15 less in theory than in the process itself. Drawing on Freirean methods, participatory
16 organizers shaped meetings so as to insure that women, the elderly, and
17 minorities had a voice. They concentrated their energies on quieting men who tried
18 to interfere with women’s consensus or on adults who tried to tell children what to
19 think (Bouyer 1995; Chambers 1991; “Not Only the Better Off but Also the Worse
20 Off” 1993; Tandon 1979).⁴ Trainers emphasized a mind-set of humility as the base
21 for dealing with data. Empathy and modesty would take the place of science as the
22 method of the modern sociologist. There was a philosophy opposed to expertise,
23 emphasizing, as one activist put it, a “loss of complete control by the researcher”
24 (Tandon 1979: 5). New lists of proper “tactics” were printed up and circulated,
25 mirroring the training of sociologists of yore, but the new tactics emphasized a
26 methodology of empathy. Appropriate practices included “being unimportant”
27 and “listening” (Chambers 1979: 12). One set of mimeographed instructions drove
28 home the point in all caps: “DON’T LECTURE!—FOR GOD’S SAKE!!” and
29 “DON’T INTERRUPT” (Mascarenhas 1990a: 5).

30 Like Friedmann and other Western theorists of participatory planning, participatory
31 advocates in Asia shared an understanding of history that formulated the
32 uses of information to structure government. But ideas about overturning Western
33 pedagogy and the hierarchy of experts—while often implemented at the planning
34 stages—found deaf ears among leaders in local and national government alike.

35
36 4. As Chambers (1991) noted in his dictation as he observed Sheelu Francis, another organizer,
37 working with women: “The women[’]s group wiped out their original work and are now being dominated
38 by one man who is telling them exactly what to do and this has undermined their confidence. . . .
This is a classic case of male domination inhibiting the creativity of women.”

1 On the international scale, however, it was a different story. The budding move-
2 ment of educators in developing countries would resonate with the questions of
3 many bureaucrats in the UN, who had seen patterns of exclusion reduplicated
4 firsthand and were eager to appropriate new strategies for democratizing their
5 global work.⁵

6 7 **Participation and the Rise of the Walking Tour** 8 **in Development Economics, 1969–1994**

9
10 The participatory movement found especially energetic allies among British theo-
11 rists of development with ties to radicalism who were acculturated from genera-
12 tions of British liberalism to rethinking the use of data. At the newly founded
13 University of Sussex, economist Dudley Seers argued that the practice of foreign
14 aid, with its linkage to charity and to Western investors, did little to build up local
15 industries at home. He and his colleagues espoused a vision of economic develop-
16 ment grounded in indigenous technology and housing for all (Seers 1969, 1978;
17 Seers and Faber 1972). This was a vision of development supported by the UN and
18 the FAO, but it was increasingly at odds with the large-scale industrial farming
19 and infrastructure development being proposed at the World Bank under Robert
20 McNamara. Above all, the Sussex vision gave preference to social and cultural
21 solutions over econometric ones, and this bent made Sussex a home for those
22 rethinking technology, data, and the role of participation in development (Clark
23 1981; Jolly 1989; Nafziger 2006; Reid 1973).

24 Seers and his colleagues embraced the hope that informal governance and
25 small-scale technology could decentralize wealth and so solve systematic eco-
26 nomic exclusion. The appropriate technology movement was structured around
27 the notion that various simple technologies could help developing nations retool
28 their economies for global distribution. In the 1960s, Ernst F. Schumacher trans-
29 lated these conversations for engineering departments in the West (Rybczynski
30 1980; Schumacher 1965, 1993; Wade 1975). In Schumacher's vision, the engineers
31 of Britain and America would increasingly spend their time visiting poor villages,
32 helping to inaugurate a second agrarian and industrial revolution, with new water-
33 wheels and solar panels form fitted to the huts of Africa and India. Many of the
34 University of Sussex faculty embraced this vision, building upon Schumacher's
35 ideas in the Sussex manifesto of 1968 (Ely and Bell 2009; Shah 2009). But in the

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37 5. To the best of my knowledge this movement has never previously been covered by historians,
38 although a wide range of retrospective accounts of the movement have been published for smaller
audiences (Beebe 2001; Chambers 1994, 2006; B. Hall 1999; Röseberg 1996; Tandon, n.d.).

1 eyes Robert Chambers, Seers's younger colleague, this transfer of ideas was not
2 radical enough.

3 As Chambers understood it, power and hierarchy were bound up with technolo-
4 gies of information and representation, and so the appropriation of new irrigation
5 technologies was beside the point. Chambers's critique of information took the
6 form of an indictment of data and the institutions that administered them. Sur-
7 veys and surveying knowledge consumed the bulk of researchers' time, to great
8 disadvantage (Chambers 1983). Chambers reasoned that a development program
9 truly committed to raising up the developing world would reject the social science
10 survey and journal article in favor of direct action.

11 If Chambers was right, then the entire expert-run matrix descended from
12 hearing and survey, structured in departments and journals of economics, rural
13 sociology, and development, should be regarded as a failure. Expertise as instan-
14 tiated in the academy produced paper technologies in the form of data banks
15 and professional journals that only further isolated developed-world experts from
16 developing-world populations. Professional research for the purposes of advis-
17 ing governments was a dead end: it resulted in funds diverted from the people
18 who needed them. Whatever the promises of development economics to lift up
19 economies by building roads and dams, the technologies of information that those
20 practices relied upon were broken.

21 At Sussex, the reform of development became a catechism, and the participa-
22 tory movements of the global South began to attract new attention. The problem
23 thus became one of finding a technology that would help to change things, and
24 Chambers began to contemplate the power of drawings like those that members
25 of the participatory movement had made in their literacy classes. These pedagogic
26 cartoons were receiving new scholarly endorsement, likened in the annals of the
27 Sussex conferences to Venn diagrams or maps—tools for conveying rich informa-
28 tion from the many to the many.⁶

29 By the 1960s, many in the appropriate technology movement began to focus
30 upon limits to Western ways of knowing and teaching and suggested more univer-
31 sal representations appropriate to global learners. Sussex staff began to offer new
32 trainings for participatory leaders on making diagrams and drawings, showing how
33 visual aids, used well, could become tools for intermediation. Chambers (1979: 5)
34 and others started to write about the importance of walking with locals, arguing
35

36 6. Presenting to one of the first assemblies of organizers of participation at Sussex in 1979, Gor-
37 don Conway argued that small farmers only have a chance in development if they become organized
38 as a political force and that his experience had suggested the use of diagrams "in a readily under-
standable visual form" to simplify "often fairly complex information" (Youth for Action 1989).

1 that it was necessary to correct biased opinions made from traveling only good
2 roads in rich districts. Sussex organizers promoted community walks as methods
3 designed specifically “to help ‘outsiders’ see at close range several items of interest
4 and relevance which they would otherwise miss” (Mascarenhas 1990b: 1). Objects
5 of attention might include “traditional indigenous technologies” and medicinal
6 plants and fodders (ibid.: 3). The community walk for gathering data was an appro-
7 priate technology, meant to align the outsider’s worldview with that of the local.

8 In the community walk, activists had at last located a technique for managing
9 information that overcame the hierarchy between experts and the people. Walking
10 tours allowed a community to collect for itself information about a local territory,
11 its opportunities and challenges. Combined with Freirean organizing, walking tours
12 could activate conversations about best farming practices and channel collective
13 desires back to governments. Importantly, information would arise from and be
14 channeled by the people, not by the expert. Expertise would be reduced to the talents
15 of the organizer or literacy teacher, mediating between local will and government.

16 The Sussex methods—replacing surveys with community dialogue, imple-
17 menting diagrams as tools for collective discussion, and using transect walks to
18 engage the community about the local landscape—offered a modern, reformed
19 alternative to surveys, hearings, and journal articles. These alternatives were dis-
20 seminated around the world through international conferences like those that uni-
21 fied the participatory movement and the translation of movement materials into
22 new languages. The University of Sussex held a conference on the Sussex tool
23 kit (now under the name Rapid Rural Appraisal, or RRA) in 1979. It organized
24 another in 1980, and conferences on the tool kit soon began to be held around
25 the world.⁷ By the 1990s, there were legions of textbooks and organizers trained
26 by Chambers circulating around India and other parts of the developing world
27 (Bouyer 1995; Kumar 1993; Mukherjee 2002: chap. 5; Narayan and Srinivasan
28 1994; Narayanasamy and Boraian 1997).⁸

29
30
31 7. Papers from the 1979 and 1980 RRA conferences are at the Institute of Development Stud-
32 ies (IDS) Library. In 1985 there was an international RRA conference at Khon Kaen University, in
33 Malaysia, followed by a 1991 conference hosted by the Aga Khan Foundation of New Delhi on RRA
34 and its auxiliary methodology, participatory rapid appraisal (PRA), held in London (*Proceedings of
35 the 1985 International Conference on Rapid Rural Appraisal* 1987; Aga Khan Foundation 1991).

36 8. Methods for walking in communities appeared in the 1960s in the hands of French activists
37 who emphasized looking at the landscape as a means of understanding collective experience (Bouyer
38 1995). By 2006 Chambers’s student Neela Mukherjee (2002: chap. 5) had published a textbook in
which she described walking territory as a key to participatory learning for those seeking greater
control over food sovereignty and their land. Other textbooks collecting the widespread, successful
implementation of RRA have been compiled, notably Narayanasamy 2009.

