S|S|S

ABSTRACT How does 'place' contribute to the credibility of scientific claims? The Chicago School of urban studies (1918–32) had close ties to the city for which it was named: its social scientists lived in Chicago, were affiliated with the University of Chicago, and made Chicago the object of almost all of their empirical research. In order for this city to become a legitimate source of claims about urban form and process, Chicago is textually made to oscillate between two available authorizing spaces. As a field-site, the city of Chicago becomes a found and uncorrupted reality, the singularly ideal place to do urban research, and requiring the analyst to get up-close and personal. As a laboratory, Chicago becomes a controlled environment where artificial specimens yield generalities true anywhere, requiring of the analyst distance and objectivity. The distinctive epistemic virtues of both field and laboratory are preserved as complementary sources of credibility, and Chicago becomes the right *place* for the job.

Keywords credibility, field-site, laboratory, place, sites of science, urban studies

City as Truth-Spot:

Laboratories and Field-Sites in Urban Studies

Thomas F. Gieryn

The *where* of science has come under increasing scholarly scrutiny. Geography and architecture are ever more frequently brought in as factors helping to explain the legitimacy of knowledge claims.[1] Scientific practices have been found to happen in many settings: gentlemen's houses, pubs, churches, royal court, museums, botanical gardens, zoos, clinics, spas, Siberia, sailing ships, agricultural experiment stations, nuclear weapons complexes, corporate research parks – and, of course, laboratories and field-sites.[2] These last two places have emerged over historical time as privileged truth-spots:[3] lab and field are understood to lend a special credibility (Shapin, 1995) to scientific claims.

Each locus is conventionally associated with distinctive epistemic virtues. Laboratory walls enable scientists to gain exquisite control over the objects of their analysis. Wild nature gets repositioned in a technical and cultural environment that gives all power to the investigators. Research materials are selectively let inside, and then they are filtered, made manipulable, sanitized, and tamed (Knorr Cetina, 1999: 27). Labs are designed to segregate out potential contaminants – both natural and human – and in

this sense they become 'placeless places', more or less free of the vicissi-
tudes and promiscuities of 'outside' (Kohler, 2002a: 192, 2002b: 473).
Inside, the hygienic mechanization of display, observation, intervention,
and inscription creates distance between the researcher and the researched,
allowing for a kind of mechanical objectivity (Daston & Galison, 1992).
The standardization of the design of laboratory spaces within a discipline
allows scientists at diverse locations to assume that the background ambi-
ent conditions here are equivalent to those elsewhere, removing suspicions
that experimental results might be due to some peculiar and unannounced
environmental factor.[4]

Scientific claims located in the field gain believability and persuasive-
ness in a different way. Field observations allow investigators to examine
reality before it has been made artifactual via laboratory interventions. The
field carries with it an idea of unadulterated reality, just now come upon.
Certain field-sites become unique windows on the universe, revealing only
at this place something that cannot be moved or replicated in the labo-
ratory. In such instances, 'being there' becomes an essential part of
claiming authority for an observation or discovery. In the field, an inevita-
ble lack of control becomes its own virtue. Scientists en plein air are more
likely to be open to surprises that might interrupt research expectations in
promising ways, if only because it is more difficult for the field-site to fence
out human and natural intrusions. Heroic researchers sometimes face
unexpected dangers in the field, and so the rare knowledge they bring back
assumes the authority of being especially hard-won (Hevly, 1996). Field
scientists often immerse themselves in a site for long periods of time,
developing embodied ways of feeling, seeing, and understanding – that
become analogs to the cold precise instruments of the lab.

However, the epistemic *risks* of fieldwork in science – a lack of
precision and control, peculiarities of a site that make generalizations
impossible, emotional attachments to 'my site' that introduce subjective
biases, endless distractions and contaminations – have led some scholars to
conclude that the field must in effect become a laboratory before it can
serve as an authoritative space for knowledge-making. The biological field
station thus becomes a mobile lab (Kohler, 2002c), the agricultural
experiment station becomes a lab-field hybrid (Henke, 2000), and, to push
the argument to the limit: 'For the world to become knowable, it must
become a laboratory' (Latour, 1999: 43; cf. Krohn & Weyer, 1994;
Bockman & Eyal, 2002; Gross, 2003). And yet, it is neither historically
inevitable nor logically necessary that laboratories *supplant* field-sites as
scientific truth-spots. In some scientific specialties, knowledge-claims gain
legitimacy by preserving and drawing on simultaneously – and in a
complementary way – the assumed distinctive virtues of both lab and
field.

Urban studies is just such a case. The city becomes, at once, the object
and venue of study – scholars in urban studies constitute the city both as
the empirical referent of analysis and the physical site where investigation
takes place. For this reason, urban studies becomes a propitious case for

exploring the emplacement of scientific claims, and (in particular) the relationships between the place where knowledge comes from and its bid for credibility.[5] The Chicago School dominated social scientific studies of the city in the USA during the early 20th century, and its scholars left behind an abundance of research monographs and manuals in research methods. I read those texts with less regard for their concrete findings and explanations about urban form or process, and with more interest in how authors constructed the city as a place where they located their investigations *and* as the entity revealed in their descriptions and theoretical explanations. An interesting rhetorical trope emerges: authors of the Chicago School oscillate between making Chicago (the city) into a laboratory and a field-site. On some occasions, the city assumes the qualities of a lab: a restricting and controlling environment, whose placelessness enables generalizations to 'anywhere', and which demands from analysts an unfeeling detachment. On other occasions, the same city becomes a field-site, and assumes different qualities: a pre-existing reality discovered by intrepid ethnographers who develop keen personal sensitivities to the uniquely revealing features of this particular place. As Chicago-the-city is textually shuttled back and forth between laboratory and field-site, the claims about metropolitan life by Chicago School authors take on credibility by being situated in the complementary legitimating languages of both truth-spots – lab and field.[6]

Today, the writings of the Chicago School seem so thoroughly 'modern'. Untroubled by relativism or ideological distortions of Truth, Chicago School members took for granted that the city of Chicago possessed an a priori, external and objective reality discoverable and describable by systematic scientific methods. Their studies surely would yield reliable and valid data capable of adjudicating among competing abstract theories of urban form and process. They borrowed without hesitation legitimating rhetorics from the natural sciences, by situating their claims in the field-site and the laboratory. Things have changed in urban studies: a loose bunch of critical postmodernists – the Los Angeles School – now approach their city skeptical of the presumed givenness and objective reality of the field, and cynical about the epistemic and political appropriateness of the laboratory as a site for social inquiry. My analysis ends with a brief epilogue on how the Los Angeles School pursues credibility by other means – in order to expose the historical particularity of the Chicago School's exploitation of lab and field.

Chicago School: Modern Epistemics of Place

The historiographic literature on the Chicago School of urban studies is huge, though serious scholarly attention begins only in the late 1960s.[7] Little has been written about the Chicago School that has not subsequently been challenged, denounced, or embellished – its membership, its substantive reach and even its periodization remain contentious. The 'golden years' of the School are sometimes listed as 1918–32, and there seems to

be general agreement that its scholarly activities peaked during the 1920s. Albion Small provided social and intellectual leadership in the formative years, but during its heyday, two central figures ran the show – Robert E. Park and Ernest W. Burgess. Near the end, leadership passed to their student, Louis Wirth. The substantive domain of 'the' Chicago School depends upon which history or reminiscence you read. There were social psychologists also involved in sociology at Chicago during these decades – famously, George Herbert Mead, and later, Everett C. Hughes – who were less interested in urban form and process. And, although the Chicago School took its city as the object of study, it may be too restrictive to say that they were only interested in 'urban studies'. Some would describe their substantive bailiwick as fully overlapping the discipline of sociology (or, even more encompassing, social science), with the city itself becoming a vehicle for studying criminology, deviance, inequality, racial and ethnic relations, markets, family, and organizations. There is even mention in the literature of a *second* Chicago School, rising just after World War II – about which nothing more will be said (Fine, 1995).

Why 'school', and why 'Chicago'?[8] The dynamo of researchers, teachers, students, and staff who gathered at the University of Chicago in the 1920s to study urban sociology reflexively constituted themselves as a 'school' of social science by establishing an institutional and organizational setting that routinized the production and reproduction of scholarly texts sharing certain methodological, conceptual, and political tendencies. Chicago Sociology was a shop: senior professors provided a theoretically coherent research agenda for a seemingly endless array of empirical studies then carried out by them or their graduate students. This selective list of books produced, more often alluded to than carefully read by sociologists today, gives a hint with their colorful titles of the range of topics within the School's ken: *The Hobo* (Anderson, 1923); *The City* (Park & Burgess, 1925); *The Gang* (Thrasher, 1927); *Family Disorganization* (Mowrer, 1927); *The Ghetto* (Wirth, 1928); *The Gold Coast and the Slum* (Zorbaugh, 1929); *The Jack-Roller: A Delinquent Boy's Own Story* (Shaw, 1930); *The Taxi-Dance Hall* (Cressey, 1932); *The Negro Family in Chicago* (Frazier, 1932). The organizational environment that enabled all this science was remarkably rich in resources – financial and otherwise. The University of Chicago, set in motion in 1892 with a US$35 million bequest from John D. Rockefeller Sr (and additional support from the Carnegie Corporation), was determined to establish a tradition of excellence in research and teaching that would exceed the accomplishments of older elite universities in the USA. Money was available to construct a stand-alone social science building that would house the Chicago School after 1929, with offices, seminar rooms, laboratories, data-rooms, and map-rooms – the renowned 1126 East 59th Street, still in use for much the same purposes today. Additional patronage came from the Laura Spelman Rockefeller Memorial to support the Local Community Research Committee, 'established to make social scientific findings relevant to community needs' (Kuklick, 1980: 843, n. 48). With the establishment of the University of Chicago

Press and especially the *American Journal of Sociology* (perhaps the most prestigious journal in the discipline), Chicago sociologists had ready access to the scholarly means of production. With such infrastructural abundance, it is no surprise that the Department of Sociology at the University of Chicago quickly ascended to disciplinary preeminence.

The Chicago School of urban studies nurtured a shared intellectual identity – although it was never so consolidated that it stifled certain methodological, theoretical and even political *tensions*. According to Andrew Abbott (1999: 196–97), the mark of Chicago School urban sociology was its unwavering interest in the situatedness of all social processes – the contextual location of social facts in space and time. Still, the contingencies of history and location did not prevent Chicago urban sociologists from pursuing a nomothetic model through which the metabolism of urban processes was knowable in a general and abstract sense – an example of one of those tensions. The 'model' was both ecological and evolutionist: urban social life could best be understood as embedded in geographic and material environments. Social patterns and processes – crime, delinquency, poverty, wealth, in-migrations of racial and ethnic minorities – were locatable as dots on detailed maps of Chicago showing 75 'natural areas' encompassing 300 neighborhoods. Fundamental ecological processes – perturbation and accommodation, competition and succession – were used to describe the dynamics of urban change, as (for example) when 'transitional zones' were shifting from residential to commercial, from middle to working class, from Jewish to Negro. *People* changed along with the cities in which they lived: Georg Simmel's (1971 [1903]) interest in the mental life of the metropolis was sustained by the Chicago School, and its members also variously deployed Ferdinand Tönnies' (1963 [1887]) distinction between gemeinschaft and gesellschaft to describe the mosaic of small traditional villages that comprise (not without disruption, and pain) the modern big city. The social scientific analysis of all of this – from urban form and process to changing subjective attitudes and values – required an eclectic array of empirical methodologies. More tension was created among members of the Chicago School by different emphases they placed on qualitative vs quantitative research; descriptions vs explanations (hypothesis-testing); objective vs subjective accounts (from the actors' point of view). Data came from many sources, and members of the School ruminated among themselves over the advantages of each: ethnographies; surveys; extended interviews; personal testimonies; and archives of public documents.

And it all came together in *Chicago*. The Chicago School was tightly connected to its home city, epistemically and politically. The School could loosely be characterized as liberal-reformist, and its fidelity with the can-do American pragmatism of the University of Chicago philosopher John Dewey led to considerable involvement with local social problems and politics. Its scholarship was often framed as ameliorist – not just an account of the slum, but an understanding that could eventually eliminate the squalor and vices that clustered there. But here too, another tension:

no matter how *useful* their work could be, Chicago School members may have felt that it was more important to make their claims and recommendations as scientific as possible – methodologically rigorous, conceptually coherent, empirically grounded. Their consistent efforts to distance Chicago School projects from the settlement work ('social work') of Jane Addams at Hull House may reflect their idea that doing-good can only come after getting-it-right (although sexism may be another viable interpretation) (Deegan, 1986). Chicago School urban studies were in Chicago, of Chicago, and about Chicago.

