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Glass Ceilings and Sticky Floors: Drawing New Ontologies

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Abstract

How did the 'glass ceiling' and related characteristics of female labour force experience become recognised as a proper object for social scientific study? Exploring interactions between the contexts of discovery and justification reveals how this phenomenon was recognised and established by combining different forms of expertise and experience that came from both within and without the social scientific fields. The resulting object of study might well be described as embedding a 'civil or community ontology', for the intersections of facts and values in these different knowledge communities was equally important in defining the content of that object of research.

Keywords: knowledge communities; civil ontology
JEL Codes: B40 J7 J16 N30 Z13

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1. Introduction

How do social scientists come to recognize and establish a phenomenon, or group of related phenomena, to become a *bona fide* object of study for their fields? In such activity, how do facts get separated out and coalesce together in domains that are dominated by community-level values? And how do different kinds of knowledge, held by different kinds of communities with different values, play a role in defining those phenomena?

The notion that there is a recognizable divide between contexts of discovery and those of justification, has long seemed a straw man, blown away in practice by studies such as Shapin and Schaffer's account of uncovering the nature of a vacuum (1985), or Chang's more recent account of discovering the characteristics of boiling water (2004). Such accounts 'pass' successfully within all three of the history, philosophy and sociology of science communities. In such cases, as in the case discussed here of the "glass ceiling," discovery and justification are knit together. Discovering why women were not making it into top jobs depended upon social scientists in the late twentieth century working to establish a whole set of middle-level facts in which processes of justification were involved all along the way. But the distinction is not quite without merit, for it alerts us to see how this normal science activity involved not just establishing lots of middle-level facts, but entailed revealing, labeling, and conceptualizing these materials as evidence of a genuine phenomenon or phenomena. It was only after these many middle-level findings were successfully woven together in an account which related the main characteristics of the glass ceiling and outlined the (admittedly long list of) causes involved that social scientists become confident in talking about the *phenomenon*, singular, and without putting the tentative quote marks about it. These difficulties in both grasping the nature of the phenomenon and in weaving together an account stem in large part from the complex and open nature of the territory under investigation.

Discovery is a two-sided process involving both recognition that there is something to be investigated and the construction of an initial account of that something, which is where and why the elements and context of discovery and justification come together. (Of course the phenomenon might turn out to be an artifact, or that initial account might turn out to be wrong and need a lot more investment of normal science to establish it beyond doubt, but so it is with any discovery process.) Recognition is associated here with labeling: the introduction of a new terminology to describe the specific institutional processes experienced by women that resulted in unequal workplace outcomes. Since the social scientists used these labels as a way of framing the phenomenon for themselves, I use that labeling to tell an account of that process, and begin the story with events in the USA.

The attention to labels and names in this case also provoke some broader reflections about the ways in which the circulation of facts within a community depends on the values held by the community and the circulation of values within a community depends on the facts held by that community. Facts and values are constitutive of a culture, as illustrated by the cartoons presented in this paper. Of course cultures exist at different levels. In this case, transformation of values in the broader society prompted investigation of previously taken-for-granted facts about women's employment. But within the larger society, there were a number of different social science knowledge communities, each holding their own facts and each with their own values, where these labels and names provided an important means by which the glass ceiling phenomenon came to be described and recognized. I return to this matter at the end of the paper.

2: Recognizing the Glass Ceiling and Labeling its Elements

The glass ceiling was originally portrayed as a perception or experience of individual women in the world of business. The first use of the term "glass ceiling," according to the Oxford English Dictionary and most of the potted histories on and off the web, is to be found in a remark in the American *Magazine World/Adweek*, March 15, 1984: "Women have reached a certain point - I call it the glass ceiling. They're in the top of middle management and they're stopping and getting stuck." But this was not a throw-away remark, for its author, Gay Bryant, by this stage ex-editor of the magazine *Working Woman*, had used the term in the same year in a book-length analysis of the position of working women in America. This book not only drew on a wide variety of evidence, academic and public, but provided advice and information including an extremely useful appendix telling her readers about the laws on discrimination and how to file complaints under them.[2] Bryant is not sure whether she heard the term elsewhere, or made it up - it does not seem that the term was widespread in the mid-

[2] For the book usage, see Bryant 1984, 19; for the mythology, see 'The Glass Ceiling: Who Said That?' by Paige Churchman, at The Glass Hammer, http://www.theglasshammer.com/ (on April 9, 2009), a site that reports and advises women managers.