1 **The Cree Experience**

2
3 Critical of expert management as these movements were, none of them before
4 the late 1970s had yet begun to retool the map. The map was, after all, one of the
5 foremost objects of colonial government, having been a tool of centralized admin-
6 istration and colonial rule since the origins of the cadastral map in sixteenth-
7 century Europe. By the seventeenth century, European maps were helping set-
8 tlers lay claim to the lands of other peoples around the globe. By the nineteenth
9 century, expert civil engineers and urban planners were using maps to evict poor
10 families from neighborhoods known to house working-class radicals (Kain 1992;
11 Osborne and Rose 1999; Weaver 2003). In 1980, who would have imagined the
12 map as a tool used to make a radical claim on the state by those traditionally
13 excluded from participation?

14 The Native Americans of North America did. And the fact that it was they
15 is striking. Of all of the groups of peoples that had been evicted, displaced, or
16 indebted into leaving their land, the experiences of native tribes in North America
17 were extreme: they lost their land, repeatedly, in events characterized by force,
18 fraud, and the regular reversal of legal contracts. Far from causing them to give up
19 on maps, these experiences made them hyperaware of the power of the map. From
20 the early 1970s, the tribes of Alberta had noticed overdevelopment and pollution
21 from expanding mining works encroaching onto their territory (Brice-Bennett
22 1977; Brody 1982: xxii; Milton Freeman Research Limited 1976; Robinson,
23 Garvin, and Hodgson 1994). They began to look for a way to ask the Canadian
24 government to enforce their property rights to exclude miners from their territory.
25 The promise of the map was that it had cache in mandating adherence to property
26 law in government courts.

27 Creating a map of native holdings undocumented by the state was no straight-
28 forward task. It depended on organizing families across tribes and sorting through
29 oral history and hunting customs to find, document, and illustrate traditions of
30 marking the land that would stand up in court as the native equivalent of survey-
31 ing. After months of conversations, the natives began to recognize their “hunting
32 lines,” interwoven across the whole of the territory, as a possible source of evi-
33 dence about the tribes’ long occupation and government grants to territory. These
34 hunting lines had been preserved in oral tradition and rehearsed through seasonal
35 hunting rituals, one family to a hunting line, the exact territory of each line known
36 to each family. Hugh Brody, a British geographer then embedded with the tribe to
37 study their traditional sense of space, began encouraging family members to draw
38 out hunting tracks and traditional place-names on maps. To his shock and delight,

1 the tracks were rich with topographical information and never overlapped—
2 incontestable evidence, he understood, of a native understanding of strict fam-
3 ily rights to exclude others from property, of a kind that would stand up in court
4 (Brody 1982: 146–77). All they had to do was collect these traces on a single map.

5 The origin of mapmaking was collaborative, with the initiative to mobilize
6 against development coming from the families, while the suggestion of using a
7 map to create knowledge appears to have been provided by Brody. Throughout,
8 the process of mapmaking was democratic, following the pattern prescribed by
9 Freirean organizers for participatory meetings. “The majority of the men and
10 many of the women in seven of the region’s nine reserves drew maps of their land
11 use,” Brody later remembered (ibid.: 149). The maps they created made a rich,
12 500-person-detailed case that the natives—far from having died out—were still
13 inhabiting land that their ancestors had inhabited continuously for generations.
14 They documented and denounced generations of industrial encroachment onto
15 traditional hunting and trapping lands (ibid.: xxii). In 1977 the Cree delivered to
16 the Canadian government maps of animal species, one at a time, each detailing
17 hunting location and each hunter’s activities.

18 Collaborative maps had become an indigenous tool for facing the legal contes-
19 tation of native land. Faced with these maps, judges tended to rule in favor of the
20 tribes’ sovereignty and against logging and mining companies (Robinson, Garvin,
21 and Hodgson 1994; *William v. British Columbia* (2012), 324 B.C.A.C. 214 (Can.);
22 555 W.A.C. 214). A map, made through a communal, participatory process, the Cree
23 tribes found, was a document that could alter the outcome of court cases. At last, par-
24 ticipatory methods had settled on a tool that could both synthesize grassroots conver-
25 sations and use those conversations to overturn colonial alignments of power.

26 27 **Map-Driven Movements for Control over Cities and Land**

28 The Cree experience showed that maps could create a powerful reversal of colo-
29 nial hierarchies, and within a few years activists affiliated with the participatory
30 movement deployed participatory maps around the developing world to analyze
31 the administration of their territories and argue for adjustments suited to their
32 needs. Participatory organizers in Bombay made maps of local squatter settle-
33 ments and argued with the city about formally recognizing occupation (Society
34 for Participatory Research in Asia 1982: 16–18). In Thailand, indigenous people
35 used foam-board maps to lobby for control over their ancestral territory (Sharp
36 1998). In Gujarat and Ethiopia, indigenous communities came up with coopera-
37 tive systems for patrolling their woodlands and communally harvesting wood
38

1 (Prathan, Arul, and Poffenberger 1987: 19; Scoones and McCracken 1989).⁹
2 Indian nongovernmental organizations (NGOs) worked with poor farmers on the
3 participatory management of watersheds. Maps documented the exhaustion of
4 local water aquifers and pointed out where hand pumps needed to be repaired
5 (Lightfoot et al. 1989; Mascarenhas 1996; Youth for Action 1989: 8). A map-
6 driven movement for local control had emerged.

7 In an era when the Ford Foundation was pushing improved varieties of rice
8 inappropriate to the seasonal fluxes of the Indian climate (Cullather 2010; Patel
9 2013), peasants used participatory maps to take back the decision matrix of crops
10 and inputs from the experts. Farmers would explore village-directed development
11 strategies where ideas came from the people rather than from institutional exper-
12 tise. In Hyderabad in the 1980s, local government agriculture and credit authori-
13 ties were emphasizing high-yielding grains of rice. Participatory meetings helped
14 villages come to a consensus about the importance of traditional fodders, mean
15 of preventing soil degradation, the administration of wells, and other local issues
16 of agrarian policy (Aga Khan Foundation 1991; Chambers 1990; Government of
17 India 1995; Youth for Action 1989: appendix, 3–4).

18 Alongside helping activists to influence decisions, participatory maps and pro-
19 cesses often led to land tenure and property renegotiation. Indigenous peoples in
20 Canada used participatory mapping to plan their own sewer system (Society for
21 Participatory Research in Asia 1982: 16–18). In Calcutta, slum dwellers organized
22 drain-cleaning brigades and kicked out corrupt garbage-collection contractors
23 (Kar 1997). Asked in the participatory process what their goals were, most com-
24 munities insisted above all else that “there should be minimum disruption to the
25 existing settlement pattern—relocation only if it is absolutely necessary” (ibid.).

26 The activists who composed the participatory movement broadened their con-
27 stituency each year, reaching out to new groups ostracized because of gender, race,
28 or class. By 1982 participatory techniques were being deployed among peasants
29 and landless laborers across North America, South America, Asia, and Europe
30 (Society for Participatory Research in Asia 1982). Conversations about the nature
31 of the village and the territory changed as new voices were included in the con-
32 versation (Mascarenhas 1991: 17).¹⁰ Participatory maps and stories about their
33

34 9. In 1989 Ian Scoones and Jennifer A. McCracken (1989) reported on the use of PRA to devise
35 a tree management plan in Wollo, Ethiopia.

36 10. “In one recent exercise while the village was being mapped by women,” recalled James Mas-
37 carenhas (1991: 16), “a discussion on malnutrition was initiated, and the symptoms described. After
38 this the women began to point out and mark on the map the houses which had children suffering
from malnutrition.”

1 use were becoming a vehicle of global consciousness of poor people united in a
2 struggle against hierarchical management.

3 As the Sussex school had understood, a movement centered on the poor requires
4 particular tools. It needs techniques for the collection of data about territory, as
5 well as the means of representing that information to the people themselves, even
6 where materials are scarce. Mapping organizers therefore delved into the search
7 for technologies appropriate to their undertaking. Conversations about appropriate
8 technology in development shifted the search for maps from the high-tech maps
9 used by indigenous people in Canada to lower technologies. Geographic informa-
10 tion systems (GIS) technology was rarely embraced by participatory organizers
11 at PRIA or Sussex, who understood the difficulty of using GIS in developing
12 countries with little electric infrastructure. They believed that maps needed to be
13 a truly appropriate technology, cheap and flexible enough for communities in the
14 poorest parts of the developing world to undertake them.¹¹ In search of ways to
15 bring the masses into mapmaking, they created simple but innovative technolo-
16 gies, often building off of existing cultural practices and reorienting traditional
17 crafts toward new ends.

18 In the 1980s, Indian organizers developed “rangoli mapping,” creating maps
19 with the colored rice powder traditionally used for making apotropaic threshold
20 paintings during Divali and other festivals (Mascarenhas and Prem Kumar 1991:
21 1–4; Youth for Action 1989).¹² The technology of participatory maps from the
22 1970s to 1990s was, for most of its users, nothing more than some pieces of paper,
23 some markers or chalk, a stick, a few training manuals, and perhaps a board game.
24 They had realized that even cheap materials could be retooled for a process that
25 stressed new habits of mind, suited to the inclusion of persons formerly excluded
26 from the institutions of rule.