The Lab–Field Shuttle (Figure 1) is a handy way of summarizing how the Chicago School of urban studies made its truth-spot into a field-site and a laboratory, surrounding its claims about urban form and process with the valorizing authority of each kind of place. Their back-and-forth rhetoric may be analyzed in three heuristic dimensions. First, 'Chicago' as research object and location of analysis assumes a double ontological status. As field-site, the city becomes a 'natural' thing, with an a priori given reality whose existence does not depend on curious sociologists: it is *found,* and observed in exactly that original and unsullied state. However, suspended only in this untamed state, Chicago is not easily controlled and thus not readily knowable through the disciplined interventions of science. But the city is vastly more manipulable when it becomes a laboratory specimen, amenable to measurement, dissection, experiment, and other contrivances: Chicago now is *made,* under the microscope, with a scalpel. The laboratory lays bare what might be hidden or obscured when the urban sociologist confronts the real-world distractions of Chicago taken on its own terms, which potentially might compromise the researcher's ability to get it right. But the artificiality of making a specimen out of the holistic complexity of any city – always more than the sum of its splayed-for-view parts – carries its own epistemic anxieties, relieved by shuttling back in the other direction, from lab back to field (the oscillation is without end).

Second, field scientists must somehow justify their choice of the specific place where they peek at nature (or society), and ideally the justification should be more than convenience or expediency. The research site must be analytically strategic in that it uniquely displays certain forms or processes of great interest to science – or, at least, epitomizes those patterns.[9] Truth about cities will be found distinctively, efficiently, and most reliably *here*: Chicago is a singular setting whose historicity and particularities do indeed make it the 'right place for the job' of describing urban social life. Still, the Chicago School had more than parochial ambitions, and they were not content for their descriptions and interpretations only to be about Chicago. To generalize their findings, this city must become *anywhere* – a placeless place with underlying patterns that could be found in any metropolis. Now the peculiarities of Chicago are elided, as the city is made into a specimen of generic and universal 'urbanism', describable not in local details but with laws. Chicago is homogenized in the same way that labs in biology or chemistry become

FIGURE 1
Three Shuttles

field<-------------------->lab

found_____❶_____made

here_____❷_____anywhere

immersed____❸____detached

architectural clones of themselves – and location ceases to matter, in both instances.

   Third, field and lab position the analyst in different ways vis-à-vis the object of study, and they evoke dispositions that are distinctive to each truth-spot – but both, in their own way, legitimate the scientist's assertion of privileged access to the truth. The researcher gets *immersed* in the city as field-site, becoming familiar over time with its nuances through up-close and personal confrontations. There is room in the field for surprise, emotion, vulnerability, empathy – and any one of these subjective experiences can be turned into persuasive grounds for getting readers to believe what the emplaced observer reports. But subjectivity runs counter to the institutional logic of experimental science, which extols distance as a means to curtail bias, wish-fulfillment or even error. Along with the white lab coat comes a *detached*, objective view from nowhere. Elements of the city are manipulated in a passionless, mechanical and antiseptic way.

Found and Made

Texts of the Chicago School display a 'naturalizing move' in which the object of analysis – the city – is likened to the kinds of objects studied in the 'harder' sciences, a tactic likely to bolster the scientific legitimacy of these studies of social phenomena. Yet these sociologists cannot seem to decide whether the appropriate natural science model is an observational field science or an experimental laboratory science. Allusions to both are common. 'Field studies' (Burgess in Frazier, 1932: ix) – such as those

carried out by biological ecologists – are needed because the metabolism of the city is not unlike the patterns of invasion and succession that one observes as a pond fills in to become a swamp, or marsh, then a grassland, and finally a climax forest. 'Certain specialized forms of utilities and uses do not appear in the human community until a certain stage of development has been attained, just as the beech or pine forest is preceded by successional dominance of other plant species' (McKenzie, 1925: 74).[10] Roderick McKenzie suggests that 'urban ecologists' (as the Chicago School has come to be known in the literature in urban sociology) have some way to go before they will catch up with the stock of observational field studies carried out by biologists: 'there has developed no science of human ecology which is comparable in precision of observation or in method of analysis with the recent sciences of plant and animal ecology' (1925: 63). Less often, the Chicago School compared itself with another observational field science, a little closer to home, and less legitimate for that reason. Park writes in his Introduction to *The Gold Coast and the Slum*: 'it offers an example of a kind of investigation of urban life which is at least comparable with the studies that anthropologists have made of the cultures of primitive peoples' (in Zorbaugh, 1929: x).[11]

     Or is Chicago urban sociology more like the experimental laboratory-based investigations of the physical sciences? Chicago School texts are replete with mentions of the city as a 'social laboratory' (Park, 1929: 1, 15, 19) or 'out-of-door laboratory'.[12] The ghetto becomes a 'laboratory specimen' (Wirth, 1928: 287). Flattering comparisons are made between the social and natural sciences: 'In chemistry, physics, and even biology the subjects of study can be brought into the laboratory and studied under controlled conditions . . . The objects of social science research, as persons, groups, and institutions, must be studied if at all in the laboratory of community life' (Burgess, 1925a: 47). Sociologist Kimball Young, commenting on Thrasher's *The Gang*, compares statistical analyses with the controlled laboratory experiment: 'One may control statistical computations somewhat as the chemist, for example, controls his liquids or his gases in the apparatus of his laboratory' (1931: 520). Urban sociologists make use of investigative tools and instruments sort-of like those in the physical sciences, as when Burgess writes 'to put this area, as it were, under the microscope, and so to study in more detail and with greater control and precision the processes which have been described here in the large' (1925a: 62). So, Chicago is naturalized to become the kind of analytical object studied by those in both categories of 'real' science: observers in the field, experimentalists in the laboratory.

     The city also oscillates between a given thing found in 'nature' and a manipulated artifact of laboratory metrology. The Chicago School's unit of analysis is sometimes defined by patterns or processes observed in the phenomenon as it was found. Zorbaugh uses locational features (landmarks) 'to break up the city into numerous smaller areas, which we may call *natural areas*, in that they are unplanned, natural product of the city's growth' (1929: 231). A slum has this spontaneous character, writes Park:

'A region is called "a natural area" because it comes into existence without design, and performs a function, though the function, as in the case of the slum, may be contrary to anybody's desire. It is a natural area because it has a natural history' (1929: 9).[13] The word 'natural' gets used so much not only because the Chicago School sought to ride the coat-tails of the legitimate natural sciences, but also to create the sense that the object of its analysis was 'naturally occurring' – not made up in the course of inquiry. Cressey puts the taxi-dance in this category:

> The taxi-dance hall, like every other institution, has had a natural history. Its rise and evolution have been the product of certain natural forces, and in its evolutionary development it has followed a sequence of steps or 'stages', each the natural product of the previous one and yet preparing the way for that which was to follow . . . Unplanned and uncontrolled, the institution followed a definite line of development probably not entirely in keeping with the wishes of any single person participating in its growth. (Cressey, 1932: 177)

As field-site, Chicago is 'not . . . merely a physical mechanism and an artificial construction . . . it is a product of nature, and particularly of human nature' (Park, 1925: 1), a point echoed by McKenzie: 'human communities are not so much the products of artifact or design as many hero-worshippers suppose' (1925: 65). Moreover, 'Natural areas' have a holism that makes them more than the sum of their parts – and some texts insist that they must be studied as such. Vivien M. Palmer, one of the few women to be actively involved as authors in the Chicago School (Ruth Shonle Cavan published *Suicide* in 1928), wrote a how-to manual of research methods intended for the many graduate students embarking on their dissertations.

> Fundamental to the case-study method is the effort to view the different aspects of the problem as an organic, interrelated whole. The meaning of each factor is sought in terms of its relationship to other factors and in terms of its relationship to the results which are observed, for it is recognized that it is the study of factors as integral parts of different social situations, and not the study of these factors in isolation, that leads to the understanding of group behavior. (Palmer, 1928: 20)

'Social reality never presents itself in fragments', so that (Palmer continues): 'One of the most difficult problems in analysis is that of lifting specific facts from the context in which they appear without destroying their real meaning. Society can be compared to a fabric, not to a bundle of single threads, and it is in interrelationship, in interactions, that group life is manifested' (1928: 82, 203). Chicago was to be observed as in cinéma vérité – as it happens, where it happens.

Elsewhere, however, the city becomes something artificial – made in the lab to suit analytical necessities. 'The city is a purely artificial construction which might conceivably be taken apart and put together again, like a house of blocks' (Park, 1925: 4). For Burgess, the city is made into a specimen:

> If these mass of data are to yield their full value both for science and
> human welfare they must be collected upon vital and standardized units,
> by uniform and permanent districts, and continuously over long periods
> of time. Basic data so assembled and organized for research purposes
> furnish one of the indispensable conditions for a social science research
> laboratory. (1929a: 66)

Stuart A. Rice points out that in Clifford R. Shaw's studies of juvenile
delinquency, Chicago is gridded out into standardized data-collection
units:

> Two series of geographic units were employed in these calculations: first,
> *arbitrary* square-mile areas into which the city as a whole was divided;
> second, census enumeration districts, approximately one-quarter of a
> square mile each in extent . . . The delinquency rate within each unit area
> crossed was noted on the radial. (1931: 558, my emphasis)[14]

Shaw's work illustrates the oft-used 'dot maps' to display spatially the
incidence of a social phenomenon (delinquency, taxi-dance halls, and so
on) in square-mile cells imposed over the city itself. This contrasts with the
use of 'found' landmarks (specific streets, railroad tracks, parks) to delimit
'natural area' field-sites (Mowrer, 1927: 117; Shaw, 1929: 32). But here,
the given reality and wholeness of Chicago get chopped up as it is rendered
suitable for laboratory analysis – just like the Amazon rainforest in the
hands (machines) of the pedologists (Latour, 1999: Ch. 2). T.V. Smith, a
philosopher who served for a time on the Local Community Research
Committee (LCRC; Bulmer, 1984: 146), wrote in the edited collection
Chicago: An Experiment in Social Science Research: 'Scientific clarity in the
social field, as elsewhere, comes from the tearing apart of elements that go
to make a community. Whatever control arises from this method of
understanding is also logically and likely piecemeal' (1929: 224). In-
vestigators 'seek to isolate' (Park, 1925: 1) discrete causative 'factors'
(Burgess, 1929a: 60). Metrology reigns supreme now, not organicism: 'the
problem was to break up the Negro population into small enough units so
that these processes could be measured' (Frazier, 1932: 247–48).

But as a found field-site, Chicago is discussed in the almost reverential
tone of old-fashioned epistemological realism – obey reality! Palmer im-
plores her students to respect the pre-given: 'All science limits itself to
discovering and describing accurately the order which already exists in the
field which it is studying . . . Thus the social reality under study dictates to
a large extent the data which are selected' (1928: 4, 8).[15] Philosopher
Smith reminds us that Chicago is no illusion or mere construction, but a
priori: 'Social processes are real, and they go on whether we as individuals
will it or even know it . . . the wise scientist will respect his material' (1929:
222). Such injunctions translated into distinctive research practices. For
example, when Shaw reflects on his use of personal testimony in his study
of delinquent boys, the analyst is said to have had only the lightest touch in
shaping the story: 'By this method the document was secured with a

minimum of guidance and control on the part of the investigator, and the story necessarily followed the natural sequence of events in the life of the boy' (1930: 22). Credibility is pursued by returning the city and its residents to their original state – as if unmanipulated by the analyst, and as they really are. The sociologist observes and reports: more aggressive intervention would only maim reality, and control of it is beyond the power of social science. Herman M. Adler, for a time Director of the Institute for Juvenile Research at the University, carefully distinguishes naturally occurring 'experiments' from the stuff that goes on in laboratories – and valorizes the former: 'This volume [speaking of *Delinquency Areas*] deals with experiments which were performed by the circumstances of life itself, and not by an experimenter. The scientist supplies direction to these haphazard experiments by the skill and accuracy of his observations' (in Shaw, 1929: vii). Park (in Thrasher, 1927: n.p.) describes the slum as a 'wilderness', partly in the epistemic sense of a place not amenable to manipulative control by the analyst.