1980s, although it is difficult to know because the materials that were saved and searchable exclude much of the ephemeral and popular literature of the 1980s, a literature which now finds its place on the web.[3]

A more conscious and widely noticed use of the term was made in a 1986 *Wall Street Journal* 32-page special report on "The Corporate Woman" in America and this is where the social science story really begins. The cover story/lead article was entitled "The Glass Ceiling" and illustrated with a cartoon (Cartoon 1). The text drew on interviews with male and female managers, and on a variety of research projects undertaken in universities, by non-profit institutions, and executive recruitment agencies.[4] The *Wall St. Journal* writers, Carol Hymowitz and Timothy Schellhardt, approached the glass ceiling as "an invisible barrier that blocks them [women] from the top jobs". Their article detailed how few women there were in top management and blamed this glass ceiling on two things. One was the *beliefs* of male managers (whose views about the performance of women managers were often not born out by research, also quoted, on comparative male-female performance that found either little difference in the performance of male and female managers or that in some respects, women were more committed as managers). The second was male managers' *personal preferences* not to work with women. But they were wary about pronouncing how the glass ceiling was instituted and maintained, preferring to quote the program director at Catalyst, the main non-profit working in this field:[5]

> Up to a certain point, brains and competence work. But then fitting in becomes very important. It's at that point that barriers against women set in. (1986, 4D).

And, as the *Wall St Journal* writers suggested:

> Not only do senior women managers frequently find themselves pressing up against a glass ceiling, they also find themselves on display under glass. (1986, 5D)

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[3] The term seems to have been in sufficient circulation for it to be used without explanation - in a 1985 book review by Anne Firor Scott.

[4] For example, analysis was drawn from large-scale surveys undertaken by the American Management Association (AMA) and reported by Sutton and Moore (1985, in the prestigious *Harvard Business Review*).

[5] Catalyst, founded in 1962, sees itself as part of the modern feminist movement, but its own history http://www.catalyst.org/page/88/history gives little account of the important role it played in the 1980s and 1990s in research of glass ceiling issues (statistical work, surveys, and case studies) and in working to change the situation. Their research publications pop up in almost every bibliography and their name in almost every press report.

as we see in their accompanying cartoon.

In 1987, a book length research report into the corporate glass ceiling was published by Ann Morrison, Randall White and Ellen van Velsor, and the Center for Creative Leadership (another non-profit). They defined the glass ceiling as

> a transparent barrier, that kept women from rising above a certain level in corporations.... the glass ceiling applies to women as a group who are kept from advancing higher *because they are women* (1987, 13).

Their research was based on a substantial interview-based survey of women who were high up in, but not at the top of, the management tree in very large American corporations during 1984-5 (and their survey design was similar to a previous survey they had done of male executives so that the results could be comparable). They asked their female interviewees what was required in individual women to make it through the glass ceiling into general management (even if they then "hit the wall" which stopped them becoming CEO or chief financial officer) and what "derailed" them. The assumption seemed to be (held by both investigators and subjects) that there were some automatic, even natural, paths of promotion inside corporations, and they reported the individual women's voiced experiences at considerable length to illustrate how women were stopped on such paths.

Between the first and second edition of Morrison et al.'s book in 1992, as remarked in their new "Foreword," the "'glass ceiling' has become a household term" (1992, xi). This household recognition was doubtless part of a public sphere in which the term had gained currency but it also reflected a flurry of social science research activity of various kinds, sponsored and undertaken by a variety of agents, in different fields, for different reasons, and reported in a variety of formats.

The most significant of these public developments in the US context was the "Glass Ceiling Initiative," created in 1989 by Elizabeth Dole (and then taken over by Lynne Martin) at the US Department of Labor, apparently in response to these various earlier researches. This included their own Department funded *Workforce 2000* report of 1987, which had suggested that the rapid growth of the labor force of white males was slowing down and so future economic growth would depend on the way in which ethnic minorities and women might increase their share of the US workforce.[6]

[6] This report was undertaken by the Hudson Institute, an offshoot of the secularising activities of the Rand Corporation (with an address at Herman Kahn Center) - see Johnston and Packer,

It is important to this story that the Department of Labor was also responsible for ensuring that government contractors were compliant with the equal employment opportunity laws via its Office of Federal Contract Compliance Programs.[7] Their mandate was to ensure that contractors not only "do not discriminate" but that they take "affirmative action to actively recruit" from all sectors of the labor force and "to provide training and advancement opportunities for all employees" (US Department of Labor 1991, 4). The Department undertook a set of "compliance reviews" under the glass ceiling initiative, including a pilot study looking at nine individual companies from the Fortune 500 list and from different sectors of the economy.

The aim of the Department of Labor reviews was activist: to "identify systematic barriers to the career advancement of minorities and women" and then to work with the companies to eliminate them (1991, 3-4). The reviews themselves were strongly shaped by the requirements of compliance.[8] Whereas previous research had found the outcomes - namely that there were very few women in top management - and inferred that there must be barriers, these compliance reviews set out to look for - and at - the barriers directly. In order to do this, the review teams spent a lot of time figuring out how each corporation was organized and how it worked. They recognized that these corporate cultures all differed, yet they found evidence to identify a number of common institutional barriers: in promotion systems, in mentoring, in training, and in lack of high-level accountability within the company for equal employment opportunity issues, and so forth. These gave them the grounds not only to lay out recipes for compliance from those companies, but also created benchmarks for further compliance investigations that would reveal more about these barriers.