27 Participatory organizers also experimented with techniques that would facili-
28 tate conversations about population growth, wages, climate, and political action.
29 Some thought that aerial mapping could start dialogues about the larger ecosystem
30 (Abel and Stocking 1979; Rhoades 1982). Participatory methods could even be
31

32 11. By the late 1990s, a computer-enabled faction of the participatory movement began to experi-
33 ment with participatory GIS (PGIS). The use of GIS remains contested within participatory conver-
34 sations (Chambers 2006; Abbot et al. 1998).

35 12. Rangoli was repurposed here for “learning with farmers,” talking about land and water
36 resources and opening up a conversation within the community. Rangoli powder was used on the
37 ground, the outline drawn by the village *sarpanch*, (village head) and then details—like the loca-
38 tion of wells—were filled in by other residents. The entire map was then transferred to paper, and
the villagers split up to walk a transect through the village. (Youth for Action 1989: 3; Mascarenhas
1990b: 1-4; 9).

1 used over the scale of large swaths of communities, drawing together regions into
2 conversations about their shared inhabitation of land. In 1992, for instance, 130
3 Nepalese villages participated in a large-scale land-use survey (Chambers 2003).
4 Others experimented with asking villagers to draw time maps, designed to show
5 the village fifty years in the past and fifty years in the future (Cormack 1993; Jones
6 1994; Mascarenhas and Prem Kumar 1991: 2). These techniques and the collec-
7 tive power and action they helped to create resulted in structural change: when the
8 maps were applied to a clear target, they tended to succeed in political reforms.

9 In cases that targeted legislation against corporate polluters, the maps were
10 extremely successful. In Tamil Nadu, participatory maps allowed neighbors to
11 identify a local tannery that was polluting water to the detriment of fish popula-
12 tions. For African Americans in Louisiana, maps helped a poor black community
13 suffering from high rates of cancer to sue the chemical company next door (Allen
14 1999). Maps helped some communities to self-organize around small-scale pro-
15 grams like preschools, well maintenance, or street lighting (Francis 1994; Kar
16 1997). Maps protected native peoples' lands in Madagascar, the Himalayas, and
17 the Philippines (Corbett 2009). The Metis in the Alberta area around Fort McMur-
18 ray began to use GIS to protect the area from tar sands developers (Robinson,
19 Garvin, and Hodgson 1994).¹³

20 What's more, local peoples presented with a framework in which it was
21 assumed that they had control over their futures were coming up with solutions,
22 and organizers and activists were taking note. This was not the first time that
23 active political cooperation resulted from an atmosphere where individuals felt
24 they had control. Cooperation for a better future was, according to John Stuart
25 Mill, the social gift conveyed by the "magic of property" to European populations
26 in the course of conditions when hardworking individuals could expect payoff in
27 the form of future money as a form of stability and control. That theory of a con-
28 nection between land and security was realized wherever participation arose. In
29 the participatory workshops of Canada and Southeast Asia, a virtuous circle was
30 being woven where land, self-management, money, and security from displace-
31 ment came together to produce community and firmer ties to land.

32 What the participatory organizers of the 1980s and 1990s discovered was that
33 all persons, including persons with no property or rank whatsoever, felt committed
34

35
36 13. The struggle of the Beaver Lake Cree Nation against neighboring tar sands developers is
37 ongoing and poorly documented, but there is evidence that the movement's legal successes depends
38 upon continued, GIS-enabled mapping of indigenous territory (Robinson, Garvin, and Hodgson
1994).

1 to the conditions of their future and were more than capable of creating institu-
2 tions for improving their environment. “People in rural areas,” wrote James Mas-
3 carenhas (1991: 17), organizer of poor farmers in Mysore, “are extremely skillful
4 managers forced to live as they are under extremely marginal and vulnerable
5 conditions.” Years of irrigating farms with the help of participatory communities
6 had convinced Mascarenhas that deep conversations about population, political
7 economy, and ecological threat were possible, even among peoples isolated from
8 expert conversations. Participatory organizers began to look ahead to how the map
9 could amplify grassroots consciousness of the ways that imperialism, monopoly
10 capitalism, and expert rule had impoverished their ecosystem and their culture
11 and where there might be room for large-scale political change.
12

13 **The Critique of Power Disappears**

14 After 1990, even in the global South participation was largely defined and con-
15 trolled by a new set of actors drawn from development nonprofits and funded by
16 organs of international government like the UN and the World Bank (Herlihy
17 and Knapp 2003; Tulloch 2007; Weiner and Harris 2003).¹⁴ When these powerful
18 actors turned toward participatory maps, rumors of global success shaped enthu-
19 siastic expectations. The new participatory map advocates, few of whom fit the
20 category of citizen-participants as defined by Arnstein, were impressed with
21 the record to date and enthusiastic about what participatory methods could do if
22 they were funded more broadly and wedded to up-to-date advances in technology.
23

24 Despite enthusiasm, there were implicit weaknesses in the new crowdsourced
25 mapping movement that made it vulnerable to external events. Participation had
26 been widely adopted by institutions, governments, and NGOs as a means of cheap
27 development without commitment of resources from above. The new participatory
28 mapping was stripped of the radical, postcolonial critique of power and the grass-
29 roots Freirean methodologies, severely limiting the democratic potential. Maps
30 alone, as a technology stripped of support, could not create the village dialogue
31 dreamed of (and in many cases realized) by organizers in the 1970s. That dream
32 had rested on the inclusion of adult literacy programs, paid organizers, and legisla-
33 tive support for worker cooperatives.

34 As these supports began to vanish, it became apparent that participatory tools
35 have limits. Critiques began to spread. Participatory initiatives from the 1960s
36 were reexamined for evidence of having helped contribute to anticolonial strug-

37 14. Anthropologists used participatory maps in the 1990s to work with indigenous communities
38 in Latin America (Herlihy and Knapp 2003; Tulloch 2007; Weiner and Harris 2003).

1 gles in Côte d'Ivoire and other parts of French Africa. When they were found
2 wanting, the movements were accused of being "populisme bureaucratique"
3 (bureaucratic populism) (or "la réduction du peuple à l'exploitation dont il est vic-
4 time" [the reduction of a people to its own exploitation]) (Chauveau 1994; Hussein
5 1996; Olivier de Sardan 1990). By the 2000s, American academics had begun to
6 target the work of participatory organizers in the Delhi slums. "What seemed to
7 be local activism turns out to be a World Bank policy implemented through the
8 conditionality of international aid," wrote Ananya Roy (2005: 154). By accepting
9 World Bank funding in a nation where most change came from locally organized
10 political parties, she proposed, participatory organizers were undermining their
11 own agenda of local control (ibid.; Roy 2009).¹⁵ Roy was right about the fragility
12 of the influence exercised by the participatory movement over other hierarchies.
13 Urban planners, trained in the West, had continued using the language of partici-
14 pation to boost their own credibility (Hamdi 1991; Hamdi and Goethert 1997).
15 A program in Calcutta claimed to introduce "participatory" organizing, but its
16 version of "participation" was just a survey (Kar 1997). In Córdoba, Argentina,
17 in 2012, a World Bank report urged "participatory mapping," which turned out to
18 mean top-down dissemination of maps where flood-control measures would be
19 implemented. There was no question in the designers' minds of using these maps
20 as tools for organizing self-building or self-government, let alone the reform of
21 elite monopolies or national government (Jha, Bloch, and Lamond 2012).

Participatory Maps Online

24 When participatory maps were designed for online interaction, a new era of
25 enthusiasm for the technology was born. Without a doubt, something is new about
26 the creation of a mass, informal, and voluntary resurvey of the city for evolving
27 community- and individual-driven ends. Crowdsourced maps are methods of gener-
28 ating Internet content from disparate groups of individuals. In 2004 the open-
29 source platform Open Street Map appeared, followed by Google Maps soon there-
30 after, in 2005 (Batty et al. 2010). These crowdsourced maps differed from similar
31 efforts such as mashups, which are not necessarily crowdsourced but transpose
32 inputs onto common geographical layers. For instance, crime maps combine data
33 sets from police departments with Google Maps (Coleman, Georgiadou, and
34 Labonte 2009; Murugesan 2007: 36–37). Crowdsourced maps differed too from
35 "open city" projects that encourage city governments to make their data available
36

37
38 15. For a critique of Roy, see Buckley 2011.

1 to analysts outside of government for the purposes of remixing and reanalyzing.
2 All of these formats, insofar as they relate to places, depended upon the existence
3 of platforms geared toward the geographical realities of cities, slums, and rain
4 forests, so-called spatial data infrastructures (SDI) that coordinate many inputs
5 from specified geographical coordinates into one graphic interface (Nebert 2004).
6 Google Maps was not the first online map and certainly not the first computa-
7 tional map—MapQuest began issuing street maps on the Internet in 1996, and
8 GIS dates from the 1970s (Crampton 1998). It was the addition of an open applica-
9 tion program interface (API) to Google Maps and Open Street Map in 2004-5 that
10 made possible new horizons of collaboration.