> The social sciences also depend upon observation, but ... they have met with relatively little success so far in their attempts to construct controlled social situations. Also, human beings are everywhere so continually performing their own experiments in group life that the investigator can always find social experiments of many kinds in progress: a systematic, contemporary, observation of these yields significant facts. (Palmer, 1928: 8)

Intervention, manipulation, and control are exactly the stuff of experimental science – and on other occasions, Chicago gets exposed on the laboratory bench. There is little need for investigators to wait for the people of Chicago themselves to create variations in behavior that would enable an ersatz experimental design. For Park, observation in the social sciences will eventually give way to experimentation: 'social science has achieved something that approaches in character a laboratory experiment. For the purpose of these experiments the city ... becomes ... a device for controlling our observations of social conditions in their relation to human behavior' (1929: 11). The payoffs from making the city into an experimental specimen are both scientific and practical. Park suggests that experiments will yield a more precise and reliable kind of knowledge about Chicago: 'in determining with more definiteness the conditions under which social experiments are actually being carried on, it will make the city in some more real sense than it has been hitherto a social laboratory' (1929: 15).[16] Just as important, experimental knowledge of the city will allow for efficacious solutions to its many social problems. After describing extant 'crusades against the taxi-dance hall' as marked by 'futility and stupidity', Burgess writes 'as Mr Cressey insists, the problem should be worked out experimentally and constructively in the light of the facts' (in Cressey: 1932: n.p.). The city is not just a laboratory, but also a 'clinic' (White, 1929a: 24–25) where the 'social engineer' (Jeter, 1929: 68) can engage in 'prediction' (Mowrer, 1927: 267) and 'diagnosis and treatment' (Smith, 1929: 227) of the city's ills. Harold F. Gosnell deploys a frankly

experimental design to figure out how voting could be 'stimulated' – complete with control groups, random sampling, interventions, artificial variations (Gosnell, 1927: 410–15). The 'wild, natural' city has been made in the laboratory and brought under experimental (and maybe political) control – its processes and people 'spread out and lay bare' (Park, 1925: 43, 45). And whatever artificiality might taint the sociological conclusions drawn from such controlled experimental studies is balanced (and thus forgotten) by Chicago as field-site – found, natural, given, merely observed, and real.

Here and Anywhere

Andrew Abbott re-tells an old Chicago School joke (2002: 35). When Ernest W. Burgess was invited to give talks to scholarly audiences, he displayed a map of Chicago showing the 'concentric zones' of different land uses radiating out from the Loop (Figure 2, at left) – what Mike Davis of the Los Angeles School would much later call 'the most famous diagram in social science' (1998: 364). Evidently, at one colloquium, a man in the audience asked Burgess: 'what's that blue line?' 'Oh', Burgess replied, 'that's the lake.' Not especially funny, but the joke does open up a credibility problem faced by the Chicago School. How did these social scientists justify their choice of Chicago as the almost-exclusive place where they studied urban form and process – and how did they avoid the inference that their discoveries were true only *here* in Chicago but not *anywhere* else? The map showing the squiggly lakefront is one of a pair of graphic representations that appear in Park and Burgess' programmatic masterwork *The City* (1925: 51, 55). The other shows just the labeled concentric zones, bereft of any locational particulars that would identify it as a map of Chicago. Each graphic contributes to the credibility of Chicago School claims, but in different ways. The map of Chicago (at left) begins to hint at the unique particulars of Chicago that will be used to make it a strategically chosen field-site for urban studies. The bull's-eye diagram (at right) is a universal theory of urban form said to be helpful for understanding cities anywhere – a placeless place (like a laboratory in the natural sciences) that has no geographic location or idiosyncratic material features. Burgess describes the abstraction on the right: 'This chart represents an ideal construction of the tendencies of any town or city to expand radially from its central business district.' But, looking at the map on the left, he writes: 'neither Chicago nor any other city fits perfectly into this ideal scheme. Complications are introduced by the lake front, the Chicago River, railroad lines, historical factors in the locations of industry, the relative degree of the resistance of communities to invasion, etc.' (1925a: 50–52).[17]

'Complications' are what make Chicago not just a handy and available place for observing city life, but – for the Chicago School – a *strategic* field-site. Chicago is different from other cities, and its peculiarities will become analytically salutary for a bunch of social scientists interested in urban

FIGURE 2
Chicago and Anywhere
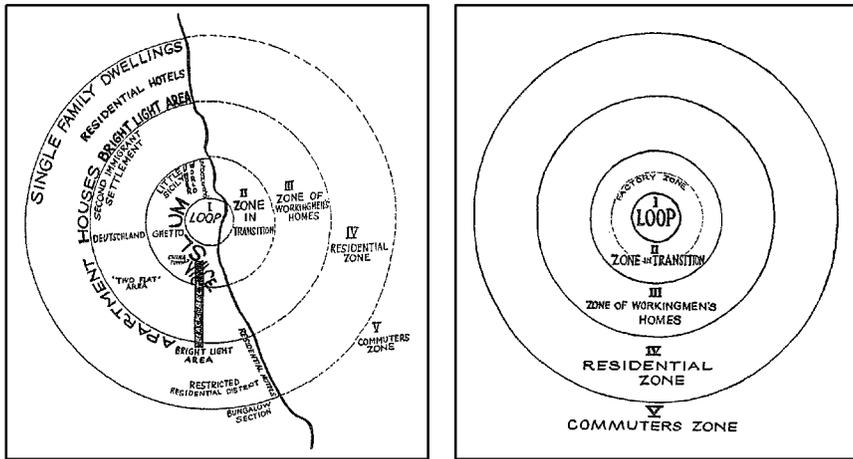
form and process. Park derives the 'individuality' of a city from 'character-istic products of the conditions of city life; each with its special experience, insight, and point of view' (1925: 14). Wirth is even more explicit: cities have their 'individualities and eccentricities' so that 'each city, like every other object in nature, is, in a sense, unique' (1925: 174, 175).[18] In addition, the distinctiveness of the specific neighborhoods or 'natural areas' that make up Chicago is frequently highlighted: 'Hobohemia, like every other cultural area, constitutes a social world with its own traditions, code of living, customs, and manners' (Burgess, 1929b: 129), and 'The Near North Side is not merely an area of contrasts; it is an area of extremes. All the phenomena characteristic of the city are clearly segregated and appear in exaggerated form' (Zorbaugh, 1929: 5–6). Park writes about the neigh-borhoods of Chicago by emphasizing the processes of individuation that call for the kind of field-based case study for which the Chicago School is remembered:

> In the course of time every section and quarter of the city takes on something of the character and qualities of its inhabitants. Each separate part of the city is inevitably stained with the peculiar sentiments of its population. The effect of this is to convert what was at first a mere geographical expression into a neighborhood, that is to say, a locality with sentiments, traditions, and a history of its own . . . The past imposes itself upon the present, and the life of every locality moves on with a certain momentum of its own, more or less independent of the larger circle of life and interests about it. (Park, 1925: 6)

Even the particular social patterns observed in Chicago are not like the same patterns as they might occur elsewhere: Cressey notes that his study deals 'with Chicago taxi-dance halls exclusively' and 'there is no certainty that developments in Chicago were typical in detail of other cities' (1932: 196, n. 1); Thrasher says that 'there are sharp contrasts in the nature of

gang activities in different environments' (1927: 256); Walter C. Reckless suspects that 'If Chicago's trends in vice are unique, further studies of conditions in other American cities will show the local variability' (1933: 1). It *mattered* that observations were done here in Chicago and not just anywhere, because Chicago and its constituent neighborhoods and social patterns are at least distinctive, and possibly unique.

The particularities of Chicago, as a place for finding the truth about how cities work, result in part from features of its natural topography. Chicago's rise to a modern metropolis depended in part on its adventitious location at a 'junction point between the Great Lakes transportation route and the Illinois-Michigan Canal which led to the Mississippi River' (Jeter, 1929: 72; for a historical account, cf. Cronon, 1991). Burgess (1929b: 120) and Palmer (1928: 221) add that the low-lying lands along the Chicago River offered prime sites for early industrial development, an area that eventually became the Canalport neighborhood. In addition, distinctive features of the built-environment created path dependencies that steered subsequent development of the city in unique ways, for example, the 'el' (elevated trains) and 'a few diagonal streets following the old plank roads' created 'barriers' between 'more or less isolated and self-sufficient communities' (Burgess, 1929b: 120, 122). Given the accumulation of constraints from both natural and built materialities (to say nothing about the cultural legacies that gradually grew up around various neighborhoods of the city), it is imperative for the urban analyst to situate observations in the historicity of the place – as Zorbaugh writes of the Near North Side:

> This teeming, shifting area, with its striking high-lights and deep shadows . . . is to be understood only in its past relation to the growth of the greater city. Its early history, consecutive movements of population, the encroachment of commerce and industry as the city crossed the river and sprawled northward, have all left their impress and have contributed to the establishment of these social distances within this 'community' in the inner city. (1929: 17)

So many of the Chicago School field studies include maps – usually of the whole city, with enough geographic features and landmarks to give the reader a sense of place. Breckinridge and White refer to a neighborhood map that was color-coded to show what sociologists would today call 'ethnic enclaves' – Polish communities here, Slovenians there, 'and recent Mexicans' (1929: 205–06). *Why* maps (which are, after all, relatively rare in the pages of sociology journals today)? Detailed maps of localities like Chicago augment social scientific analysis only if one assumes that the interpretation of observed forms and processes depends upon their being embedded *here* – at this location only, amid these geographical features and cartographic representations.

The spatial embeddedness of social life also compelled Chicago School analysts to include much 'local color' in their texts. Wirth's account of the ghetto hybridizes an Upton Sinclair novel and a tourist guide:

> Maxwell Street, the ghetto's great outdoor market, is full of color, action, shouts, odors, and dirt. It resembles a medieval European fair more than

the market of a great city of today . . . The noises of crowing roosters and geese, the cooing of pigeons, the barking of dogs, the twittering of canary birds, the smell of garlic and of cheeses, the aroma of onions, apples, and oranges, and the shouts and curses of sellers and buyers fill the air. (Wirth, 1928: 232–33)

Cressey's description of the taxi-dance is equally specific and vivid:

The Eureka Dancing Academy is lodged unimpressively on the second floor of a roughly built store building on an arterial street, but a half-block from an important street-car intersection. Only a dully lighted electric sign flickering forth the words 'Dancing Academy', a congregation of youths and taxicabs at the stairway entrance, and an occasional blare from the jazz orchestra within indicate to the passer-by that he is near one of Chicago's playgrounds. But a closer inspection reveals a portable signboard on which is daubed the announcement, 'Dancing Tonight! Fifty Beautiful Lady Instructors'. (Cressey, 1932: 4)

Shaw felt it important to mention that 'The air in the neighborhood is smoky and always filled with a disagreeable odor from the stock yards' (1930: 32). Such rich ethnographic details are useful for situating the credible observer *here* – in this specific field-site – and for reminding readers that such idiosyncrasies of place are significant for sociological understandings of *this* city.

Chicago was not just *different* from other cities. It was a preferred truth-spot for urban studies in that it epitomized – threw into high relief – patterns and processes that were of signal theoretical importance for social scientists. Examples abound: the Chicago School could not let the choice of Chicago as field-site appear to be the result of expediency. Frazier describes Chicago as 'an ideal place' for study because its 'Negro population' 'had increased rapidly with the growth of the city' and it 'is a cross-section of the Negro population in America' (1932: 256). Chicago is the right place to observe hobos because it is the 'greatest railway center in the United States' and because the city is 'a haven of refuge because of the large number of opportunities found here for free treatment' (Anderson, 1923: 12, 13). Wirth's ghetto 'contains what is probably the most varied assortment of people to be found in any similar area of the world' (1928: 195). Chicago 'both typifies and *epitomizes*' the 'high degree of disorganization' found in 'a great industrial and commercial metropolis' (Thrasher, 1927: 488, my emphasis).

At the celebration to mark the opening of '1126' – the Social Science building at the University of Chicago – anthropologist Franz Boas told the audience: 'Generalizations will be the more significant the closer we adhere to definite forms. The attempts to reduce all social phenomena to a closed system of laws applicable to each society and explaining its structure and history do not seem a promising undertaking' (1930: 96). His message surely fell on ambivalent ears. At one end of the shuttle, Chicago School urbanists could easily agree that ethnographic case-studies of specific field-sites – especially of Chicago – are the key to enlarged scientific understandings of urban form and process. Ground-truthing is always needed, as

when Palmer suggests that attempts to apply abstract models of 'zones of transition' require 'subsequent field investigation' (1928: 219). Or when Park cautions that surveys of 'local and contemporary history' 'emphasize what is unique and individual in the situations investigated . . . Conditions in one city . . . do not yield generalizations of wide or general validity' (1929: 7). But, at the other end of the shuttle, members of the Chicago School must have been impatient with Boas – for it was just as important for them that Chicago become 'anywhere', a source (but not an end) for interpretations, models, and theories that are true for all cities.