The Department's 1991 report documenting their work is critical to this story

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1987.

[7] Legal statutes against discrimination in employment had been part of the Civil Rights Act of 1964 (amended in 1972 and 1978; pay had been the subject of the Equal Pay Act of 1963), but the focus here appeared to be on discrimination at the hiring stage. The executive order of Lyndon Johnson that covered Federal Government contractors (on race discrimination in 1965, and sex discrimination in 1967), not only widened the discrimination net to include promotion, training etc. as well as recruitment but also introduced the "affirmative action requirement," namely that contractors were required to take action to ensure equity.

[8] A follow-up review returned to some of these companies to report on their progress in overcoming the barriers found - see US Department of Labor, 1992.

of recognizing the phenomenon of the glass ceiling in two related respects. It moved the definition on: the compliance reviews established the glass ceiling as:

> those artificial barriers based on attitudinal or organizational bias that prevent qualified individuals from advancing upward in their organization into management level positions (1991, 1)

"Artificial" can best be understood by contrasting with what might be termed "natural" barriers based on qualifications or career breaks which affected years of experience. At the same time, including "organizational bias" moved the frame beyond a sole or primary dependence upon individuals and their work relations (the "attitudinal" elements) and towards the *organizational*, or systemic, barriers within which individuals acted. This shift is particularly noticeable compared to Morrison et al.'s 1987 survey of the *experiences* reported by women who tended to locate the glass ceiling problem as lying in their own hands and/or in their relation to other individuals in their organization. Over 50,000 copies of this first 1991 report were distributed within the first year of publication,[9] which, like the earlier 1986 *Wall St Journal* report, now appears as a seminal moment in the documentation and acceptance of the glass ceiling phenomenon. As one reporter noted "Now even a conservative administration has certified that the glass ceiling is as real as steel."[10]

A direct outcome of the Glass Ceiling Initiative was the 1991 Glass Ceiling Act, introduced by Robert Dole (as part of the Civil Rights legislation of that year) which established The Glass Ceiling Commission as a more high profile platform in the American political sphere.[11] Of that Commission's two reports, the substantive one reporting its research, evidence and analysis, outlined a list of "Glass Ceiling Barriers" (1995a, 7-8 and 25-36) and grouped these barriers into three different sorts (1) those based in society, (2) those under the control of business, and (3) those that were the responsibility of government. The second group focused on what they called "internal structural barriers" which stopped those who had got into the organization (that is, who were in the pipeline) progressing up in those organizations. These reports were the result of commissioned research studies, focus groups, oral witness hearings, and so forth that were all part of the Commission's work. A the same time, there were a further 53 compliance reviews undertaken in 1993-94 by the Department

[9] Reported, Department of Labor 1992, 2.

[10] Reported from the News and Observer, Raleigh (NC), August 25, 1991 in Bullard and Wright, 1993.

[11] An excellent (perhaps insider's?) account of this commission is given by Boyd Childress in an entry "Glass Ceiling" in the online *Encyclopedia of Business*, 2nd edition.

of Labor.[12]

The early 1990s saw an explosion of research and a plethora of new terms associated with such glass ceilings. A *Wall St Journal* article of 1992 reported on the "glass walls" found in corporations (by the non-profit research group Catalyst) which identified the horizontal barriers that prevent women moving laterally in corporations.[13] A labor economist, Myra Strober from Stanford University, interviewed for this 1992 article pointed out that this was associated with a well-known phenomenon known as 'occupational segregation.' But once again it was the switch of attention that mattered here for Catalyst's research focus was not the occupational segregation per se, but the nature of the barriers - *between* occupations but *within* the same organization - that mattered for vertical moves. They found that corporate women needed to gain the right kind of lateral-move experience - usually into the profit centers of an organization (in manufacturing and selling) rather than service centers such as human resources (where they had tended to be hired and remain) - before they could gain vertical promotions. Bridges sideways were needed in order for women to reach vertical ladders, but in many companies there were no such bridges: the glass walls functioned to hold up the glass ceilings. In retrospect once again, such glass walls had been noticed but not fully recognized, labeled or systematically researched, in earlier analyses. Indeed, they can be found signaled both in the 1987 study by Morrison et al., and in the 1986 *Wall St Journal* special report.

Another significant term coined in the same year 1992 was Catherine Berheide's account of "sticky floors" in a report for the Center for Women in Government at SUNY. This research was done in response to all the focus on glass ceilings, for as she said in an interview the following year,

> "most women should be so lucky to have the glass ceiling as their problem. Many [women are] mired in .... the sticky floor." (Interview, Laabs 1993).