11 The arrival of the online crowdsourced maps in 2005 opened up a world of
12 working collaboratively on data with distant contacts or strangers. Unlike the
13 tools of the early 2000s—chat rooms, forums, wikis, blogs, and podcasts—
14 crowdsourced maps actually analyzed the data given to them, sorting social infor-
15 mation into local, regional, and global patterns. The maps do not merely collect
16 information, as a “memory hole” like WikiLeaks does; rather, the maps show the
17 community back to itself, revealing hot spots of local corruption and pollution,
18 giving activists the tools to target particular places with investigation or protest.

19 It was atop this new, digital infrastructure that a new wave of enthusiasm,
20 linked to broadened citizen participation in the life of cities, emerged. By 2008
21 crowdsourced maps attracted an enthusiastic coterie of designers and entrepre-
22 neurs, who designed a many-to-many mapping interface for everything from
23 divining the most bikeable routes of a city to locating street trees that bear edible
24 fruit (Berg 2012; Kozlowski 2012; Malhortra 2012; McKone 2010; Owen Driggs
25 2013). Mainstream media celebrated these applications. Stories lauding the suc-
26 cess of the crowdsourced map surged after the 2010 earthquake in Haiti, as the
27 application Ushahidi was deployed to source geographically tabulated information
28 about the wounded and their needs (*Economist* 2009; Gangadharan 2013; Girid-
29 haradas 2010; Leson 2012; Marwaha 2008; Ulbricht 2012). Soon other stories
30 were documenting how students at the Harvard School of Public Health were
31 surveying slum dwellers in Bombay about the best location for new public toilets
32 (Loewenberg 2012).

33 As map designers promised that participation in their maps would better the
34 city, their advocates held up the hope that the new technology would lead directly
35 to the democratic reform of government. In the popular contemporary account
36 represented by the *New York Times* and the *Economist*, online participatory maps
37 provided evidence that elites were working together to eliminate “inefficiency”
38

1 and “waste” from government by applying the newest technology to city govern-
2 ment. The start-ups, their volunteers, and the mainstream media called for open
3 data and “transparency” as the magic solution that could banish corruption for
4 good.

5 Yet the technology of the crowdsourced map, designed far away from the vil-
6 lages, indigenous movements, urban activists, and other movements that originally
7 gave rise to a new philosophy of mapping, did little to facilitate participation at the
8 project design stage or widespread sharing of histories, past research, or resources.
9 Internet elites did not necessarily advocate on behalf of the disenfranchised, and
10 their positions in relationships to the communities they claim to be helping raise
11 important questions.

12 The limits of political inclusion were born out in the form of interfaces for
13 online participation whose design limited the political purposes to which they
14 could be applied. It is almost impossible, in Google Maps, to find someone else’s
15 map of the same place or political agenda. The interface does not facilitate mix-
16 ing layers of data, sharing social inputs to be remixed, or sharing historical data.
17 There is no crowdsourcing application that allows people to find and highlight
18 political ideas about land use or compare ideas about possible futures of their
19 neighborhood.

20 Most of the crowdsourced mapping advocates of today have not learned from
21 the successes and failures of participatory technologies in movements of the past.
22 They do not intentionally pair the technology with on-the-ground political work
23 that supports education and grassroots organizing. The persistent problem of the
24 social has no crowdsourced app, but it does have a history, one that has been shown
25 here to be bound up with the promise of integrating groups traditionally excluded
26 from economic and political processes because of gender, race, and class.

27 **Assessing the Significance of the Participatory Map**

28 Control over resources—both the map and ultimately the land and water rep-
29 resented by the map—is, as Arnstein suggested, the key to true participation.
30 Chambers’s instructional guides and mapping workshops in the 1980s enshrined
31 community control as an emblem of participatory mapping. In many parts of
32 India today, organizers trained as participatory mapping facilitators work along-
33 side NGOs, inaugurating conversations between villagers about the ecosystem,
34 local government, and their reform. The history of crowdsourcing clearly shows
35 that to change power structures and destabilize privileges based upon gender,
36 race, and class requires much more than the simple replication of a tool.
37
38

1 Yet the overall results of this period of innovation are mixed. Crowdsourc-
2 ing was not the clear solution to social exclusion often portrayed by enthusiasts.
3 But where participatory practices were paired with a strong critique of power,
4 encompassing not merely gender, race, and class but also the ownership of land
5 and water, they succeeded in altering the balance of privilege. The same surveys,
6 hearings, and community development protocols used in the global North to little
7 end, when applied by organizers in the global South with explicit intentions of
8 breaking down power over land and water and in tandem with grassroots organiz-
9 ing and popular education initiatives, were highly successful.

10 In general, the story of participatory mapping was stamped, like many social
11 liberation stories, by continuous work within the structures of power for further
12 reform and integration of subjects historically excluded from power. The work
13 done by participatory mapping movements before the rise of the Internet was, to
14 a degree, directed by college-educated elites. It may be objected that Chambers,
15 Brody, and other mappers who worked with indigenous people and the poor to
16 make maps were elites and that they inaugurated maps themselves, and therefore
17 the maps were not truly bottom-up. It is true that none of these movements arise
18 from what Karl Marx called the “lumpen proletariat,” but according to Craig J.
19 Calhoun (2012), neither did the classical new social movements of radicals in the
20 nineteenth century; all of them, from Edmund Burke to Thomas Paine to Thomas
21 Wooler, were launched by individuals of relative privilege. The same goes for
22 Mohandas Gandhi himself and most of the leaders of the civil rights movement,
23 with important exceptions like Fanny Lou Hamer (Guha 2014; Reed 1993). “Bot-
24 tom up” and radical participatory democracy are often an aspiration. But aspira-
25 tion can be complemented by solidarity, and produce results, as it did for human
26 rights and civil rights movements around the world, or it can remain in the realm
27 of theory, as it did for the urban planners of the 1970s.

28 These reflections should give us room to judge the successes and failures of
29 mapping in the age of the Internet. Have the crowdsourced maps of today been
30 tools for further extending bottom-up connections? Or have they been, like so
31 many endeavors, an aspirational revolution only?

32 The crowdsourced maps of today replicate many of the exclusions of class and
33 race historically present in mapping communities. Failure, in this case, comes
34 in the form of preaching “transparency,” “open data,” and building more maps
35 without serious commitments to ensuring that the poor, indigenous peoples, and
36 other subjects whose relationship to territory and information has been histori-
37 cally endangered have control over these maps and, more importantly, have con-
38 trol over resources and the decisions that affect their lives.

1 **References**

- 2 IDS Library Archive. Institute of Development Studies Library, Archive, Univer-
3 sity of Sussex, Brighton, UK.
4 PRC Archive at IDS. Participation Resource Centre, Archive, Institute of Devel-
5 opment Studies, University of Sussex, Brighton, UK.
6 PRIA Archive. Society for Participatory Research in Asia, Archive, New Delhi.
7 Abbot, Jo, et al. 1998. "Participatory GIS: Opportunity or Oxymoron?" *PLA Notes*,
8 no. 33: 27–34. International Institute for Environment and Development. www
9 .pubs.iied.org/pdfs/G01796.pdf.
10 Abel, Nick, and Michael Stocking. 1979. "Rapid Aerial Survey Techniques for
11 Rural Areas." Paper presented at the Rapid Rural Appraisal Conference, Uni-
12 versity of Sussex, Brighton, UK, December 4–7. IDS Library Archive.
13 Aga Khan Foundation. 1991. *Rapid/Participatory Rural Appraisal: Frontiers of*
14 *Research*. London: Aga Khan Foundation. A: Participatory Approaches: RRA
15 and Early Days of PRA, 1210, PRC Archive at IDS.
16 Allen, Barbara L. 1999. "Narrating the Toxic Landscape in 'Cancer Alley,' Loui-
17 siana." In *Technologies of Landscape: From Reaping to Recycling*, edited by
18 David E. Nye, 187–203. Amherst: University of Massachusetts Press.
19 Anbalagan, K., G. Karthikeyan, and N. Narayanasamy. 1997. "Assessing Pollu-
20 tion from Tannery Effluents in a South Indian Village." *PLA Notes*, no. 30:
21 3–6.
22 Arnstein, Sherry R. 1969. "A Ladder of Citizen Participation." *Journal of the*
23 *American Institute of Planners* 35, no. 4: 216–24.
24 Augur, Tracy B. 1945. "Citizen Participation in City Planning." *Annals of the*
25 *American Academy of Political and Social Science* 242, no. 1: 101–3.
26 Batty, Michael, et al. 2010. "Map Mashups, Web 2.0, and the GIS Revolution." *Annals of GIS* 16, no. 1: 1–13.
27 Beaufoy, Helena. 1997. "'Order Out of Chaos': The London Society and the Plan-
28 ning of London 1912–1920." *Planning Perspectives* 12, no. 2: 135–64.
29 Beaver, S. H. 1962. "The Le Play Society and Field Work." *Geography* 47, no. 3:
30 225–40.
31 Beebe, James. 2001. *Rapid Assessment Process: An Introduction*. Walnut Creek,
32 CA: AltaMira.
33 Belson, Ken. 2008. "With Wireless Network, City Agencies Have More Eyes
34 in More Places." *New York Times*, June 28. www.nytimes.com/2008/06/28
35 /nyregion/28network.html.
36 Berg, Nate. 2012. "China Crowdmaps Pedestrian and Cyclist Problem Areas."