So it is that Wirth drops the other shoe, and emphasizes that Chicago School findings are intended to be detachable from the city of Chicago, and thus portable for subsequent applications elsewhere: 'Unlike the historian, [the sociologist] is not aiming to get the concrete facts of the rise and the decay of any particular city, but rather seeks to find in the study of the history of various cities the genesis of the typical city as a basis for the classification of types of cities and of social processes, irrespective of time and place' (1925: 170). His study of Chicago's ghettos is designed to 'furnish the basis for generalizations, for class concepts, and for socio-logical laws', and represents a 'searching for those more universal truths' (Wirth, 1928: 6).[19] Social scientists have forever been at war, it seems, over whether their science is idiographic or nomothetic, particularistic or uni-versal, about description or about explanation, based on case-studies or causal models – with no armistice in sight. Chicago urban sociologists skillfully played both sides of the fence by characterizing their city-of-choice simultaneously as the most revealing field-site available and also as a laboratory enough like cities anywhere to allow for the testing of abstract and universal hypotheses. Palmer suggests that the two metatheoretical ambitions are sequential: 'At present we are in an exploratory stage of our studies, and instead of testing universally accepted hypotheses merely to demonstrate their validity, as is done in most sciences, we are still attempt-ing to discover these basic, universally accepted analyses and reduce them to *laboratory* practice' (1928: 127, my emphasis). But there is no question for her where the Chicago School will end up (as with Wirth, Palmer simply erases the place of origin): 'sociology's aim is to abstract from these individual events the laws and principles of social interaction, irrespective of time and place' (1928: 23).

As Chicago is made into anywhere, authors slip into the vernacular of laboratory science. 'Each case may be assumed tentatively to display the common qualities of the species and may be treated as a specimen' (Palmer, 1928: 21).[20] For Wirth: 'By limiting the locus of observation and choosing the data of experimentation results may be obtained which have significance for a whole class, and not merely for the individual case' (1928: 7). A logic of 'generalization' (Palmer, 1928: 200, 205) transports claims from here to anywhere: 'Our task is to reduce the material to a form in which it is stripped of its unique character and becomes typical, or of general significance' (Wirth, 1928: 6–7).[21] Cressey's 'experiences and observations' of taxi-dance halls 'afford a reasonable basis for the validity

of the generalizations made' (1932: n.p. [Preface]). Gosnell's experiment on voter turnout has general implications beyond Chicago: 'There are many other municipalities in this country to which the experience of the city of Chicago would be applicable' (1927: 105).

Such generalizations about urban form and process depend upon the observation of typical patterns in Chicago that presumably would have been the same had the analyst been working in New York or Los Angeles. Examples of the typicalities of Chicago are ubiquitous. Burgess' 'concentric zone' model 'depicts what normally occurs in the development of a modern city' (Palmer, 1928: 219). Tönnies' transition from gemeinschaft to gesellschaft is also observed in Chicago, but 'holds good for the slum districts of most American cities, namely, that the slum is the outgrowth of the transition from a village to an urban community' (Wirth, 1928: 197). Chicago's ghetto 'is fairly typical of what happened in the last one hundred years in every urban center in the United States' (Wirth, 1928: 193), and also Chicago's gangs: 'typical of gangs elsewhere. Gangs are gangs, wherever they are found' (Park in Thrasher, 1927: n.p.). Even when Chicago is resolutely atypical – the blue line of Lake Michigan, the el, the odor of its stockyards – sociological models developed here will still be valid anywhere, but sometimes needing a little tweak: 'even though the concentric circle pattern would not hold in other cities, there would still be a process of division into types of areas similar to those described in Burgess' scheme' (Shaw, 1929: 20–21).

Immersed and Detached

Place is normative: certain behavior patterns and dispositions are expected from people in part because of where they happen to be. Conduct appropriate here may be 'out of place' in another setting (Goffman, 1959; Cresswell, 1996). In science, field-sites and laboratories have each developed their own demeanor, as analysts are differently positioned with respect to their research materials – and this has given rise to two distinctive geographies of credibility. Researchers in field-sites trade on being *near* to the objects of study, deeply among them; by contrast, scientists in laboratories draw on the validating virtues of distance – being *far* from nature (or society) in the raw, remote from its immediate distractions and potential compromises. Paradoxically, *near* and *far* can coexist as simultaneous registers of epistemic legitimacy – as in Georg Simmel's 'stranger', whose credibility comes from being *in* the group but not *of* the group (at once, both insider and outsider) (Simmel, 1971 [1908]). Members of the Chicago School manipulate the place of their studies in order to exploit both credibility-enhancing geographies, shifting their dispositions as they ride the shuttle back and forth: immersed in the field, detached in the lab.

When Chicago becomes a field-site, investigators put themselves where the action is. These ethnographers collect data that are 'even more valuable' because they are 'obtained from the first-hand observations of

contemporary events', never missing 'some relatively minute aspect' (Palmer, 1928: 91–92). These 'concrete observations' (Palmer, 1928: 98) are evidently hard-won, which may in itself enhance their persuasiveness: fieldwork is described as 'painstaking' (Palmer, 1928: 20; Shaw, 1930: 18). Park is remembered for imploring his students to go and see the streets of the city, by 'walking about the area and observing its more obvious characteristics . . . the real objective is to browse about the area, to become familiar with it, and to "get the feel of it"' (Palmer, 1928: 60).[22] Tourists also walk the streets, but they cannot come away with the 'fuller appreciation' enabled by a more sustained, deeper, and sensitive ethnographic experience (Young, 1932: 29).[23] Burgess says that Cressey had an 'entree into the social world of the taxi-dance hall such as the casual visitor never gains' (in Cressey, 1932: n.p.). It is important for Chicago sociologists to hit the streets, but it may be it is just as vital – for their professionalization and credibility – to distinguish the everyday pastime of walking from disciplined and systematic observations of the trained ethnographer. Much of Palmer's field-guide is dedicated to converting a walk in the neighborhood into a reliable tool of empirical social science.

What the tourist fails to achieve is an intimacy with observed subjects, which comes only from the investigator having penetrated *their* social world. I may have lost count of the number of times the relationship between the analyst and the subject was described by Chicago Schoolers as *intimate*: 'a more intimate study' (Park, 1925: 21); 'intimate contacts' (Palmer, 1928: 41); 'in all its intimate detail' (Zorbaugh, 1929: 270); 'unbiased and intimate picture' (Cressey, 1932: n.p.; also Frazier, 1932: 160); 'he came to know many gangs intimately' (Young, 1931: 519); 'intimate familiarity' (Rice, 1931: 552). The Late Latin root of the word 'intimate' translates as 'to put in', and that is exactly what must happen to the researcher vis-à-vis the community or neighborhood under study. 'Nearness' (Smith, 1929: 229) is a methodological asset for the fieldworker: it is important to have 'contact with the slum' (Ruml, 1930: 103), or to study the Negro family 'at closer range' (Frazier, 1932: 69), or 'to put one's fingers on the actual pulse of the community' (Palmer, 1928: 50). Park (1929: 3) writes that 'local studies of man in his habitat and under conditions in which he actually lives' have 'contributed most' to 'that realistic and objective character' of the social sciences.

The goal is to get inside the social world of research subjects, to see things from their point of view. In the footsteps of Max Weber's *verstehende soziologie*, Frazier hopes to gain 'insight into the meaning of the world to the migrant' (1932: 258), and Pauline Young wants 'to see the various social situations from the point of view of Molokan culture and evaluate them from the standpoint of Molokan standards, ideals, and purposes' (1932: 29). The word 'penetrate' (or its synonyms) occurs in Chicago School texts perhaps almost as often as 'intimate' – as when Park writes that Young was indeed 'able to penetrate into the inner sanctum of Molokanism' (in Young, 1932: xx). It was vital for Cressey to 'mingle' with folks at the taxi-dance hall, so as to become 'initiated into the meaning of

certain activities' (1932: n.p., 32). In order to 'penetrate deeply into the life of the group', the researchers must 'make a natural glide into their circle and be accepted more or less as one of them' – because 'a participant observer can obtain more revealing data concerning a group than an outsider' (Palmer, 1928: 106, 238, 107). So close is the 'personal relation between the collector and the objects of study' (Young, 1931: 520) that they become 'collaborators' (Young, 1932: ix) engaged in a 'conversation' (Palmer, 1928: 170).[24]

The ethnographer in effect becomes equivalent to the experimental instruments of the laboratory, and there seems to be little worry (on the field end of the shuttle) that the inevitable perspectivism will bias observations. Zorbaugh, in Little Sicily, turns his senses into recording devices:

> . . . the occasional dull boom of a bomb or the bark of a revolver, the shouts of children at play in the street, a strange staccato speech, the taste of soot, and the smell of gas from the huge 'gas house' by the river, whose belching flames make the skies lurid at night and long ago earned for the district the name Little Hell. (1929: 159–60)

Whereas in the physical sciences 'much of the technique is crystallized, standardized, and transmitted by the use of apparatus', this is impossible in the observational social sciences – so that researchers are 'under obligation to make an especial effort to record their experiences in techniques and to make them generally available' (Palmer, 1928: 159). 'Experiences' in the field will be richer and more informative if investigators draw freely on their 'existing background of practical knowledge' and 'common-sense distinctions' (Palmer, 1928: 13), and use their 'imagination' (Young, 1931: 522) in an 'introspective analysis' (Palmer, 1928: 163). Such subjectivities are assumed to be *useful* for connecting the world of science to the world of gangs or taxi-hall dancers – without corruption. Diaries become the preferred device for recording experiences because 'the person feels free to cast aside conventions and write in an intimate, unrestrained manner concerning his experiences', resulting in an 'intimate, informal portrayal of individual experiences' (Palmer, 1928: 181).

All of these intimacies and penetrations carry with them a set of dispositions and demeanors expected of the field-worker. The *patience* (Park, 1925: 3) of ethnographers is often measured by the extraordinary length of time they spend in the field: 5 years for Pauline Young among the Molokans (Park, in Young, 1932: xx), 6 years for Shaw among delinquents (1931: xii), and 7 years for Thrasher in the gangs (Young, 1931: 519). They are *open to surprise* and the unexpected: 'Research is never routine and mechanical; the investigator must always be alert to find new facts, must be open-minded' (Palmer, 1928: 45). Ethnographers must *surrender* to the swirl of events and people around them, following 'blind trails' and making 'unfruitful excursions' (Palmer, 1928: 6), or just '"fooling around", a leisurely taking of everything seen or heard' (Young, 1931: 521). Above all, a *compassion* for one's subjects is required. Philosopher Smith writes that 'Genuine social science should not in straining for

scientific exactitude wholly forget the need for solicitude' (1929: 227). 'Sympathetic insight' (Palmer, 1928: 163) is not enough for Shaw, who demands 'empathy': 'entering into the experience of another person by the human and democratic method of sharing experiences' (1930: 194–95).

These constructions of Chicago as a field flatter intimate methods by making invidious comparisons to experimental science (challenging the conclusion that laboratories had already won out as the privileged truth-spot for science). Maybe invoking an image of the vivisectionist, Smith writes: 'Contrary to the popular impression of science as cold-blooded, scientific research is the surest way to sustained imaginative warmth and appreciation' (1929: 220). Moreover, he continues, retreat to the isolation and detachment of the laboratory is certainly the wrong direction: 'self-knowledge cannot be got by social nescience, by withdrawal from the world. That way, as we now know, lies contraction and eventual atrophy' (Smith, 1929: 229). Admitting that the scientific validity of 'introspective accounts' is frequently challenged, Palmer fights back: 'these so-called subjective descriptions of life-experiences reveal indispensable facts about groups which can never be obtained from the observation of overt behavior alone' (Palmer, 1928: 8–9). Social reality can be 'obscured beneath statistics' (Frazier, 1932: 73), and the patient analysis of 'personal documents' can be 'more discerning though perhaps less exact' (Shaw, 1930: 2). And maybe even the 'exactness' of laboratory methods is exaggerated. After all, Helen Jeter writes (sounding like Shapin, 1994): 'Confidence in the method becomes largely a matter of confidence in the persons applying the method' (1929: 77).

But, of course, those invidious comparisons go in the other direction too – flattering the lab, instead of the field. Immersion can become a liability, not an asset (cf. Outram, 1996: 259–60): 'For he [the observer] is usually so submerged in the life of the group that it is difficult for him to observe its behavior in a detached, scientific manner' (Palmer, 1928: 107). Intimacy impedes not only observation, but also efficacy. Burgess suggests with reference to the failures of settlement workers: 'sympathetic understanding and intimate contacts failed to solve many of the actual problems of neighborhood work' (1925b: 142–43). Gosnell refers to an 'experiment' by McMillen and Jeter in which field observations were found to be 'not reliable because of a lack of standard terminology', and recommends that 'quantitative data lend themselves to analysis more readily than narrative material and are more likely to be free from personal bias' (1929: 90, 91–92). Palmer suggests that case study observations must be 'lifted from the "anecdotal" or "insight" level' (1928: 36). She writes that little is lost, in fact, when more reliable methods replace touchy-feely fieldwork: 'The formulation and standardization of research techniques does not interfere with the originality and initiative of the research worker, as is sometimes charged' (1928: 159).