Based on a statistical study of women and ethnic minorities in state and local government, Berheide showed how most individuals in these employment fields were stuck in jobs with low pay with very limited possibilities for up or sideways movements. There were no career ladders within organizations for those stuck to the

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[12] Such activity was not only at Federal Level for there were also state and city level glass ceiling initiatives in these years – for examples of their activities see Johnson, 1995 and Chicago Area Partnerships, 1996.

[13] The newspaper article is Lopez 1992 about the Catalyst report (1992).

floor.

I focus on these three terms: glass ceilings, glass walls and sticky floors, as the most significant, but there were others. For example, “glass escalators” fast-tracked male candidates through the glass ceiling in predominantly female occupations, while the “double trap doors” of gender stereotyping caught the unwary women who behaved in too masculine or too feminine a way.[14] And so it went on. They were captured all together in Mary Guy’s 1994 account of ‘organizational architecture’ that drew together the wide range of social science and public literature that had built up on the separate elements.[15] What these terms and labels had in common was that they were the result of research that stopped looking at the individual men and women of organizations as individuals, and looked at the barriers - the elements of the organizations’ social and cultural architecture - that stopped women’s (and ethnic minorities’) employment mobility. This is not so say that these social scientists thought individual attitudes did not matter, but rather they argued that those attitudes were set within organizational structures and cultures which allowed individuals more or less freedom to affect - for good or bad - the career paths of themselves and of others.

3. Normal Science in the Midst of Discovery

Of course, I do not intend to suggest from my short history of the terminology and of the research that suddenly glass ceilings were a new phenomenon in the 1980s. Most of the experiences clustered under the terms of glass ceilings were commented upon earlier, and even analyzed, but - significantly - they did not used these labels and only rarely were they framed and understood in quite these ways.

In retrospect, it has become clear that the earlier study most salient for glass ceiling researchers (such as Morrison’s 1987 team) - precisely because it did make such a framing - was Rosabeth Moss Kantor’s *Men and Women of the Corporation* of 1977, which won the C. Wright Mills Award - an eminent social science book award -

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14 In the first *Wall St Journal* article we find this expressed as men are “quick to feel the woman who is tough isn’t being womanly, while the woman who isn’t tough isn’t worth having around,”, Hymowitz and Schellhardt 1986, 1D. The term glass escalators may have been around earlier, but was probably first used in a research paper by Christine Williams (1992).

15 Guy’s account in places conflates the outcomes with the barriers that create those outcomes.

that same year This “ethnographic study of a corporation,” as she described it, grew out of her discipline of sociology and her feminist experience as well as her work that crossed over the academic, consultancy and public service divides, a profile that was matched in the different sets of researchers working on the glass ceiling materials. Kantor’s study focused on the relation of the individual to the organization, and she discussed the various ways that men and women in various jobs experienced ceilings, got stuck, found themselves in dead end positions that had no ladders, and so forth. More important, she stressed that the main programs of the time (the 1970s) that attempted to resolve the problems of unequal workforce representation were bound to fail because they focused on changing individuals (making individual women more confident, individual men less prejudiced). In her view, these projects were based on a faulty analysis: those who assumed that

> “the factors producing inequalities at work are somehow carried inside the individual ..... are using the wrong model and drawing the wrong conclusions” (1977, 261)

The “wrong models” assumed that such inequalities were due to either nature or nurture: either women were different from men by nature (they were not so striving or competitive), or women were nurtured differently from men (so that they preferred not to be competitive or in positions of leadership): nature or nurture could equally explain why women did not make it to the top, but acting on either analysis with curative interventions would not solve the inequalities.[16] For Kantor, such problems could only be resolved at the organizational level for it was organizations that made individuals fit into their jobs, and created behavior patterns in them.

Clearly these barriers were not new, but there were two important connected contingent contexts that prompted their recognition as barriers in America at this time. One lies in the legislative context in American society. Following the earlier equal opportunity rights in employment legislation of the 1960s, there was an expectation that change would follow - that women and ethnic minorities would make it *into* the workforce so creating a “pipeline” that would over time feed them into positions *across* the occupations and *up* the hierarchies in proportions commensurate with their numbers in society. That is, the cohort effect would work itself out in the new generation of workers at *all levels*, to resolve the problem of unequal outcomes and to equalize not just employment *opportunities* but employment *experiences*. That

[16] In other words, the argument had been between biological or social/cultural determinism; see Fox Keller in the present volume for a discussion of cultural essentialism.

ambition, that hope, appeared thwarted: yes, women and ethnic minorities had made it into the workforce in much greater numbers, and even into middle management. The development of professional personnel managers using this new legislation had made a difference to the work experience of women and minorities.[17] But the *Workforce 2000* report commissioned by the Department of Labor (Johnston and Packer 1987) showed what was already widely known by experience - that those two groups were still mostly stuck in the sticky floor jobs

The second contingency lay in the flowering of the feminist movement in America during the 1970s and 1980s, with its catchwords that the 'personal is political' and its associated reliance on the value of personal experience.[18] Personal experience when voiced did not just raise consciousness within women as groups, but was understood to have the potential to transform society's values and so the position of women in society. While the Department of Labor was concerned that the country would run out of the right kind of worker, namely white males, it was the feminist movement that made the position of women in the labor market seem non-natural, a problem to be addressed rather than a normal state of affairs. Thus problematized, women's employment experience became an issue for society at large and so belonging on the political agenda.