- 1 *CityLab*, July 25. www.theatlanticcities.com/commute/2012/07/china
2 -crowdmaps-pedestrian-and-cyclist-problem-areas/2699.
- 3 Blucher, Walter. 1951. "A Hospital Plans: The Michael Reese Hospital Planning Proj-
4 ect." *Town Planning Review* 21, no. 4: 318–56. www.jstor.org/stable/40102045.
- 5 Bouyer, Pierre-Henri. 1995. "Seeing, Reflection, Action." *Rural Extension Bul-*
6 *letin*, no. 7: 49–51.
- 7 Brice-Bennett, Carol, and Labrador Inuit Association. 1977. *Our Footprints Are*
8 *Everywhere: Inuit Land Use and Occupancy in Labrador*. Nain, Newfound-
9 land: Labrador Inuit Association.
- 10 Brody, Hugh. 1982. *Maps and Dreams*. New York: Pantheon Books.
- 11 Brustein, Joshua. 2011. "Projects Use Phone Data to Track Public Services." *New*
12 *York Times*, June 5. www.nytimes.com/2011/06/06/business/media/06transit
13 .html.
- 14 Bruton, Michael J. 1980. "Public Participation, Local Planning and Conflicts of
15 Interest." *Policy and Politics* 8, no. 4: 423–42.
- 16 Buckley, Robert. 2011. "Social Inclusion in Mumbai: Economics Matters Too."
17 *Environment and Urbanization* 23, no. 1: 277–84.
- 18 Calder, Angus, and Dorothy Sheridan. 1985. *Speak for Yourself: A Mass-*
19 *Observation Anthology, 1937–1949*. Oxford: Oxford University Press.
- 20 Calhoun, Craig J. 2012. *The Roots of Radicalism: Tradition, the Public Sphere,*
21 *and Early Nineteenth-Century Social Movements*. Chicago: University of Chi-
22 cago Press.
- 23 Chambers, Robert. 1979. "Rural Development Tourism: Poverty Unperceived."
24 Paper presented at the Rapid Rural Appraisal Conference, University of Sus-
25 sex, Brighton, UK, December 4–7. MET 9.2, Rapid Rural Appraisal Confer-
26 ence, IDS Library Archive.
- 27 ———. 1983. *Rural Development: Putting the Last First*. Harlow, UK: Longman.
- 28 ———. 1990. "Participatory Mapping and Modelling: Notes for the Workshop
29 on Participatory Micro-Watershed Development Convened by the Aga Khan
30 Rural Support Programme and the Ford Foundation at Ahmedabad, 4–5 April
31 1990." B: Tools: Mapping.1410, PRC Archive at IDS.
- 32 ———. 1991. "Kethanayakanpatti Village near Tiruchulli near Madurai: Run-
33 ning Notes and Reflections on the Participatory Rural Appraisal for Health
34 Conducted by SPEECH 29 and 30 January 1991." A: Participatory Approaches:
35 RRA and Early Days of PRA.1572, PRC Archive at IDS.
- 36 ———. 1994. "The Origins and Practice of Participatory Rural Appraisal."
37 *World Development* 22, no. 7: 953–69. [www.sciencedirect.com/science/article](http://www.sciencedirect.com/science/article/pii/0305750X94901414)
38 /pii/0305750X94901414.

- 1 ———. 2003. “The Best of Both Worlds.” In *Q-Squared: Combining Qualitative and Quantitative Methods in Poverty Appraisal*, edited by Ravi Kanbur,
2 35–45. Delhi: Permanent Black.
- 3 ———. 2006. “Participatory Mapping and Geographic Information Systems:
4 Whose Map? Who Is Empowered and Who Disempowered? Who Gains and
5 Who Loses?” *Electronic Journal of Information Systems in Developing Countries* 25, no. 2: 1–11.
- 6
7
8 Chauveau, Jean-Paul. 1994. “Participation paysanne et populisme bureaucratique:
9 Essai d’histoire et de sociologie de la culture du développement” (“Peasant
10 Participation and Bureaucratic Populism: Essay on the History and Sociology
11 of the Culture of Development”). In *Les associations paysannes en Afrique:
12 Organisation et dynamiques (Peasant Institutions in Africa: Organization and
13 Dynamics)*, edited by Jean-Pierre Jacob and Philippe Lavigne Delville, 25–60.
14 Paris: APAD-IUED-Karthala.
- 15 Clark, William. 1981. “Robert McNamara at the World Bank.” *Foreign Affairs*
16 60, no. 1: 167–84. doi:10.2307/20040995.
- 17 Coleman, David J., Yola Georgiadou, and Jeff Labonte. 2009. “Volunteered Geo-
18 graphic Information: The Nature and Motivation of Producers.” *International
19 Journal of Spatial Data Infrastructures Research* 4: 332–58.
- 20 Corbett, Jon. 2009. “Good Practices in Participatory Mapping.” Interna-
21 tional Fund for Agricultural Development. [www.ifad.org/documents/10180](http://www.ifad.org/documents/10180/d1383979-4976-4c8e-ba5d-53419e37cbcc)
22 [/d1383979-4976-4c8e-ba5d-53419e37cbcc](http://www.ifad.org/documents/10180/d1383979-4976-4c8e-ba5d-53419e37cbcc).
- 23 Cormack, Peter, ed. 1993. *Who Holds the Stick? PRA Experiences in Ethiopia:
24 Participatory Rural Appraisal*. Melbourne: World Vision Australia. A: Partici-
25 patory Approaches: RRA and Early Days of PRA.1002, PRC Archive at IDS.
- 26 Couillard, Marie-Andree. 1980. “Brief Note on the Participatory Research Net-
27 work.” Paper presented at Universiti Sains Malaysia. MS-7, PRIA Archive.
- 28 Crampton, Jeremy W. 1998. “Maps as Social Constructions: Power, Communica-
29 tion, and Visualization.” In *Critical Geographies: A Collection of Readings*,
30 edited by Harald Bauder and Salvatore Engel-Di Mauro, 691–710. Kelowna,
31 British Columbia: Praxis (e)Press.
- 32 Cullather, Nick. 2010. *The Hungry World: America’s Cold War Battle against
33 Poverty in Asia*. Cambridge, MA: Harvard University Press. [site.ebrary.com](http://site.ebrary.com/id/10456065)
34 [/id/10456065](http://site.ebrary.com/id/10456065).
- 35 Damer, Seán, and Cliff Hague. 1971. “Public Participation in Planning: A
36 Review.” *Town Planning Review* 42, no. 3: 217–32.
- 37 Demerath, Nicholas J. 1947. “Ecology, Framework for City Planning.” *Social
38 Forces* 26, no. 1: 62–67.

- 1 de Vries, Jan. 1980. Introduction to *Participation in Research: Case Studies of*
2 *Participatory Research*, edited by Helen Callaway. Amersfoort: Netherlands
3 Centre for Research and Development in Adult Education. PR3:3 IFP 1160,
4 PRIA Archive.
- 5 Divassón, José Angel, and Ada Martínez. 1980. "Analysis and Systematization
6 of the Elements That Compose Group Processes, Based on the Participative
7 Research with Youth and Counseling Groups of People's Action." Paper pre-
8 sented at the Seminar on Participative Research, Ljubljana, Yugoslavia, April
9 12–22. PR47b/M3111, PRIA Archive.
- 10 *Economist*. 2009. "Mapping a Better World." June 4. [www.economist.com/node](http://www.economist.com/node/13725877)
11 [/13725877](http://www.economist.com/node/13725877).
- 12 Ely, Adrian, and Martin Bell. 2009. "The Original 'Sussex Manifesto': Its Past
13 and Future Relevance." STEPS Working Paper 27. Brighton, UK: STEPS Cen-
14 tre. opendocs.ids.ac.uk/opendocs/handle/123456789/2283.
- 15 Evans, David. 1986. "Le Play House and the Regional Survey Movement in Brit-
16 ish Sociology, 1920–1955." MPhil thesis, City of Birmingham Polytechnic.
17 www.dfte.co.uk/ios/DFTEMPHil.pdf.
- 18 Fagence, Michael. 1977. *Citizen Participation in Planning*. Oxford: Pergamon.
- 19 Feldman, Alice. 2002. "Making Space at the Nations' Table: Mapping the Trans-
20 formative Geographies of the International Indigenous Peoples' Movement."
21 *Social Movement Studies* 1, no. 1: 31–46.
- 22 Francis, Sheelu. 1994. "PALM Training Experience in India, ODA Funded Slum
23 Improvement Projects." TOP 18.4, PRC Archive at IDS.
- 24 Freire, Paolo. 2005 [1968]. *Pedagogy of the Oppressed*. Translated by Myra Berg-
25 man Ramos. New York: Continuum.
- 26 Friedmann, John. 1973. *Retracking America: A Theory of Transactive Planning*.
27 Garden City, NY: Doubleday.
- 28 Gangadharan, Seeta Peña. 2013. "How Can Big Data Be Used for Social
29 Good?" *Guardian*, May 30. [www.theguardian.com/sustainable-business/how](http://www.theguardian.com/sustainable-business/how-can-big-data-social-good)
30 [-can-big-data-social-good](http://www.theguardian.com/sustainable-business/how-can-big-data-social-good).
- 31 Geddes, Patrick. 1909. "City Deterioration and the Need of City Survey." *Annals*
32 *of the American Academy of Political and Social Science* 34, no. 1: 54–67.
- 33 Giridharadas, Anand. 2010. "Ushahidi—Africa's Gift to Silicon Valley: How to
34 Track a Crisis." *New York Times*, March 13. [www.nytimes.com/2010/03/14](http://www.nytimes.com/2010/03/14/weekinreview/14giridharadas.html)
35 [/weekinreview/14giridharadas.html](http://www.nytimes.com/2010/03/14/weekinreview/14giridharadas.html).
- 36 Gitelman, Lisa. 2014. *Paper Knowledge: Toward a Media History of Documents*.
37 Durham, NC: Duke University Press.
- 38