Greater objectivity is linked to the representation of Chicago as a laboratory. Breckinridge and White describe some studies as 'objective and

thoroughgoing', finding 'in them an element of the experimental which more fully justifies characterizing the city as a laboratory' (1929: 194). The word 'objectivity' is found as often on the laboratory end of the shuttle as 'intimacy' and 'penetration' were found on the field end. Cressey starts out his study of taxi-dance halls with some 'personal impressions and reactions of the observer', but points out that 'a more objective treatment will be found in succeeding chapters' (1932: 4). Good research is 'characterized by impartiality and an objective point of view' (White, 1929b: 44), and it is achieved when the 'social sciences obtain what is an approximation of the controlled experiment in the method of the physical sciences' – when, of course, the city becomes 'a suitable and adequate laboratory' (Burgess, 1929a: 47).

Objectivity depends upon research methods that are machine-like in their accuracy and precision – eyes, ears, and noses are replaced by 'devices such as the dictograph and the motion-picture machine' (Palmer, 1928: 177), 'a galvanometer, a calculating machine, an electric sorting-and-counting-machine' and 'a specially constructed planimeter and a harmonic analyzer, both built by Coradi in Switzerland' (White, 1929a: 31). Objectivity and 'validity' are enhanced when investigators can take their empirical methods and 'reduce them to laboratory practice' (Palmer, 1928: 127) – deploying tools that are 'sharpened and standardized' (Palmer, 1928: 158), like statistics. A 'statistical . . . base' is needed for 'more precise measurements' (Jeter, 1929: 69), and 'statistical studies . . . brought out into clear relief certain distinctive characteristics' (Burgess, 1925a: 47). Not only is Chicago-the-city standardized into uniform units of analysis, but also analytic methods themselves are endowed with these same qualities. 'Techniques, ways of skillfully and efficiently handling problems in so standardized a manner that they can be communicated from one investigator to another, are necessary' (Palmer, 1928: 32).

Once moved to the laboratory, the Chicago School urban sociologist acquires a different set of dispositions – more 'far' than 'near'. Palmer talks about the 'detachment' evident when an investigator 'fails to become aroused or angry if the subject expresses an opinion contrary to his own' (1928: 175). Park (1929: 3) and Wirth (1925: 227) both describe the ideal laboratory worker as 'disinterested', while White (1929b: 33) and Burgess (in Cressey, 1932: n.p.) prefer 'impartial'. Indeed, the investigator seems almost to disappear altogether, somewhere behind a 'depersonalized account which can be duplicated by any other investigator who handles the same material' (Palmer, 1928: 9). Burgess praises Shaw for providing 'objective documents' 'for anyone, whatever his point of view, to analyze and interpret as he will' (in Shaw, 1931: 240), and Cressey touts the same epistemic virtue: 'independent reports from different observers . . . made possible a check upon the consistency of the documents obtained' (1932: n.p.). The scientist – so visible in the field, so apparent, so necessary, so penetrating – is erased from the laboratory of Chicago, replaced by method, machine, replication and interchangeable witnesses.

Epilogue: Los Angeles as Truth-Spot

In the eight decades since the apogee of the Chicago School, urban studies has taken more than a few theoretical twists and turns (reviewed in Walton, 1993; Sampson et al., 2002). One school prominent today is based in Los Angeles, and deploys a critical postmodernist perspective that raises doubts about the sturdy modernism of its Chicago ancestors. Mike Davis, Michael J. Dear, Allen J. Scott, Edward W. Soja, and others no longer have the field-site and laboratory available as authorizing spaces – even though these scholars still face the enduring task of making their claims believable. To cast Los Angeles as a field-site – presumably a found and unmediated reality just discovered – suggests an abhorred essentialism that denies a constitutive role for the observer and narrator. But neither can Los Angeles become a laboratory, with its conceits of control, sanitization, and objectification – a space more likely to foster domination than insight. The LA School still seeks credibility for its claims by rooting them in the city where its members live and work – but *epistemically*, Los Angeles becomes a vastly different kind of place than Chicago was for its School.

The LA School in effect empowers its readers by weakening its own claims to privileged readings of the city (the Chicago School never hesitated to point out the superiority of its scientific understandings over those of hoi polloi). The objective city of Los Angeles vanishes amid multiple coexisting and contested imageries – circulating among academics, politicians, activists, and ordinary people – as the LA School invites its audiences to co-construct the place. The city becomes a collaborative project, in which the texts of the LA School gain credibility as tools useful for helping you, the reader, fashion its features. In their words, Los Angeles is a hyperreality that is not 'ever completely knowable' (Soja, 1996b: 310), 'a mediated place whose reality ultimately depends on . . . discourses that have been produced by socially situated people' (Hunt, 2002: 327). 'Los Angeles itself prevents the birth of a single dominant narrative' (Cenzatti, 1993: 13), and Michael Dear is at pains to point out that he is not part of 'a cabal of regal theoreticians [who] issue proclamations about the way things really are' (2002a: 28). The Chicago School built its credibility on the *strength* of its ethnographic penetrations or experimental dissections – powers that only the scientists could possess. The LA School pursues credibility through a feigned *weakness*, offering up the city as an unrankable multiplicity of stories in which divergent truths are identified by you and me (with Dear's or Soja's help).

In order to justify its choice to examine Los Angeles in particular and also to make its claims seem applicable to other metropolises, the LA School constructs its city neither as unique nor typical (modernist tropes of the Chicago School). Rather, Los Angeles becomes a harbinger of what other US cities will become – a prototype for the urban future in general, a model predicting what eventually will happen elsewhere. Once Los Angeles was the 'least studied major city in the United States' (Dear, 2002a: 20), interesting only for its 'bizarre exceptionalism' (Soja, 1996a: 427). Now,

this 'polycentric, polyglot, polycultural pastiche' (Dear, 2002a: 6) becomes a 'paradigm' (Weinstein, 1996: 29), 'archetype' (Scott, 1996: 276), 'emblematic of our collective urban future' (Dear, 2000: 7), and 'prototopos' – literally, a place before (Soja, 1989: 191). Los Angeles is now the 'crystal ball' (Davis, 1990: 84), a believable place for doing urban studies not because it is immediately generalizable, but because the city hypothesizes processes expected to happen everywhere else. Begrudgingly perhaps, the deeply Chicago sociologist Andrew Abbott admits that 'were Park alive, he would without question be back in California' (2002: 34).

Finally, some members of the LA School make the city into a soap-box or bully-pulpit: in Los Angeles, Mike Davis sees 'the future . . . already turned rancid' (Davis, 1998: 354). The city is not a place just to observe or dissect (as Chicago was), but a place for everybody – including scholars in urban studies – to struggle over. Los Angeles is made into contested terrain, where groups with competing interests and varying amounts of power fight to win control over defining the place. In this discursive field, the credibility of claims by writers of the LA School depends upon their alignment with a reader's ideology. Plainly, Davis courts the have-nots (and those more advantaged audiences who sympathize with their plight). Field-sites may require immersion of the analyst, and laboratories demand detachment – but battlefields call for armed response. Davis calls Los Angeles a 'Book of the Apocalypse Theme Park' (1998: 7), with 'too many signs of approaching helter-skelter . . . zombie populations of speedfreaks, gangs . . . multiplying at a terrifying rate, cops . . . becoming more arrogant and trigger-happy' (Davis, 1990: 316). Blame is squarely placed on powerful evil-doers who somehow manage to benefit from the chaos. Davis describes developers as 'criminal', banks plot to 'rob the world', the energy sector lusts after 'superprofits' (2002: 139, 166, 415), and even worries about the natural environment become a 'hypocritical attempt by the rich to use ecology to detour Vietnam-era growth around their luxury enclaves' (1990: 173). For the Chicago School, the path to a just, caring and equal society went through their *science*: successful reform depended upon solid evidence and explanation, from the field or the lab. The LA School pushes aside this technocratic modernism in favor of immediate activism and mobilized resistance (Soja, 1996a: 458; Dear, 2002a: 22). Their credibility does not depend on some pre-political neutrality (à la Chicago). Instead: we are on your side, comrades in arms, so believe us.

Conclusion

This paper points to three conclusions – perhaps better thought of as pathways for future inquiry. First, although my analysis of the Chicago School suggests that 'place' should be added to the list of modulators of scientific credibility, it would be unwise to generalize loosely and widely from the case of urban studies. After all, most texts in the natural sciences never mention explicitly the geography or architecture of the circumstances in which inquiry was conducted (even though widely shared assumptions

about the fungibility of standardized labs here and anywhere are implicitly part of the assignment of credibility to experimental claims from distant places). Indeed, in many sciences, mention of the particulars of a place of inquiry becomes a delegitimating move. Cold fusion became more easily dismissed after Pons and Fleischmann began to suggest that 'ambient conditions' in their Utah lab might have produced results not replicated elsewhere. The question ahead is this: under what cultural conditions does place move from tacit background to explicit factor in quests for credibility in scientific claims-making? In urban studies, the city is both the *where* and the *what* of study – creating a discursive situation in which location, geography and situated materialities get foregrounded as ratifiers of believ-ability. Surely there are other such instances in the history of science.

Second, laboratories and field-sites need not necessarily assume a zero-sum relationship as competing truth-spots. For the Chicago School, scientific claims about urban form and process become more believable as the city itself is sequentially made into a laboratory and a field-site – and as the claims assume the epistemic virtues of those two authorizing spaces. Most of my empirical examples display the *textual* construction of Chicago. Future studies of how laboratories and field-sites figure in the production and consumption of scientific claims might benefit from perspectives developed in technology studies. It would be unfortunate if my analysis was taken to suggest that geographic location (spots on the globe) and the architectural/material formation of cities are consequential only as dis-cursive constructions, and that their existence as modulators of credibility was 'nothing but' textual. Such reductionism is neither implied nor de-sired. It is unhelpful, I believe, to think of *place* – in the context of knowledge-making – as merely proffered interpretations and narrations, or, for that matter, as merely the assemblage of people at a certain location. What if the laboratory heuristically became a *machine* – in the manner of Aramis (Latour, 1996), a Portuguese sailing vessel (Law, 1987), an electric vehicle (Callon, 1987), or a missile guidance system (MacKenzie, 1990)? One would want to examine the siting and especially the spatial design of laboratories (Shoshkes, 1989: 98–123; Joyce, 2004) – or field-sites, or any other truth-spot – as early but integral steps in the long chain of events that results, way downstream, in a scientific fact.

Third, an interest in the emplacement of legitimate knowledge cannot be limited to science – which is, after all, only one institutionalized tribunal for making authoritative claims about reality. The concept of truth-spot may be stretched to fit a wide variety of circumstances where believability and persuasiveness hang in the balance. I mentioned that the city of Los Angeles was fashioned as a bully-pulpit or soap-box – terms often used metaphorically, but terms that can also refer to concrete places where claims come from. For the devout, the pulpit becomes a place from which homilies take on special authority. Political pronouncements have different consequences when uttered from the street corner – or from the floor of an official parliamentary space. In the same way, assertions of historical fact

become less easily denied in the face of their materialization in monuments, memorials, and museums; assertions of ethnic identity become more solid when implanted in a place lived-in by a group for a long period of time; assertions of the authenticity of a work of art are sometimes settled by tracing the provenance of a piece back to its place of origin. In the emplacement of its practices – and in the construction and deployment of truth-spots to attest legitimacy – science is probably not the exception, but the rule.

Notes

1. For reviews of the literature connecting place to legitimate knowledge, cf. Galison & Thompson (1999), Gieryn (2002b: 45–51), Golinski (1998: Ch. 3), Jardine (2000: 274–87), Livingstone (2003), Markus (1993), Ophir & Shapin (1991), Shapin (1998), and Smith & Agar (1998).

2. The literature on diverse sites of scientific practice is approaching immensity. Here are some recent highlights (not including specific pieces from the edited volumes cited in note 1). On the gentleman's house: Shapin (1988); on pubs: Secord (1994); on churches: Heilbron (1999); on royal courts: Biagioli (1993); on museums: Findlen (1994), MacDonald (1998); on botanical (and other) gardens: Drayton (2000), Guerrini (2003), Mukerji (1997); on zoos: Burkhardt (2000), Hanson (2002), Rothfels (2002), Murray (2004); on clinics: Derksen (2000); on spas: Weisz (2001); on Siberian science-cities: Josephson (1997); on sailing ships: Goodwin (1995), Sorrenson (1996); on agricultural experiment stations: Henke (2000); on nuclear weapons complexes: Gusterson (1998), Masco (1999); on corporate research parks: Knowles & Leslie (2001), Wakeman (2003); on laboratories: Latour (1983), Hannaway (1986), Traweek (1988: Ch. 1), Cunningham & Williams (1992), Shackelford (1993), Galison (1997: 816ff.), Richmond (1997), Todes (2002), Silbey & Ewick (2003); on field-sites: Mitman (1996), McCook (1996), Outram (1996), Helford (1999), Rees (2001), Roth & Bowen (2001), Kohler (2002c), Waterton (2002), Lachmund (2003, 2004), Bonneuil (2004).