Even when the phenomenon of the glass ceiling (as opposed to hierarchical or occupational segregation) appears to have become widely accepted as a social scientific phenomenon of many different communities and so recognized as part of the genuine experience of women (and ethnic minorities) in the labor market rather than - say - a 'figment' of women's imagination, this was not the end of the matter but the beginning. The problem with these glass ceilings and walls was that these barriers could not be *seen* from below or from above. The men above could no more see them as *institutional barriers* than could the women below. And for the research community studying the issues, even while the facts of limits to occupational mobility reported in these investigations were taken to confirm that such barriers must exist, the constitution of these barriers remained difficult to define and characterize when moving beyond the site in which they had been located, namely corporate America. This required a widening and deepening of research to identify the barriers, and to see how they operated in other parts of the economy, and even in other countries.

[17] See Dobbin 2009 (I am grateful to Claude Rosental for alerting me to this research).
[18] I thank Evelyn Fox Keller for a discussion of this point.

Research in this widening and deepening process was rarely straightforward. It was often unclear if researchers were giving different and inconsistent interpretations of evidence, or defining complementary characteristics for the same elements, or really had different accounts because they were looking at slightly different things. For one small example: the press/internet reported two academic studies, on successive days in 2010, using the term "glass cliff," a term which had come up in earlier labeling but lacked a stable meaning.[19] One study, reported the glass cliff as the fact that women in jobs traditionally held by men are watched more closely and when they make a mistake are blamed more severely. The other piece of research suggested that women were more likely to be chosen in a crisis if several men had already failed to clear it up, but would then be given less credit for solving it. Were these two sides of the same element, or in fact different characteristics of the broader pattern that makes up the glass ceiling?

Yet the very lack of stabilized understandings may be why the normal muddle of normal science stimulates - as here for the glass ceiling - a variety of accounts of the phenomenon that taken together extend scientific understanding of the phenomenon. A more extended example shows how this occurs, and it too starts from a labeling moment. While economists had been involved in the early 1990s work following up glass ceiling barriers to promotion in a variety of fields, and not always coming to the same conclusion - a new front opened up in the late 1990s and early 2000s which we can trace by following up the path of one particular influential paper. This paper - by the Australian labor economist Alison Booth working in Britain in conjunction with two collaborators: Marco Francesconi and Jeff Frank - was an analysis of British household survey data relating to the early 1990s. This representative data set covered all occupations and sectors, and though small in numbers surveyed, was rich in detail about the individuals. The title of the original working paper of 1998 was "Glass Ceiling or Sticky Floors" and the abstract expressed the authors' surprise that women were more likely to be promoted than men, though that difference disappeared when more information about the individuals was taken into account. But they also found that while women in this survey did not experience a promotion glass ceiling, they did not get such a large pay rise on

[19] One, December 8, 2010 by the *Christian Science Monitor*, referred to work published in *Psychological Science* and the other, December 9, 2010, by The Glass Hammer online (see note above), reported work published in the *British Journal for Social Psychology*.

promotion as men did: that is, women got through the glass ceiling but were stuck to that ceiling as a floor. They labeled the latter experience the "sticky floor" apparently unaware that the term was already in circulation, in America and Australia, to denote a broader problem with somewhat different characteristics - namely being stuck at the bottom of the wage and promotion pile of the whole distribution.

It is possible to trace the way in which this second notion of the sticky floor developed as these findings were taken up by PhD students, research assistants and those who worked in close contact with the original collaborators. This insider's map can be used to trace the process by which the facts found in the paper travelled around, taking this version of the sticky floor label along with the model that it utilized, to other economists working on women's employment in those years.[20] When the paper was published in 2003, the authors were no longer expressing surprise: by this time the mathematical model they used to explain their statistical facts had become accepted by the disciplinary community, and so the facts themselves no longer seemed peculiar.[21] Yet when the further trajectory of this work is followed, it is evident that the issue of pay became more seriously studied than promotion (probably because there are much better data sets on pay).[22] By investigating the male-female pay differentials first at the top of the distribution of all workers and then at the bottom of the distribution, in Europe and then elsewhere, economists added a set of characteristics to the glass ceiling phenomenon which had previously been concerned primarily with promotions. In the process, Booth et al.'s 1998 sticky floor notion in labor economics was revised to become coherent with - if not fully co-extensive with - the original label, which referred to the pay differential and lack of promotion prospects at the bottom of the whole distribution rather than at or near its top. At the same time however, economists' glass ceiling characterization became re-focused on the pay gap at the top of the scale, rather than on job titles or promotions or levels of