- 1 Goist, Park Dixon. 1974. "Patrick Geddes and the City." *Journal of the American*
2 *Institute of Planners* 40, no. 1: 31–37.
- 3 Government of India. 1995. *The Doon Valley Integrated Watershed Management*
4 *Program*. Dehradun, Uttar Pradesh: Government of India. NAT 11.1, PRC
5 Archive at IDS.
- 6 Guha, Ramachandra. 2014. *Gandhi before India*. New York: Knopf.
- 7 Guldi, Jo. 2012. *Roads to Power: Britain Invents the Infrastructure State*. Cam-
8 bridge, MA: Harvard University Press.
- 9 Hague, Cliff, and Arthur McCourt. 1974. "Comprehensive Planning, Public Par-
10 ticipation and the Public Interest." *Urban Studies* 11, no. 2: 143–55.
- 11 Hall, Budd. 1999. "Looking Back, Looking Forward—Reflections on the Interna-
12 tional Participatory Research Network." *Forests, Trees and People Newsletter*,
13 August. MET 1.12, PRC Archive at IDS.
- 14 Hall, Peter. 1980. *Great Planning Disasters*. London: Weidenfeld and Nicolson.
- 15 Hamdi, Nabeel. 1991. *Housing without Houses: Participation, Flexibility,*
16 *Enablement*. New York: Van Nostrand Reinhold.
- 17 Hamdi, Nabeel, and Reinhard Goethert. 1997. *Action Planning for Cities: A*
18 *Guide to Community Practice*. New York: Wiley.
- 19 Hamilton-Page, Michelle. 2015. "Harassmap's Research: 'Effectiveness of
20 Crowdsourced Data.'" Ushahidi (blog), March 11. [www.ushahidi.com/blog](http://www.ushahidi.com/blog/2015/03/11/harassmaps-research-effectiveness-of-crowdsourced-data)
21 [/2015/03/11/harassmaps-research-effectiveness-of-crowdsourced-data](http://www.ushahidi.com/blog/2015/03/11/harassmaps-research-effectiveness-of-crowdsourced-data).
- 22 Harvey, David. 2009 [1973]. *Social Justice and the City*. Athens: University of
23 Georgia Press.
- 24 Herlihy, Peter H., and Gregory Knapp. 2003. "Maps of, by, and for the Peoples
25 of Latin America." *Human Organization* 62, no. 4: 303–14.
- 26 Hinton, James. 2010. *Nine Wartime Lives: Mass Observation and the Making of*
27 *the Modern Self*. Oxford: Oxford University Press.
- 28 Hubble, Nick. 2006. *Mass Observation and Everyday Life: Culture, History,*
29 *Theory*. New York: Palgrave Macmillan.
- 30 Hussein, Karim. 1996. "Francophone and Anglophone Approaches to Local Peo-
31 ple's Participation in Development: PRA, MARP, and GRAAP; Origins, Moti-
32 vations, and Social Impact." Unpublished draft. MET 1, PRC Archive at IDS.
- 33 International Council for Adult Education and Public Enterprises Centre for Con-
34 tinuing Education. 1979a. "Introduction: Workshop on Participatory Research
35 for Development and Change, December 26, 1979, Agra." PR/Concept-R
36 /4a PR/PD, PRIA Archive.
- 37 ———. 1979b. "Regional Workshop: Participatory Research for Development
38

- 1 and Change, Guntur, Adhra Pradesh, December 26, 1979.” PR/Workshop
2 Reports, file no. 2, PRIA Archive.
- 3 Jha, Abhas Kuman, Robin Bloch, and Jessica Lamond. 2012. *Cities and Flood-*
4 *ing: A Guide to Integrated Urban Flood Risk Management for the 21st Century*.
5 Washington, DC: World Bank.
- 6 Johnson, William C. 1984. “Citizen Participation in Local Planning: A Compari-
7 son of US and British Experiences.” *Environment and Planning C: Govern-*
8 *ment and Policy* 2, no. 1: 1–14.
- 9 Jolly, Richard. 1989. “Dudley Seers (1920–1983): His Contributions to Devel-
10 opment Perspectives, Policy, and Studies.” *IDS Bulletin* 20, no. 3: 31–42.
11 doi:10.1111/j.1759-5436.1989.mp20003006.x.
- 12 Jones, Carolyn. 1994. “Historical Transects.” B: Tools: Calendars and Timelines,
13 5155, PRC Archive at IDS.
- 14 Kafka, Ben. 2012. *The Demon of Writing: Powers and Failures of Paperwork*.
15 New York: Zone Books.
- 16 Kain, Roger J. P. 1992. *The Cadastral Map in the Service of the State: A History*
17 *of Property Mapping*. Chicago: University of Chicago Press.
- 18 Kar, Kamal. 1997. “Participatory Impact Assessment of Calcutta Slum Improve-
19 ment Project.” Calcutta: Calcutta Metropolitan Development Authority. TOP
20 18.6, PRC Archive at IDS.
- 21 Kozlowski, Lori. 2012. “Rethinking Urban Settings: Riding Bikes and Mak-
22 ing Maps.” *Forbes*, April 6. [www.forbes.com/sites/lorikozlowski/2012/04/06](http://www.forbes.com/sites/lorikozlowski/2012/04/06/rethinking-urban-settings-riding-bikes-and-making-maps)
23 [/rethinking-urban-settings-riding-bikes-and-making-maps](http://www.forbes.com/sites/lorikozlowski/2012/04/06/rethinking-urban-settings-riding-bikes-and-making-maps).
- 24 Kumar, Krishna, ed. 1993. *Rapid Appraisal Methods*. Washington, DC: World
25 Bank.
- 26 Lankatilleke, Lalith. 1988. *Integrating Urban Livelihoods with Environmen-*
27 *tal Concerns in the Million Houses Programmes Settlements, the Case of*
28 *Colombo*. Colombo, Sri Lanka: National Housing Development Authority.
- 29 Le Billon, Philippe, and Angela Carter. 2012. “Securing Alberta’s Tar Sands:
30 Resistance and Criminalization on a New Energy Frontier.” In *Natural*
31 *Resources and Social Conflict: Towards Critical Environmental Security*,
32 edited by Matthew A. Schnurr and Larry A. Swatuk, 170–92. Basingstoke:
33 Palgrave Macmillan.
- 34 LEO Network (Local Environmental Observer Network). 2015. [www.leonetnetwork](http://www.leonetnetwork.org)
35 [.org](http://www.leonetnetwork.org) (accessed July 6, 2016).
- 36 Leson, Heather. 2012. “Ushahidi’s ‘Disruptive Deployers’: The People behind the
37 Stories.” PBS MediaShift, *Idea Lab* (blog), February 14. [mediashift.org/2012/02](http://mediashift.org/2012/02/ushahidis-disruptive-deployers-the-people-behind-the-stories044)
38 [/ushahidis-disruptive-deployers-the-people-behind-the-stories044](http://mediashift.org/2012/02/ushahidis-disruptive-deployers-the-people-behind-the-stories044).