3. A 'truth-spot' (Gieryn, 2002a) is a delimited geographical location that lends credibility to claims. Truth-spots are 'places' in that they are not just a point in the universe, but also and irreducibly: (1) the material stuff agglomerated there, both natural and human-built; and (2) cultural interpretations and narrations (more or less explicit) that give meaning to the spot.

4. On the standardization of laboratory design, cf. Gieryn (1999: 430, 2002a: 125, 2002b: 55).

5. Other scholars have explored the relationships between science and cities. 'The city has been more than simply a location where science occurred. It has been a sociospatial setting affecting the production of knowledge in various ways: how scientists chose their research topics and framed them conceptually; how they organized their research practices; and how they articulated and stabilized certain beliefs as valid scientific claims' (Dierig et al., 2003: 2; cf. Forgan & Gooday, 1996; Aubin, 2003; Lafuente & Saraiva, 2004). For example, the city plays a role in the ratification of scientific claims by serving as a geographic magnet for trusted assessors – as was the case for Paris and clinical medicine in the years after the Revolution: 'European thinkers, scientists and physicians . . . sought the approval of the Paris scientific world as the ultimate arbiter of their work' (Weiner & Sauter, 2003: 24).

6. Urban studies is not the only science to make cities into field-sites and laboratories. The city of Old Canton became a field-site for late 18th-century British naturalists, who gathered specimens from its entrepôts (Fan, 2003). The standardization and collation of statistics (for example, geological, medical) used by 19th-century cartographers 'would be enough to qualify Paris as an admirable laboratory for the scientist and the administrator' (Picon, 2003).

7. Perhaps the most comprehensive and authoritative solo-authored history of the Chicago School is Bulmer (1984). More hagiographical is Faris (1967). Weighing in at more than one million words written by about 40 contributors and spread over four volumes, Plummer (1997) wins the elephantine prize. A review of Chicago School historiography, along with perhaps the best discussion of its intellectual legacy, is found in Abbott (1999). Kurtz (1984) offers a reliable gloss on Chicago School ideas and methods, along with an exhaustive bibliography of its written works. A useful analysis of its ethnographic field methods (especially for the early days) is provided by Hallett & Fine (2000). On the uneasy relationship between University of Chicago social scientists and the settlement movement of Jane Addams at Hull House, see Deegan (1986). Ethnic studies is given special treatment in Persons (1987). The transplantation of Chicago School sociology to McGill University and Canada is considered in Shore (1987). Kuklick (1980) provides an exceptionally good analysis of how evolutionist assumptions of Chicago School sociologists were used by bureaucrats to buttress urban planning policy. Pols (2003) discusses the connection between Chicago School sociology and psychiatry. Several works focus on specific figures: on Small, Dibble (1975); on Park, Lindner (1996) and Raushenbush (1979); on Wirth, Salerno (1987).

8. On 'schools' of thought in science, cf. Geison (1981), Servos (1993). On the features of Chicago – as city – that made it a propitious location for a school of urban studies, cf. Gieryn (2005), Hunter (1980).

9. Among field biologists, sites constructed as 'nature's experiments' – as John Muir described the Yellowstone basin – are choice 'places where observation and comparison reveal how nature works' (Kohler, 2002c: 213).

10. Burgess goes on to make an even more explicit identity between the city and the natural ecosystem: 'The processes of competition, invasion, succession, and segregation described in elaborate detail for plant and animal communities seem to be strikingly similar to the operation of these same processes in the human community' (1925b: 145). On ecological metaphors in Chicago School texts, cf. Gaziano (1996).

11. Elsewhere, Park connects Chicago School studies to two pillars of field-based anthropology:

> The same patient methods of observation which anthropologists like Boas and Lowie have expended on the study of the life and manners of the North American Indian might be even more fruitfully employed in the investigation of the customs, beliefs, social practices, and general conceptions of life prevalent in Little Italy on the lower North Side in Chicago, or in recording the more sophisticated folkways of the inhabitants of Greenwich Village and the neighborhood of Washington Square, New York. (1925: 3)

Other explicit mentions of 'field' studies include: Burgess (1925a: 62); Burgess (in Frazier, 1932: ix); Palmer (1928: 60, 219); Young (1931: 521).

12. Other mentions of the city as laboratory include: Breckinridge & White (1929: 194); Burgess (1929a: 47, 60–61, 63, 66); Burgess in Palmer (1928: vii, xvii); Palmer (1928: 176–77); Park (1925: 22, 45–46); Smith (1929: 221). Livingstone (2003: 35–37) describes Patrick Geddes' 'sociological laboratory' in 1892 Edinburgh.

13. Park says the same thing in his Foreword to Wirth's *The Ghetto*:

> The ghetto, as it is here conceived, owes its existence, not to legal enactment, but to the fact that it meets a need and performs a social function. The ghetto is, in short, one of the so-called 'natural areas' of the city . . . What have been called the 'natural areas of the city' are simply those regions whose locations, character, and functions have been determined by the same forces which have determined the character and functions of the city as a whole.
>
> The ghetto is one of those natural areas. (In Wirth, 1928: lxvi–lxvii)

14. These measurement strategies are similar to the 'quadrat' techniques developed by biological ecologists (Kohler, 2002c: 100ff.; Tobey, 1981: Ch. 3).

15. Palmer adds that whatever 'laws and generalizations' might eventually emerge from social research, they 'must be verified by discoveries of what really occurs in group life' (1928: 35).

16. In their influential textbook *Introduction to the Science of Sociology*, Park and Burgess amplify their views about the greater precision enabled by experiment:

> Sociology seems now, however, in a way to become, in some fashion or other, an experimental science. It will become so as soon as it can state existing problems in such a way that the results in one case will demonstrate what can and should be done in another. Experiments are going on in every field of social life, in industry, in politics, and in religion. In all these fields men are guided by some implicit or explicit theory of the situation, but this theory is not often stated in the form of a hypothesis and subjected to a test of the negative instances. We have, if it is permitted to make a distinction between them, investigation rather than research. (1921: 45)

17. Practices among life scientists that reduce the visual complexity of found reality via selective geometric simplifications are discussed in Lynch (1988) and, among geologists, in Rudwick (1976).

18. But, in the remainder of this extract, Wirth immediately rides the shuttle in the 'lab' direction (toward 'anywhere') by emphasizing the typical features common among types of cities, a point that he makes often: 'A scientific study of the city presupposes, however, that a study of a number of cities will reveal certain classes or types, the members of which have certain common characteristics which mark them off from other types' (1925: 175). That Wirth goes to both ends of the lab–field shuttle within the same text invites the conjecture that, for at least one member of the School, there is no contradiction involved in pursuing credibility from both directions at once. This situation also begins to suggest that characterizations of Chicago as either lab or field do not neatly align with specific authors or specific texts (or, indeed, with any other pattern that I could see): lab and field mingle within texts, and among different texts written by the same author. The situation may thus be a little different than the discursive *segregation* of 'contingent' and 'empiricist' repertoires in scientists' talk and texts analyzed by Gilbert & Mulkay (1984) – perhaps because lab and field complement each other in the pursuit of credibility, while contingent and empiricist seem more obviously contradictory.

19. Park writes much the same thing in his Preface to Anderson's *The Hobo*:

> It is assumed that the study here made of the 'Hobohemia' of Chicago . . . will at least be comparable with the natural areas and the problematic aspects of other US cities. It is, in fact, the purpose of these studies to emphasize not so much the particular and local as the generic and universal aspects of the city and its life, and so make these studies not merely a contribution to our information but to our permanent scientific knowledge of the city as a communal type. (In Anderson, 1923: vii–viii)

20. Wirth makes the Chicago ghetto into a specimen: 'If we knew the full story of the ghetto we would have a laboratory specimen for the sociologist that embodies all the concepts and the processes of his professional vocabulary' (1928: 287).

21. Using a now-archaic distinction between 'force' and 'factor', Burgess tries to separate local causes that are immediately visible in a concrete case from abstract causes having effects in any comparable situation:

> A factor is thought of as a concrete cause for an individual event; a force is conceived to be an abstract cause for events in general so far as they are similar . . . But as soon as the attention shifts from this one gang and this particular settlement to settlements in general and to gangs in general the transition is made from a factor to a force. A gang is a factor to a given settlement; the gang is a force from the standpoint of all settlements. (1925b: 143)

22. Zorbaugh took Palmer's instructions to heart: 'One has but to walk the streets of the Near North Side to sense the cultural isolation beneath these contrasts' (1929: 12). The contemporary significance of 'walking the streets' as a means to create the city as a meaningfully symbolic space was noted by de Certeau (2002). Mendelsohn (2003) traces the penchant of Alexandre Yersin (a 19th-century French microbiologist) for walking the streets of 'medieval' Paris as part of his scientific work back to the *flânerie* tradition, to the *plein air* tradition among painters, and to novels by Zola and others that depict the city before its Haussmannization.

23. Pauline V. Young was trained at Chicago and her book was published in the University of Chicago Press series, although she did her fieldwork among the Molokan community of Los Angeles.

24. The relationship between Shaw and Stanley, a jack-roller, could hardly be described as disinterested (for either party). Stanley says: 'He [Shaw] was very happy that I had come, and said that he would get a job and a new home for me' and 'he already had a new set of clothes for me, which I put on immediately' (Shaw, 1930:168). When reporting on field observations or other case study materials, the Chicago School researchers seem little worried that they might become too close to their subjects – with risks for the authenticity and sincerity of collected data. But this is exactly what the *laboratory* end of the shuttle – objectivity from detachment – is designed to obviate.

25. Key works from the Los Angeles School include: Cenzatti (1993), Davis (1990, 1998), Scott & Soja (1996), Dear (2000, 2002b), and Soja (2002). The LA School has begun to attract critical attention: Garber (1999), Miller (2000), Abbott (2002), Gottdeiner (2002), Molotch (2002), Monahan (2002) and Sampson (2002). Especially relevant for the study of Los Angeles as a truth-spot are Beauregard (2003) and Ethington & Meeker (2002).

References

Abbott, Andrew (1999) *Department and Discipline: Chicago Sociology at One Hundred* (Chicago, IL: University of Chicago Press).

Abbott, Andrew (2002) 'Los Angeles and the Chicago School: A Comment on Michael Dear', *City and Community* 1: 33–38.

Anderson, Nels (1923) *The Hobo* (Chicago, IL: University of Chicago Press).

Aubin, David (2003) 'The Fading Star of the Paris Observatory in the Nineteenth Century: Astronomers' Urban Culture of Circulation and Observation', *Osiris*, 2nd ser., 18: 79–100.

Beauregard, Robert A. (2003) 'City of Superlatives', *City and Community* 2: 183–99.

Biagioli, Mario (1993) *Galileo Courtier* (Chicago, IL: University of Chicago Press).

Boas, Franz (1930) 'Some Problems of Methodology in the Social Sciences', in Leonard D. White (ed.), *The New Social Science* (Chicago, IL: University of Chicago Press): 84–98.

Bockman, Johanna & Gil Eyal (2002) 'Eastern Europe as a Laboratory for Economic Knowledge: The Transnational Roots of Neoliberalism', *American Journal of Sociology* 108: 310–52.

Bonneuil, Christophe (2004) 'Beyond Risk: The Construction of GM-Crop Field Tests as a Social Problem in France', Conference paper, 4S/EASST, Paris, August.

Breckinridge, S.P. & L.D. White (1929) 'Urban Growth and Problems of Social Control', in T.V. Smith & Leonard D. White (eds), *Chicago: An Experiment in Social Science Research* (Chicago, IL: University of Chicago Press): 194–219.

Bulmer, Martin (1984) *The Chicago School of Sociology: Institutionalization, Diversity and the Rise of Sociological Research* (Chicago, IL: University of Chicago Press).

Burgess, Ernest W. (1925a) 'The Growth of the City: An Introduction to a Research Project', in Robert E. Park & Ernest W. Burgess (eds), *The City* (Chicago, IL: University of Chicago Press): 47–62.

Burgess, Ernest W. (1925b) 'Can Neighborhood Work Have a Scientific Basis?', in Robert E. Park & Ernest W. Burgess (eds), *The City* (Chicago, IL: University of Chicago Press): 142–55.

Burgess, Ernest W. (1929a) 'Basic Social Data', in T.V. Smith & Leonard D. White (eds), *Chicago: An Experiment in Social Science Research* (Chicago, IL: University of Chicago Press): 47–66.

Burgess, Ernest W. (1929b) 'Urban Areas', in T.V. Smith & Leonard D. White (eds), *Chicago: An Experiment in Social Science Research* (Chicago, IL: University of Chicago Press): 113–38.