[20] I thank Alison Booth for taking me through the works that were prompted by her paper, and the relationships of those authors involved to the set of authors of her paper.
[21] On the role of models as knowledge carriers see Morgan (2011), while Morgan (2014) uses an example from industrial economics to make more generic claims about resituating knowledge. See also Mansnerus (2011) who shows how epidemiological models carry facts around public health and research sites.
[22] Sorting out the relationships between pay differentials and promotions is a tricky problem both for analysis of the statistical evidence and for mathematical modelling; this Booth et.al. paper is by no means the only account. It functions here as an important example using the glass ceiling terminology, whereas earlier economic modelling work had been done under the label of employers having "a taste for discrimination".

responsibility.

It is evident that labeling the different barriers was only a prelude to exploring causes, unraveling relationships between the elements, and searching for better descriptions, as social scientists mapped the glass ceiling's aspects and characteristics. This involved investigators from psychology, economics, sociology, management, and by those in related 'applied' or professional fields of public administration, personnel management, industrial relations and so forth. These diverse specialists circled around and over the various elements that went to make up the phenomenon, collecting evidence and testing hypotheses, to pin some elements down more firmly, disagreeing about others, and perhaps unpicking others in accordance with their own fields' standards of evidence and conceptual and theoretical predilections. The fact that these researches continue to go on is evidence that the phenomenon has been accepted as a genuine one for social scientists to investigate, to theorize about, to gather evidence on, and to develop specialized accounts of in different fields.

3. Labeling and Naming

We can see many of these same elements of recognition of the phenomenon, the initial accounts constructed to account for it, and the further research that followed, if we look at the Australian experience which paralleled many of the elements of US story but also proves revealing in somewhat different ways. In Australia too, these glass ceiling researches were prompted by feminist activism to focus on assessing the outcome of earlier legislative moves and with a similar expectation that the cohort effect would do away with "the problem" of women not making it up the promotion ladders - but this expectation had proven wrong just as it had in the USA. So, in common with the American story, there was parallel set of private-public sector activities both to investigate the phenomenon and take action to alter the situation, although in Australia, the net of sites for investigation was focused not around corporate life, but on service industries such as finance, education, and particularly government services. The Australian literature took up and used the American terminologies of glass ceilings, walls and sticky floors and referred to a wide selection of the American literature on these topics that I have referred to above in Section 2.

Australian social scientists also brought something different to the investigations: an attitude which was more openly argumentative in the academic sphere and openly aggressive in the public domain too (see Cartoon 2 from *The*

Australian). For example, a 1995 volume of essays on gender in education management appeared at first sight - from its list of contents and its Foreword - to be the work of feminist activists:

> What has been our collective experience as women in the reform movement? Three decades and one of the most significant feminist movements in recorded history, a restructured public sector with affirmative action policies and anti-discrimination watchdogs. But has there been a fundamental change? (Foreword, Limerick and Lingard, 1995)

Yet the list of contributors produced people that we associate with belonging to "the establishment."

One such was Leonie Still, an authoritative writer on corporate women in Australia and the first female dean of a business school in that country, and, at that time, Deputy Vice Chancellor of Edith Cowan University. She was Australia's equivalent of Rosabeth Moss Kantor and in 1997 delivered a important research report for Australia's Human Rights and Equal Opportunity Commission titled: *Glass Ceiling and Sticky Floors: Barriers to the Careers of Women in the Australian Finance Industry*. This was one of the largest industries employing women and the research used several different social science methods to analyze the workforce, understand the barriers, assess the affirmative action reports, and uncover the range of attitudes of those involved. In an earlier 1995 contribution, Still had already drawn together a list of barriers, with somewhat different divisions than that reported by the Glass Ceiling Commission in the US in that same year. Her main categories were labeled "cultural, organisational, individual and governmental" each heading covering a long list of specific barriers. Each particular named barrier within one of those general categories could be understood as a potential cause of the outcome that women were not promoted, for, as with the American literature, any list of barriers functions as a list of possible causes of glass ceiling outcomes.

The Australian researchers also exhibited a greater worry about the proliferation of labels and about naming the phenomenon with a recognizable and accurate name. Still, for example, spent some time considering the validity not just of the labels inherited from the American researchers: glass ceilings, glass walls, and sticky floors, but of others that had come into use in Australia in the early 1990s: "perspex ceiling," "sticky cobweb," and "greasy pole". In another paper in the same volume, Eleanor Ramsey (at that stage - Pro-Vice-Chancellor of the University of

South Australia) railed against what she saw as the obfuscation that occurred because the labels used were:

> "abstractions, metaphors and euphemisms which shroud in vague generalities the occurrences to which they allude" (1995, 175).