- 1 ———. 2013. “Ushahidi: An Introduction to Anti-Corruption Mapping.” *Space*
2 *for Transparency* (blog), May 2. blog.transparency.org/2013/05/02/ushahidi
3 [-an-introduction-to-anti-corruption-mapping](http://blog.transparency.org/2013/05/02/ushahidi).
- 4 Lightfoot, Clive, et al. 1989. *Training Resource Book for Agro-Ecosystem*
5 *Mapping*. Manila: International Rice Research Institute; New Delhi: Ford
6 Foundation.
- 7 Linehan, Denis. 2003. “Regional Survey and the Economic Geographies of Brit-
8 ain, 1930–1939.” *Transactions of the Institute of British Geographers* 28, no.
9 1: 96–122.
- 10 Loewenberg, Samuel. 2012. “Mapping Toilets in a Mumbai Slum Yields
11 Unexpected Results.” *New York Times, India Ink* (blog), July 22. [india.blogs](http://india.blogs.nytimes.com/2012/07/22/mapping-toilets-in-a-mumbai-slum-yields-unexpected-results)
12 [.nytimes.com/2012/07/22/mapping-toilets-in-a-mumbai-slum-yields](http://india.blogs.nytimes.com/2012/07/22/mapping-toilets-in-a-mumbai-slum-yields-unexpected-results)
13 [-unexpected-results](http://india.blogs.nytimes.com/2012/07/22/mapping-toilets-in-a-mumbai-slum-yields-unexpected-results).
- 14 Lohr, Steve. 2012a. “BITS: Seeking Ideas for U.S. Defense.” *New York Times*, April
15 9. [query.nytimes.com/gst/fullpage.html?res=9D07E4D8153EF93AA35757C0A9](http://query.nytimes.com/gst/fullpage.html?res=9D07E4D8153EF93AA35757C0A9649D8B63)
16 [649D8B63](http://query.nytimes.com/gst/fullpage.html?res=9D07E4D8153EF93AA35757C0A9649D8B63).
- 17 ———. 2013. “N.Y.U. Center Develops a ‘Science of Cities.’” *New York Times*,
18 February 23. [www.nytimes.com/2013/02/24/technology/nyu-center-develops](http://www.nytimes.com/2013/02/24/technology/nyu-center-develops-a-science-of-cities.html)
19 [-a-science-of-cities.html](http://www.nytimes.com/2013/02/24/technology/nyu-center-develops-a-science-of-cities.html).
- 20 Long, Anthony Roger. 1976. “Participation and the Community.” *Progress in*
21 *Planning* 5, pt. 2: 61–134.
- 22 Malhotra, Shriya. 2012. “Participatory Maps for Inclusive Cities.” *The City*
23 *Fix* blog, March 7. thecityfix.com/blog/participatory-maps-for-inclusive-cities/.
- 24 Marwaha, Alka. 2008. “Web Tool Maps Congo Conflict.” BBC News, December
25 10. news.bbc.co.uk/2/hi/7773648.stm.
- 26 Mascarenhas, James. 1990a “Enhancing Participation in PRAs.” PALM Series
27 4:C., A: Participatory Approaches: Attitudes and Behavior.1462, PRC Archive
28 at IDS.
- 29 ———. 1990b. “Transects in PRA—Some Tips.” PALM Series IV:E., B: Tools:
30 Mapping.1495, PRC Archive at IDS.
- 31 ———. 1991. “Participatory Rural Appraisal and Participatory Learning Meth-
32 ods: Recent Experiences from MYRADA and South India.” *Forests, Trees and*
33 *People Newsletter* 15, no. 16: 10–17.
- 34 ———. 1996. “The Participatory Watershed Development Implementation Pro-
35 cess: Some Practical Tips Drawn from Outreach in South India.” D: Agriculture
36 and NRM: Soil and Water Conservation, 3044, PRC Archive at IDS.
- 37 Mascarenhas, James, and P. D. Prem Kumar. 1991. “Participatory Mapping
38 and Modelling: Users’ Notes.” International Institute for Environment and

- 1 Development. *RRA Notes*, no. 12: 9–20. Reprinted in *PLA Notes CD-Rom*
2 *1988–2001*: 1–9. <http://pubs.iied.org/pdfs/G01393.pdf>.
- 3 Massey, Doreen, and Alejandrina Catalano. 1978. *Capital and Land: Landown-*
4 *ership by Capital in Great Britain*. London: Edward Arnold.
- 5 Massey, Doreen, and Richard Meegan. 1979. “The Geography of Industrial Reor-
- 6 ganisation: The Spatial Effects of the Restructuring of the Electrical Engi-
- 7 neering Sector under the Industrial Reorganisation Corporation.” *Progress in*
8 *Planning* 10, pt. 3: 155–237.
- 9 Matless, David. 1999. “The Uses of Cartographic Literacy: Mapping, Survey, and
- 10 Citizenship in Twentieth-Century Britain.” In *Mappings*, edited by Denis Cos-
- 11 grove, 193–212. London: Reaktion Books.
- 12 McKibbin, Ross. 1990. *The Ideologies of Class: Social Relations in Britain,*
13 *1880–1950*. Oxford: Oxford University Press.
- 14 McKone, Jonna. 2010. “The Future of Sustainable Urban Mobility: Make
- 15 the Poor a Priority.” *TheCityFix* (blog), December 7. [thecityfix.com/blog](http://thecityfix.com/blog/megacities-on-the-move-make-the-poor-a-priority)
16 */megacities-on-the-move-make-the-poor-a-priority*.
- 17 Medina, Eden. 2011. *Cybernetic Revolutionaries: Technology and Politics in*
18 *Allende’s Chile*. Cambridge, MA: MIT Press.
- 19 Meier, Patrick. 2011. “Crisis Mapping Sudan: Protest Map of Khartoum.” Usha-
- 20 hidi (blog), January 31. [www.ushahidi.com/blog/2011/01/31/crisis-mapping](http://www.ushahidi.com/blog/2011/01/31/crisis-mapping-sudan-protest-map-of-khartoum)
21 *-sudan-protest-map-of-khartoum*.
- 22 ———. 2012. “How Crisis Mapping Saved Lives in Haiti.” *National Geo-*
23 *graphic, Voices* (blog), July 2. [voices.nationalgeographic.com/2012/07/02](http://voices.nationalgeographic.com/2012/07/02/crisis-mapping-haiti)
24 */crisis-mapping-haiti*.
- 25 Mercer, Neil. 1989. “Mass-Observation, 1937–40: The Range of Research Meth-
- 26 ods.” *Working Papers in Applied Social Research* 16. Manchester, UK: Uni-
- 27 versity of Manchester.
- 28 Milton Freeman Research Limited. 1976. *Inuit Land Use and Occupancy Proj-*
29 *ect: A Report*. Prepared under contract with the Department of Indian and
- 30 Northern Affairs. Ottawa: Minister of Supply and Services Canada.
- 31 Mukherjee, Neela. 2002. *Participatory Learning and Action: With One Hundred*
32 *Field Methods*. New Delhi: Concept Publications Corporation.
- 33 Murugesan, San. 2007. “Understanding Web 2.0.” *IT Professional* 9, no. 4: 34–41.
- 34 Nafziger, E. Wayne. 2006. “From Seers to Sen: The Meaning of Economic
- 35 Development.” United Nations University, World Institute for Development
- 36 Economics Research (UNU-WIDER), Research Paper 2006/20. Helsinki:
37 UNU-WIDER.
- 38 Narayan, Deepa, and Lyra Srinivasan. 1994. *Participatory Development Tool Kit*:

- 1 *Materials to Facilitate Community Empowerment*. Washington, DC: World
2 Bank.
- 3 ———. 2009. *Participatory Rural Appraisal: Principles, Methods, and Applica-*
4 *tion*. New Delhi: Sage Publications India.
- 5 Narayanasamy, N., and M. P. Boraian. 1997. *Towards a Rural Immersion: The*
6 *World Bank Journey*. Tamil Nadu: Gandhigram Rural Institute.
- 7 Nebert, Douglas, ed. 2004. *Developing Spatial Data Infrastructures: The SDI*
8 *Cookbook*. Version 2.0. Global Spatial Data Infrastructure (GSDI). [http://](http://gsdiassociation.org/images/publications/cookbooks/SDI_Cookbook_GSDI_2004_ver2.pdf)
9 [gsdiassociation.org/images/publications/cookbooks/SDI_Cookbook_GSDI](http://gsdiassociation.org/images/publications/cookbooks/SDI_Cookbook_GSDI_2004_ver2.pdf)
10 [_2004_ver2.pdf](http://gsdiassociation.org/images/publications/cookbooks/SDI_Cookbook_GSDI_2004_ver2.pdf) (accessed July 13, 2016).
- 11 Neuse, Steven M. 1983. "From Grass Roots to Citizen Participation: Where We've
12 Been and Where We Are Now." *Public Administration Quarterly* 7, no. 3:
13 294–309. www.jstor.org/stable/40861007.
- 14 "Not Only the Well Off but Also the Worse Off." 1993. Report of a PRA Training
15 Workshop, October 4–22, Chiredzi Zimbabwe. B: Tools: Mapping.1357, PRC
16 Archive at IDS.
- 17 Ogborn, Miles. 2007. *Indian Ink: Script and Print in the Making of the English*
18 *East India Company*. Chicago: University of Chicago Press.
- 19 Olivier de Sardan, Jean-Pierre. 1990. "Populisme développementiste et populisme
20 en sciences sociales: Idéologie, action, connaissance" ("Developmentalist
21 Populism and Populism in the Social Sciences: Ideology, Action, and Knowl-
22 edge"). *Cahiers d'études africaines* 120: 475–92.
- 23 Osborne, Thomas, and Nikolas Rose. 1999. "Governing Cities: Notes on the Spa-
24 tialisation of Virtue." *Environment and Planning D: Society and Space* 17, no.
25 6: 737–60.
- 26 Owen Driggs, Janet. 2013. "Fallen Fruit and the 'Thin End of the Wedge.'"
27 KCET, April 2. [www.kcet.org/shows/artbound/fallen-fruit-and-the-thin-end-of-](http://www.kcet.org/shows/artbound/fallen-fruit-and-the-thin-end-of-the-wedge)
28 [the-wedge](http://www.kcet.org/shows/artbound/fallen-fruit-and-the-thin-end-of-the-wedge).
- 29 Patel, Raj. 2013. "The Long Green Revolution." *Journal of Peasant Studies* 40,
30 no. 1: 1–63.
- 31 Pepler, George L. 1955. "Geddes' Contribution to Town Planning." *Town Plan-*
32 *ning Review* 26, no. 1: 19–24.
- 33 Pérez-Peña, Richard. 2007. "Big Medical Step, Starting with the City's Poor." *New*
34 *York Times*, April 16. www.nytimes.com/2007/04/16/nyregion/16info.html.
- 35 Pickles, John, ed. 1995. *Ground Truth: The Social Implications of Geographic*
36 *Information Systems*. New York: Guilford.
- 37 Prathan, R. S., N. J. Arul, and Mark Poffenberger. 1987. *Forest Protection Com-*
38 *mittees in Gujarat*. New Delhi: Ford Foundation.