Burkhardt, Richard W., Jr. (2000) 'Ethology, Natural History, the Life Sciences, and the Problem of Place', *Journal of the History of Biology* 32: 489–508.

Callon, Michel (1987) 'Society in the Making: The Study of Technology as a Tool for Sociological Analysis', in Wiebe Bijker, Thomas P. Hughes & Trevor Pinch (eds), *The Social Construction of Technological Systems* (Cambridge, MA: MIT Press): 83–103.

Cavan, Ruth Shonle (1928) *Suicide* (Chicago, IL: University of Chicago Press).

Cenzatti, Marco (1993) *Los Angeles and the L.A. School: Postmodernism and Urban Studies* (Los Angeles, CA: Forum for Architecture and Urban Design).

Cressey, Paul G. (1932) *The Taxi-Dance Hall* (Chicago, IL: University of Chicago Press).

Cresswell, Tim (1996) *In Place/Out of Place: Geography, Ideology and Transgression* (Minneapolis, MN: University of Minnesota Press).

Cronon, William (1991) *Nature's Metropolis: Chicago and the Great West* (New York: Norton).

Cunningham, Andrew & Perry Williams (eds) (1992) *The Laboratory Revolution in Medicine* (Cambridge: Cambridge University Press).

Daston, Lorraine J. & Peter Galison (1992) 'The Image of Objectivity', *Representations* 40: 81–128.

Davis, Mike (1990) *City of Quartz* (New York: Verso).

Davis, Mike (1998) *Ecology of Fear: Los Angeles and the Imagination of Disaster* (New York: Random House).

Davis, Mike (2002) *Dead Cities* (New York: The New Press).

De Certeau, Michel (2002) *The Practice of Everyday Life* (Berkeley, CA: University of California Press).

Dear, Michael J. (2000) *The Postmodern Urban Condition* (Oxford: Blackwell).

Dear, Michael (2002a) 'Los Angeles and the Chicago School: Invitation to a Debate', *City and Community* 1: 5–32.

Dear, Michael (ed.) (2002b) *From Chicago to L.A.: Making Sense of Urban Theory* (Thousand Oaks, CA: SAGE Publications).

Deegan, Mary Jo (1986) *Jane Addams and the Men of the Chicago School, 1892–1918* (New Brunswick, NJ: Transaction).

Derksen, Maarten (2000) 'Clinical Psychology and the Psychological Clinic', *History and Philosophy of Psychology* 2: 1–17.

Dibble, Vernon J. (1975) *The Legacy of Albion Small* (Chicago, IL: University of Chicago Press).

Dierig, Sven, Jens Lachmund & Andrew Mendelsohn (2003) 'Introduction: Toward an Urban History of Science', *Osiris,* 2nd ser., 18: 1–20.

Drayton, Richard (2000) *Nature's Government: Science, Imperial Britain and the 'Improvement' of the World* (New Haven, CT: Yale University Press).

Ethington, Philip J. & Martin Meeker (2002) '*Saber y Conocer*: The Metropolis of Urban Inquiry', in Michael Dear (ed.), *From Chicago to L.A.: Making Sense of Urban Theory* (Thousand Oaks, CA: SAGE Publications): 405–20.

Fan, Fa-Ti (2003) 'Science in a Chinese Entrepôt: British Naturalists and their Chinese Associates in Old Canton', *Osiris*, 2nd ser., 18: 60–78.

Faris, Robert E.L. (1967) *Chicago Sociology 1920–1932* (Chicago, IL: University of Chicago Press).

Findlen, Paula (1994) *Possessing Nature: Museums, Collecting, and Scientific Culture in Early Modern Italy* (Berkeley, CA: University of California Press).

Fine, Gary Alan (1995) *A Second Chicago School? The Development of a Postwar American Sociology* (Chicago, IL: University of Chicago Press).

Forgan, Sophie & Graeme Gooday (1996) 'Constructing South Kensington: The Buildings and Politics of T.H. Huxley's Working Environments', *British Journal for the History of Science* 29: 435–68.

Frazier, E. Franklin (1932) *The Negro Family in America* (Chicago, IL: University of Chicago Press).

Galison, Peter (1997) *Image and Logic* (Chicago, IL: University of Chicago Press).

Galison, Peter & Emily Thompson (eds) (1999) *The Architecture of Science* (Cambridge, MA: MIT Press).

Garber, J. (1999) 'Reporting from the Scene of the Accident: Mike Davis and the American City', *Studies in Political Economy* 60: 90–120.

Gaziano, Emanuel (1996) 'Ecological Metaphors as Boundary Work', *American Journal of Sociology* 101: 874–907.

Geison, Gerald L. (1981) 'Scientific Change, Emerging Specialties, and Research Schools', *History of Science* 19: 20–40.

Gieryn, Thomas F. (1999) 'Two Faces on Science: Building Identities for Molecular Biology and Biotechnology', in Peter Galison & Emily Thompson (eds), *The Architecture of Science* (Cambridge, MA: MIT Press): 423–55.

Gieryn, Thomas F. (2002a) 'Three Truth-Spots', *Journal of the History of the Behavioral Sciences* 38: 113–32.

Gieryn, Thomas F. (2002b) 'What Buildings Do', *Theory and Society* 31: 35–74.

Gieryn, Thomas F. (2005) 'Instrumentalities of Place in Science and Art', in Helmar Schramm, Ludger Schwarte & Jan Lazardzig (eds), *Instrumente in Kunst und Wissenschaft: Zur Architektonik kultureller Grenzen im 17. Jahrhundert* (Berlin: Walter de Gruyter) (In the Press).

Gilbert, G. Nigel & Michael Mulkay (1984) *Opening Pandora's Box: A Sociological Analysis of Scientists' Discourse* (Cambridge: Cambridge University Press).

Goffman, Erving (1959) *The Presentation of Self in Everyday Life* (New York: Doubleday).

Golinski, Jan (1998) *Making Natural Knowledge: Constructivism and the History of Science* (Cambridge: Cambridge University Press).

Goodwin, Charles (1995) 'Seeing in Depth', *Social Studies of Science* 25: 237–74.

Gosnell, Harold F. (1927) *Getting Out the Vote: An Experiment in the Stimulations of Voting* (Chicago, IL: University of Chicago Press).

Gosnell, Harold F. (1929) 'The Technique of Measurement', in T.V. Smith & Leonard D. White (eds), *Chicago: An Experiment in Social Science Research* (Chicago, IL: University of Chicago Press): 90–112.

Gottdeiner, M. (2002) 'Urban Analysis as Merchandizing: The "LA School" and the Understanding of Metropolitan Development', in J. Eade & C. Mele (eds), *Understanding the City* (Oxford: Blackwell): 159–80.

Gross, Matthias (2003) *Inventing Nature: Ecological Restoration by Public Experiments* (Lanham, MD: Lexington Books).

Guerrini, Anita (2003) 'Duverney's Skeletons', *Isis* 94: 577–603.

Gusterson, Hugh (1998) *Nuclear Rites: A Weapons Laboratory at the End of the Cold War* (Berkeley, CA: University of California Press).

Hallett, Tim & Gary Alan Fine (2000) 'Ethnography 1900: Learning from the Field Research of an Old Century', *Journal of Contemporary Ethnography* 29: 593–617.

Hannaway, Owen (1986) 'Laboratory Design and the Aim of Science', *Isis* 77: 585–610.

Hanson, Elizabeth (2002) *Animal Attractions: Nature on Display in American Zoos* (Princeton, NJ: Princeton University Press).

Heilbron, J.L. (1999) *The Sun in the Church: Cathedrals as Solar Observatories* (Cambridge, MA: Harvard University Press).

Helford, Reid (1999) 'Rediscovering the Presettlement Landscape: Making the Oak Savanna "Real"', *Science, Technology, & Human Values* 24: 55–79.

Henke, Christopher R. (2000) 'Making a Place for Science: The Field Trial', *Social Studies of Science* 30: 483–511.

Hevly, Bruce (1996) 'The Heroic Science of Glacier Motion', *Osiris*, 2nd ser., 11: 66–86.

Hunt, Darnell M. (2002) 'Representing "Los Angeles": Media, Space, and Place', in Michael Dear (ed.), *From Chicago to L.A.: Making Sense of Urban Theory* (Thousand Oaks, CA: SAGE Publications): 321–42.

Hunter, Albert (1980) 'Why Chicago? The Rise of the Chicago School of Urban Social Science', *American Behavioral Scientist* 24: 215–27.

Jardine, Nicholas (2000) *The Scenes of Inquiry* (Oxford: Oxford University Press).

Jeter, Helen R. (1929) 'Analyzing the Growth of the City', in T.V. Smith & Leonard D. White (eds), *Chicago: An Experiment in Social Science Research* (Chicago, IL: University of Chicago Press): 67–77.

Josephson, Paul R. (1997) *New Atlantis Revisited: Akademgorodok, the Siberian City of Science* (Princeton, NJ: Princeton University Press).

Joyce, Nancy E. (2004) *Building Stata: The Design and Construction of Frank O. Gehry's Stata Center at MIT* (Cambridge, MA: MIT Press).

Knorr Cetina, Karin (1999) *Epistemic Cultures: How the Sciences Make Knowledge* (Cambridge, MA: Harvard University Press).

Knowles, Scott G. & Stuart W. Leslie (2001) '"Industrial Versailles": Eero Saarinen's Corporate Campuses for GM, IBM and AT&T', *Isis* 92: 1–33.

Kohler, Robert E. (2002a) 'Place and Practice in Field Biology', *History of Science* 40: 189–210.

Kohler, Robert E. (2002b) 'Labscapes: Naturalizing the Laboratory', *History of Science* 40: 473–501.

Kohler, Robert E. (2002c) *Landscapes and Labscapes: Exploring the Lab-Field Border in Biology* (Chicago, IL: University of Chicago Press).

Krohn, Wolfgang & Johannes Weyer (1994) 'Society as a Laboratory: The Social Risks of Experimental Research', *Science and Public Policy* 21: 173–83.

Kuklick, Henrika (1980) 'Chicago Sociology and Urban Planning Policy: Sociological Theory as Occupational Ideology', *Theory and Society* 9: 821–45.

Kurtz, Lester R. (1984) *Evaluating Chicago Sociology* (Chicago, IL: University of Chicago Press).

Lachmund, Jens (2003) 'Exploring the City of Rubble: Botanical Fieldwork in Bombed Sites in Germany after World War II', *Osiris,* 2nd ser., 18: 234–54.

Lachmund, Jens (2004) 'Knowing the Urban Wasteland: Ecological Expertise as Local Process', in Sheila Jasanoff & Marybeth Long Martello (eds), *Earthly Politics: Local and Global in Environmental Governance* (Cambridge, MA: MIT Press): 241–61.

Lafuente, Antonio & Tiago Saraiva (2004) 'The Urban Scale of Science and the Enlargement of Madrid (1851–1936)', *Social Studies of Science* 34: 531–69.

Latour, Bruno (1983) 'Give Me a Laboratory and I Will Raise the World', in Karin D. Knorr-Cetina & Michael Mulkay (eds), *Science Observed* (London: SAGE Publications): 141–70.

Latour, Bruno (1996) *Aramis or The Love of Technology* (Cambridge, MA: Harvard University Press).

Latour, Bruno (1999) *Pandora's Hope: Essays on the Reality of Science Studies* (Cambridge, MA: Harvard University Press).

Law, John (1987) 'Technology and Heterogeneous Engineering: The Case of Portuguese Expansion', in Wiebe Bijker, Thomas P. Hughes & Trevor Pinch (eds), *The Social Construction of Technological Systems* (Cambridge, MA: MIT Press): 111–34.

Lindner, Rolf (1996) *The Reportage of Urban Culture: Robert Park and the Chicago School* (Cambridge: Cambridge University Press).

Livingstone, David (2003) *Putting Science in Its Place: Geographies of Scientific Knowledge* (Chicago, IL: University of Chicago Press).

Lynch, Michael (1988) 'The Externalized Retina: Selection and Mathematization in the Visual Documentation of Objects in the Life Sciences', *Human Studies* 11: 201–34.

MacDonald, Sharon (ed.) (1998) *The Politics of Display: Museums, Science, Culture* (London: Routledge).

McCook, Stuart (1996) '"It May Be Truth, But It Is Not Evidence": Paul du Chaillu and the Legitimation of Evidence in the Field Sciences', *Osiris,* 2nd ser., 11: 177–97.

MacKenzie, Donald (1990) *Inventing Accuracy* (Cambridge, MA: MIT Press).

McKenzie, R.D. (1925) 'The Ecological Approach to the Study of the Human Community', in Robert E. Park & Ernest W. Burgess (eds), *The City* (Chicago, IL: University of Chicago Press): 63–79.