She argued that nothing would change until the behavior that created that ceiling was identified and not just *labeled* but *named*. This "feminist establishment" was by no means united in their social scientific approaches, or in their stances on solutions to the problem, but they were united in their appreciation of labeling and naming. Indeed, the final chapter (Porter, 1995) of this Australian volume urged a "spring clean" of all these labels.

The urge to get the name right echoed an earlier call in the Australian context. In 1993, a "national forum" meeting of the Affirmative Action Agency and the Institute of Public Administration of Australia had convened under the title "The Glass Ceiling: Illusory or Real?" One paper reported from the forum, by Andrew Hede (1994), had no doubt that there was a real phenomenon at issue, but argued that there were too many labels, and that they were mostly misleading. Hede preferred the name "sticky steps" - because the barriers operated at many or every level (rather than the one level implied by the glass ceiling), and that such stickiness was, like the glass ceiling, equally unseen by either men or women, both in advance and afterwards. But, as he recognized, the name "sticky steps" would not take, because it was not so glamorous for the popular literature (nor so catchy for advocacy). Yet, there was a very serious point behind all this: - that an accurate label would encourage effective theorizing, a good label would "provide the basis for a theory about women's under-representation in management." (Hede 1994, 79).

The power to name rested on the social scientists' abilities to take note of something they initially did not understand but whose research had enabled them to identify, describe, and otherwise reveal its characteristics as well as construct initial accounts of those characteristics and of the causal relations that create, underpin or perpetuate them. And these activities in turn depended on being able to put an accurate label on - that is, name - the phenomenon. This is exactly the circular process - virtuous not vicious - which Australian feminist, Dale Spender, wrote about in *Man-Made Language* (1980), when she discussed how a particular kind of women's "experience without a name" was given a name in the case of "sexual harassment".[23] Only when accurately named could the phenomenon be recognized by those who experienced it and addressed by those who took responsibility for preventing it. This power of naming has been much associated with feminist arguments, particularly in relation to the naming of experience. But this process of accurate naming must be equally the case for any scientist grappling with a previously unrecognized phenomenon - be they a social/human scientist or natural scientist. Why? Because naming a phenomenon is not just labeling it, but involves its recognition.

4. Facts and Values in the Social Science Domains

In a case such as the glass ceiling, it does not make sense to ask how facts and values might be separated, for the subject of study - as a social scientific phenomenon - is a cultural one that embeds both facts and values.[24] It was a cultural transformation in values in certain societies that meant the facts of women's employment were no longer taken as natural but reconstituted as social problems. And it was as a result of social scientific research that these facts were transformed from facts about women to facts about institutions. At the same time, as we have seen, the phenomenon that social scientists investigated under the name of the glass ceiling varied in its characteristics between times, places and occupations or industries, even while, as a general characteristic many of these institutional elements proved common across locales. Whether the phenomenon was recognized, seen as normal or problematic, and the responses to it, were all specifically local. The glass ceiling phenomenon manifested itself differently according to the community within which it might be observed and was thought about differently within those different communities. Facts and values are constitutive of cultures, and the cultures of societies vary.

At the same time, the different social science knowledge communities who studied the phenomenon also exhibited considerable variety in the way they approached the topic, the knowledge they brought to its description, the modes of analysis they used, and the facts that they drew out of the evidence. These knowledge communities might be broadly divided into two cultures - those which began from a scientific approach and those which began from a community's experience. But this

[23] See Spender, 1980, 182-90; Ramsey had made direct reference to this argument in her claim to replace metaphors with names.

[24] The interdependence of facts and values in social science and humanities research is not of course unusual, and is explored in several papers in the *How Well Do Facts Travel?* project volume (see Howlett and Morgan 2011).

division between scientific and community expertise does not provide much analytical grip, for in the social science communities there are not two completely separate and different knowledge cultures, but a network within which both shared and different elements occur. As we have seen, social science knowledge depended here upon a broad network of actors and organizations: both policy and academically-oriented social scientists, those working in non-profits and the activists of civil society, along with private sector organizations and government departments who sponsored research in the field. These all contributed to the process of establishing the phenomenon by assembling a matrix of materials from the journalistic, to commissioned reports, to government reports and to academic research papers and books. Both the network of people and matrix of materials were cross-referring.[25]

This is not to suggest that all social science fits into this triangular space of ‘activist-government policy-social science’ (any more than we would place all twentieth-century natural sciences into a ‘military-industrial-big science’ triangle). Rather, the point is that across a range of social science disciplines and projects of research, we can find many with policy orientations that attract social movements and create such networks of researchers and matrices of materials. And although the congruence of all these elements in the social sciences may appear to be a post World War II development, we can find these kinds of co-operations stretching back in time. Think only of the poverty research of the late nineteenth century and the way that activists, government officials and academics gathered around the Booth poverty project and his massive survey of London or around Jane Addams and the Hull House initiatives in Chicago. The joining of social movements and philanthropic investigators to government action and social scientific work is certainly not “modern” in the experience of the social sciences.