Public Culture

- 1 Presthus, R. Vance. 1951. "British Town and Country Planning: Local Participa-
2 tion." *American Political Science Review* 45, no. 3: 756–69.
3 *Proceedings of the 1985 International Conference on Rapid Rural Appraisal.*
4 1987. Khon Kaen, Malaysia: Rural Systems Research Project and Farming
5 Systems Research Project for Khon Kaen University.
6 Reed, Linda. 1993. "Fannie Lou Hamer." In *African American Women in Amer-*
7 *ica: An Historical Encyclopedia*, edited by Darlene Clark Hine, 1: 518–20.
8 New York: Carlson.
9 Reid, Escott. 1973. "McNamara's World Bank." *Foreign Affairs* 51, no. 4:
10 794–810.
11 Reynolds, Josephine P. 1969. "Public Participation in Planning." *Town Planning*
12 *Review* 40, no. 2: 131–48.
13 Rhoades, Robert E. 1982. "The Art of Informal Agricultural Survey." A: Partici-
14 patory Approaches: RRA and early days of PRA, 1049, PRC Archive at IDS.
15 Robinson, Mike, Terry Garvin, and Gordon Hodgson. 1994. *Mapping How We*
16 *Use Our Land: Using Participatory Action Research*. Calgary, Canada: Arctic
17 Institute of North America, University of Calgary.
18 Röseberg, Martin. 1996. "Participatory Methodologies of Research and Survey in
19 Third World Rural Development." Reading, UK: University of Reading. MET
20 1. IDS Participation Resource Centre, University of Sussex.
21 Roy, Ananya. 2005. "Urban Informality: Toward an Epistemology of Planning."
22 *Journal of the American Planning Association* 71, no. 2: 147–58.
23 ———. 2009. "Civic Governmentality: The Politics of Inclusion in Beirut and
24 Mumbai." *Antipode* 41, no. 1: 159–79.
25 Ryzczynski, Witold. 1980. *Paper Heroes: A Review of Appropriate Technology*.
26 Garden City, NY: Anchor/Doubleday.
27 Rycroft, Simon, and Denis Cosgrove. 1995. "Mapping the Modern Nation: Dud-
28 dley Stamp and the Land Utilisation Survey." *History Workshop Journal*, no.
29 40: 91–105.
30 Sang-hun, Choe, and Claire Cain Miller. 2013. "Google Maps' New Target:
31 Secretive North Korea." *New York Times*, January 29. [www.nytimes.com](http://www.nytimes.com/2013/01/30/world/asia/google-maps-new-target-secretive-north-korea.html)
32 [/2013/01/30/world/asia/google-maps-new-target-secretive-north-korea.html](http://www.nytimes.com/2013/01/30/world/asia/google-maps-new-target-secretive-north-korea.html).
33 Schumacher, Ernst F. 1965. "Industrialization through Intermediate Technology."
34 In *Developing the Third World: The Experience of the Nineteen-Sixties*, edited
35 by Ronald Robinson, 85–105. Cambridge: Cambridge University Press.
36 ———. 1993. *Small Is Beautiful: A Study of Economics as If People Mattered*.
37 New York: Random House.
38 Scoones, Ian, and Jennifer A. McCracken, eds. 1989. *Participatory Rapid Rural*

- 1 *Appraisal in Wollo: Peasant Association Planning for Natural Resource Man-*
2 *agement*. London: International Institute for Environment and Development,
3 Sustainable Agriculture Programme.
- 4 Seers, Dudley. 1969. *The Brain Drain from Poor Countries*. Brighton, UK: Insti-
5 tute of Development Studies, University of Sussex.
- 6 ———. 1978. *Cultural Lag in Economics*. Brighton, UK: Institute of Develop-
7 ment Studies, University of Sussex.
- 8 Seers, Dudley, and Mike Faber, eds. 1972. *The Crisis in Planning*. Vol. 1, *The*
9 *Issues*. Vol. 2, *The Experience*. London: Chatto and Windus, for Sussex Uni-
10 versity Press.
- 11 Shah, Esha. 2009. “Manifesting Utopia: History and Philosophy of UN Debates
12 on Science and Technology for Sustainable Development.” STEPS Working
13 Paper 25. Brighton, UK: STEPS Centre.
- 14 Sharp, Tim. 1998. “Self-Defined Resource Management: Topographic Models
15 Support Sustainable Agricultural Development.” *Gate*, no. 5: 53–56. PRC
16 Archive at IDS.
- 17 Silverman, Jacob. 2015. *Terms of Service: Social Media and the Price of Constant*
18 *Connection*. New York: Harper.
- 19 Smith, Carl S. 1984. *Chicago and the American Literary Imagination, 1880–1920*.
20 Chicago: University of Chicago Press.
- 21 Society for Participatory Research in Asia. 1982. *Participatory Research: An*
22 *Introduction*. Toronto: Participatory Research Network, International Council
23 for Adult Education.
- 24 Summerfield, Penny. 1985. “Mass-Observation: Social Research or Social Move-
25 ment?” *Journal of Contemporary History* 20: 439–52.
- 26 Tandon, Rajesh. 1979. *A Report on the Asian Regional Meeting of Participatory*
27 *Research*. PR/Workshop Reports, file no. 2, PRIA Archive. New Delhi: Par-
28 ticipatory Research Project.
- 29 ———. n.d. “The Historical Roots and Contemporary Urges in Participatory
30 Research, an Abridged Version of the Keynote Address of Dr. Rajesh Tandon
31 in the International Symposium on Participatory Research in Health Promo-
32 tion Held at Liverpool School of Tropical Medicine, UK., September 1993.”
33 *PRIA Newsletter* 43: 2–4. MET 1, PRC Archive at IDS..
- 34 Taylor, Paul S. 1973. “The Law Says 160 Acres.” *People and Land* 1, no. 1: 21–22.
- 35 Thernstrom, Stephan, and Richard Sennett, eds. 1969. *Nineteenth-Century Cities:*
36 *Essays in the New Urban City*. New Haven, CT: Yale University Press.
- 37 Tulloch, David L. 2007. “Many, Many Maps: Empowerment and Online Partici-
38 patory Mapping.” *First Monday* 12, no. 2. [dx.doi.org/10.5210/fm.v12i2.1620](https://doi.org/10.5210/fm.v12i2.1620).

Public Culture

- 1 Turner, Fred. 2006. *From Counterculture to Cyberculture: Stewart Brand, the*
2 *Whole Earth Network, and the Rise of Digital Utopianism*. Chicago: Univer-
3 sity of Chicago Press.
- 4 Ulbricht, Melissa. 2012. "Al Jazeera, Ushahidi Join in Project to Connect
5 Somalia Diaspora via SMS." PBS MediaShift, *Idea Lab* (blog), January 6. www
6 .pbs.org/idealab/2012/01/al-jazeera-ushahidi-join-in-project-to-connect-somalia
7 -diaspora-via-sms003.
- 8 Vincent, David. 2011. "Government and the Management of Information,
9 1844–2009." In *The Peculiarities of Liberal Modernity in Imperial Britain*,
10 edited by Simon Gunn and James Vernon, chap. 11. Berkeley: University of
11 California Press.
- 12 Vismann, Cornelia. 2008. *Files: Law and Media Technology*. Translated by Geof-
13 frey Winthrop-Young. Stanford, CA: Stanford University Press.
- 14 Wade, Nicholas. 1975. "E. F. Schumacher: Cutting Technology Down to Size."
15 *Science* 189, no. 4198: 199–201.
- 16 Weaver, John C. 2003. *The Great Land Rush and the Making of the Modern*
17 *World, 1650–1900*. Montreal: McGill-Queen's University Press.
- 18 Weiner, Daniel, and Trevor Harris. 2003. "Community-Integrated GIS for Land
19 Reform in South Africa." *URISA Journal* 15, no. 2: 61–73.
- 20 Wood, Gordon. 1980. "The Social and Scientific Context of RRA." Paper pre-
21 sented at the Rapid Rural Appraisal Conference, University of Sussex, Bright-
22 on, UK, December 4–7. IDS Library Archive.
- 23 Youth for Action. 1989. *Report of a Participatory Resource Appraisal Held in*
24 *Kistagiri Village of Mahabub Nagar District*. Hyderabad: Youth for Action.
25 A: Participatory Approaches: RRA and Early Days of PRA.1042, IDS, esp.
26 Appendix 3–4, PRC Archive at IDS.

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35 **Jo Guldi** teaches history at Southern Methodist University in Dallas, Texas. She is the
36 author of *Roads to Power: Britain Invents the Infrastructure State* (2012) and, with David
37 Armitage, of *The History Manifesto* (2014). She is currently working on a history of land
38 reform movements since 1820.