Markus, Thomas A. (1993) *Buildings and Power* (London: Routledge).

Masco, Joseph (1999) 'States of Insecurity: Plutonium and Post-Cold War Anxiety in New Mexico, 1992–96', in Jutta Weldes (ed.), *Cultures of Insecurity* (Minneapolis, MN: University of Minnesota Press): 203–31.

Mendelsohn, J. Andrew (2003) 'The Microscopist of Modern Life', *Osiris*, 2nd ser., 18: 150–70.

Miller, D.W. (2000) 'New Urban Studies', *Chronicle of Higher Education* 46(50): A15–A16.

Mitman, Gregg (1996) 'When Nature *Is* the Zoo: Vision and Power in the Art and Science of Natural History', *Osiris,* 2nd ser., 11: 117–43.

Molotch, Harvey (2002) 'School's Out: A Response to Michael Dear', *City and Community* 1: 39–43.

Monahan, Torin (2002) 'Los Angelas Studies: The Emergence of a Speciality Field', *City and Society* 14: 155–84.

Mowrer, Ernest R. (1927) *Family Disorganization* (Chicago, IL: University of Chicago Press).

Mukerji, Chandra (1997) *Territorial Ambitions and the Gardens of Versailles* (Cambridge: Cambridge University Press).

Murray, Narisara (2004) *Lives of the Zoo: Charismatic Animals in the Social Worlds of the Zoological Gardens of London, 1850–1897*, PhD dissertation, Indiana University.

Ophir, Adi & Steven Shapin (1991) 'The Place of Knowledge: A Methodological Survey', *Science in Context* 4: 3–21.

Outram, Dorinda (1996) 'New Spaces in Natural History', in N. Jardine, J.A. Secord & E.C. Spary (eds), *Cultures of Natural History* (Cambridge: Cambridge University Press): 249–65.

Palmer, Vivien M. (1928) *Field Studies in Sociology: A Student's Manual* (Chicago, IL: University of Chicago Press).

Park, Robert E. (1925) 'The City: Suggestions for the Investigation of Human Behavior in the Urban Environment', in Robert E. Park & Ernest W. Burgess (eds), *The City* (Chicago, IL: University of Chicago Press): 1–46.

Park, Robert E. (1929) 'The City as Social Laboratory', in T.V. Smith & Leonard D. White (eds), *Chicago: An Experiment in Social Science Research* (Chicago, IL: University of Chicago Press): 1–19.

Park, Robert E. & Ernest W. Burgess (1921) *Introduction to the Science of Sociology* (Chicago, IL: University of Chicago Press).

Park, Robert E. & Ernest W. Burgess (eds) (1925) *The City* (Chicago, IL: University of Chicago Press).

Persons, Stow (1987) *Ethnic Studies at Chicago 1905–45* (Urbana, IL: University of Illinois Press).

Picon, Antoine (2003) 'Nineteenth-Century Cartography and the Urban Ideal in Paris', *Osiris*, 2nd ser., 18: 135–49.

Plummer, Ken (ed.) (1997) *The Chicago School: Critical Assessments*, 4 vols (London: Routledge).

Pols, Hans (2003) 'Anomie in the Metropolis: The City in American Sociology and Psychiatry', *Osiris*, 2nd ser., 18: 194–211.

Raushenbush, Winifred (1979) *Robert E. Park: Biography of a Sociologist* (Durham, NC: Duke University Press).

Reckless, Walter C. (1933) *Vice in Chicago* (Chicago, IL: University of Chicago Press).

Rees, Amanda (2001) 'Practising Infanticide, Observing Narrative: Controversial Texts in a Field Science', *Social Studies of Science* 31: 507–31.

Rice, Stuart A. (1931) 'Hypotheses and Verifications in Clifford R. Shaw's Studies of Juvenile Delinquency', in Stuart A. Rice (ed.), *Method in Social Science: A Case Book* (Chicago, IL: University of Chicago Press): 549–65.

Richmond, Marsha L. (1997) '"A Lab of One's Own": The Balfour Biological Laboratory for Women at Cambridge University, 1884–1914', *Isis* 88: 422–55.

Roth, Wolff-Michael & G. Michael Bowen (2001) '"Creative Solutions" and Fibbing Results: Enculturation in Field Ecology', *Social Studies of Science* 31: 533–56.

Rothfels, Nigel (2002) *Savages and Beasts: The Birth of the Modern Zoo* (Baltimore, MD: Johns Hopkins University Press).

Rudwick, Martin J.S. (1976) 'The Emergence of a Visual Language for Geological Science, 1760–1840', *History of Science* 14: 149–95.

Ruml, Beardsley (1930) 'Recent Trends in Social Science', in Leonard D. White (ed.), *The New Social Science* (Chicago, IL: University of Chicago Press): 90–111.

Salerno, Roger A. (1987) *Louis Wirth: A Bio-Bibliography* (New York: Greenwood Press).

Sampson, Robert J. (2002) 'Studying Modern Chicago', *City and Community* 1: 45–48.

Sampson, Robert J., Jeffrey D. Morenoff & Thomas Gannon-Rowley (2002) 'Assessing Neighborhood Effects: Social Processes and New Directions in Research', *Annual Review of Sociology* 28: 443–79.

Scott, Allen J. (1996) 'High-Technology Industrial Development in the San Fernando Valley and Ventura County: Observations on Economic Growth and the Evolution of Urban Form', in Allen J. Scott & Edward W. Soja (eds), *The City: Los Angeles and Urban Theory at the End of the Twentieth Century* (Berkeley, CA: University of California Press): 276–310.

Scott, Allen J. & Edward W. Soja (eds) (1996) *The City: Los Angeles and Urban Theory at the End of the Twentieth Century* (Berkeley, CA: University of California Press).

Secord, Anne (1994) 'Science in the Pub: Artisan Botanists in Early Nineteenth Century Lancashire', *History of Science* 25: 269–315.

Servos, John (1993) 'Research Schools and their History', *Osiris,* 2nd ser., 8: 2–15.

Shackelford, Joel (1993) 'Tycho Brahe, Laboratory Design and the Aim of Science', *Isis* 84: 211–30.

Shapin, Steven (1988) 'The House of Experiment in Seventeenth-Century England', *Isis* 79: 373–404.

Shapin, Steven (1994) *A Social History of Truth* (Chicago, IL: University of Chicago Press).

Shapin, Steven (1995) 'Cordelia's Love: Credibility and the Social Studies of Science', *Perspectives on Science* 3: 255–75.

Shapin, Steven (1998) 'Placing the View from Nowhere: Historical and Sociological Problems in the Location of Science', *Transactions of the Institute of British Geographers*, n.s., 23: 5–12.

Shaw, Clifford R. (1929) *Delinquency Areas* (Chicago, IL: University of Chicago Press).

Shaw, Clifford R. (1930) *The Jack-Roller: A Delinquent Boy's Own Story* (Chicago, IL: University of Chicago Press).

Shaw, Clifford R. (1931) *The Natural History of a Delinquent Career* (Chicago, IL: University of Chicago Press).

Shore, Marlene (1987) *The Science of Social Redemption: McGill, the Chicago School, and the Origins of Social Research in Canada* (Toronto: University of Toronto Press).

Shoshkes, Ellen (1989) *The Design Process* (New York: Watson-Guptill).

Silbey, Susan S. & Patricia Ewick (2003) 'The Architecture of Authority: The Place of Law in the Space of Science', in Austin Sarat, Lawrence Douglas & Martha Umphrey (eds), *The Place of Law* (Ann Arbor, MI: University of Michigan Press): 75–108.

Simmel, Georg (1971 [1903]) 'The Metropolis and Mental Life', in G. Simmel, *On Individuality and Social Forms* (Chicago, IL: University of Chicago Press): 324–39.

Simmel, Georg (1971 [1908]) 'The Stranger', in G. Simmel, *On Individuality and Social Forms* (Chicago, IL: University of Chicago Press): 143–49.

Smith, Crosbie & Jon Agar (eds) (1998) *Making Space for Science: Territorial Themes in the Shaping of Knowledge* (London: Macmillan).

Smith, T.V. (1929) 'Social Science Research and the Community', in T.V. Smith & Leonard D. White (eds), *Chicago: An Experiment in Social Science Research* (Chicago, IL: University of Chicago Press): 220–47.

Smith, T.V. & Leonard D. White (eds) (1929) *Chicago: An Experiment in Social Science Research* (Chicago, IL: University of Chicago Press).

Soja, Edward W. (1989) *Postmodern Geographies: The Reassertion of Space in Critical Social Theory* (New York: Verso).

Soja, Edward W. (1996a) 'Los Angeles, 1965–1992: From Crisis-Generated Restructuring to Restructuring-Generated Crisis', in Allen J. Scott & Edward W. Soja (eds), *The City: Los Angeles and Urban Theory at the End of the Twentieth Century* (Berkeley, CA: University of California Press): 426–62.

Soja, Edward W. (1996b) *Thirdspace: Journeys to Los Angeles and Other Real-and-Imagined Places* (Oxford: Blackwell).

Soja, Edward W. (2002) *Postmetropolis* (Oxford: Blackwell).

Sorrenson, Richard (1996) 'The Ship as a Scientific Instrument in the Eighteenth Century', *Osiris*, 2nd ser., 11: 221–36.

Thrasher, Frederic M. (1927) *The Gang* (Chicago, IL: University of Chicago Press).

Tobey, Ronald C. (1981) *Saving the Prairies: The Life Cycle of the Founding School of American Plant Ecology, 1895–1955* (Berkeley, CA: University of California Press).

Todes, Daniel P. (2002) *Pavlov's Physiology Factory: Experiment, Interpretation, Laboratory Enterprise* (Baltimore, MD: Johns Hopkins University Press).

Tönnies, Ferdinand (1963 [1887]) *Community and Society* (New York: Harper & Row).

Traweek, Sharon (1988) *Beamtimes and Lifetimes: The World of High Energy Physicists* (Cambridge, MA: Harvard University Press).

Wakeman, Rosemary (2003) 'Dreaming the New Atlantis: Science and the Planning of Technopolis, 1955–1985', *Osiris*, 2nd ser., 18: 255–70.

Walton, John (1993) 'Urban Sociology: The Contribution and Limits of Political Ecology', *Annual Review of Sociology* 19: 301–21.

Waterton, Claire (2002) 'From Field to Fantasy: Classifying Nature, Constructing Europe', *Social Studies of Science* 32: 177–204.

Weiner, Dora & Michael Sauter (2003) 'The City of Paris and the Rise of Clinical Medicine', *Osiris*, 2nd ser., 18: 23–42.

Weinstein, Richard S. (1996) 'The First American City', in Allen J. Scott & Edward W. Soja (eds), *The City: Los Angeles and Urban Theory at the End of the Twentieth Century* (Berkeley, CA: University of California Press): 22–46.

Weisz, George (2001) 'Spas, Mineral Waters, and Hydrological Science in Twentieth-Century France', *Isis* 92: 451–83.

White, Leonard D. (1929a) 'The Local Community Research Committee and the Social Science Research Building', in T.V. Smith & Leonard D. White (eds), *Chicago: An Experiment in Social Science Research* (Chicago, IL: University of Chicago Press): 20–32.

White, Leonard D. (1929b) 'Co-operation with Civic and Social Agencies', in T.V. Smith & Leonard D. White (eds), *Chicago: An Experiment in Social Science Research* (Chicago, IL: University of Chicago Press): 33–46.

Wirth, Louis (1925) 'A Bibliography of the Urban Community', in Robert E. Park & Ernest W. Burgess (eds), *The City* (Chicago, IL: University of Chicago Press): 161–228.

Wirth, Louis (1928) *The Ghetto* (Chicago, IL: University of Chicago Press).

Young, Kimball (1931) 'Frederic M. Thrasher's Study of Gangs', in Stuart A. Rice (ed.), *Method in Social Science: A Case Book* (Chicago, IL: University of Chicago Press): 511–27.

Young, Pauline V. (1932) *The Pilgrims of Russian-Town* (Chicago, IL: University of Chicago Press).

Zorbaugh, Harvey W. (1929) *The Gold Coast and the Slum* (Chicago, IL: University of Chicago Press).

Thomas F. Gieryn is Rudy Professor of Sociology and Adjunct Professor of History and Philosophy of Science at Indiana University. He is the author of *Cultural Boundaries of Science: Credibility On the Line* (University of Chicago Press, 1999). He is now writing *Truth-Spots*, a book about how places lend credibility to beliefs and claims in science, religion, art, law, politics, and other culture-producing practices.

Address: Department of Sociology, Indiana University, Ballantine Hall 744, 1020 East Kirkwood Avenue, Bloomington, IN 47405-7103, USA; fax: +1 812 855 0751; email: gieryn@indiana.edu