Alongside this triangle of interests came a commitment to advocacy. These social scientists working on the glass ceiling did not believe in a ‘supply-side theory of knowledge’: they did not think that knowledge about barriers to women’s and ethnic minorities’ employment need only be supplied and would of its own accord

[25] So for example, even at the first mention of the glass ceiling phenomenon in 1984, we find that Gay Bryant discussed both Kantor’s 1977 ‘classic’ study and research from the Wellesley College Center for Research on Women (another of *the* active academic research centers) as well as listing Catalyst as amongst the major resource centers. Catalyst’s 1994 report included a 27-page annotated bibliography of academic, public and third sector publications.

trickle down into the wider community, let alone be acted upon.[26] So, contrary to the values often espoused for science and scientists that advocacy oversteps the line between personal values and scientific activities, those involved in this project did not necessarily see any conflict between objectivity and advocacy. Rather the opposite, but whether a duty or a permissible right, these social scientists believed that their advocacy must be based on solid social science research as a guarantor of their objectivity. This too of course is an older position (see Furner, 1975). Such advocacy was a feature of the public domain in the late nineteenth century, just as in the modern period we find social scientists' advocacy about the glass ceiling displayed through interviews, public lobbying and so forth, regardless of where the social scientific activities had been conducted and under which umbrella organization, be it in a commercial consultancy or within the academic house.

Another important element of the research in the glass ceiling case, one that is characteristic of the historically constituted framework within which social science goes on, is the status given to experiential knowledge. Social sciences had, from their disciplinary establishment in the late nineteenth century, relied on two modes of gathering evidence for analysis. One kind extracted personal experience in the form of extended interviews, life histories, social surveys, and so forth; the other kind constructed impersonal numbers or statistics. While the qualitative social sciences and the feminist movement shared a commitment to the value of experience-based knowledge, the discussion earlier shows that research on the glass ceiling phenomenon relied on both kinds of work: experiential accounts and statistical accounts. Yet, crucial to the initial recognition of the phenomenon, and then in different forms and at different points, were the voices of experience - in both social scientific and activist circles. Such *experiential but personally articulated knowledge* is valid, in just the same way that we have learnt that patient groups have valid knowledge of particular kinds about the medical conditions that they (or their close relatives) experience, or that those who live with environmental problems understand certain aspects of those phenomena very well (see Wynne, 1991 and 1992). The social science triangular network of knowledgeable actors: activists-government policy-social science thus becomes a square: with personal experience marking the final

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[26] The reference is to the parallel assumption (held by some economists) that Reagan's 'supply side' tax cuts would create 'trickle-down' wealth for the rest of the community. Naomi Oreskes (2011) picks up the term to suggest most climate scientists may have believed in this supply-side effect in recent years, leaving the way open to others - perhaps with less expertise - to take the arguments and evidence into the public field.

corner.

The importance of personal experience as an evidence base for the social sciences, not just in this glass ceiling case but in many fields and for many topics, brings us to issues in the public understanding of science and the nature of expertise: both topics need to begin from a somewhat different set of assumptions when they come to deal with social sciences. As I have argued in Morgan (2010), in the social sciences, those who make up "the public" have a considerable experience of social science subject matters for they all live in society, take part in the economy, experience bureaucracy, and so forth. These experiences are part of their knowledge about the world they live in, the same world that the social scientist investigates. In the case of medical knowledge, the public understanding of science literature has suggested that such experienced knowledge is often complementary to the scientifically-based expert knowledge of the subject - it may be less law-like, less knowledgeable about hidden causes, but more detailed in certain respects, more accurate about the variations that occur within the same condition because it is observed and experienced on a day-to-day basis. If this is the case in medicine, the same is likely to be equally so in the social sciences, with the parallel implication that experience produces a particular kind of knowledge and expertise, which may well be differently organized and stratified from the scientist's knowledge gained through scientific investigation but is nevertheless reliably useful. It might also be fruitful to compare these issues of expertise and public engagement in social sciences with those of natural sciences where the experienced knowledge of "amateur" observers has remained important (such as in botany or astronomy) or where lay people have been active participants in the construction of scientific knowledge (as the classic article on boundary objects by Susan Star and Jim Griesemer (1989) has shown). Nevertheless, I suggest that there are still some differences between the social sciences and those natural sciences dependent upon lay participants that stem from the fact that social sciences are usually not constructing knowledge of some 'other' objects, but of ourselves as subjects, just as we see in this glass ceiling case.

These reflections on the sources of social scientific knowledge suggest that a concept of "civil" or "community ontology" might prove a usable and useful complement to Sheila Jasanoff's "civic epistemology" (2005). "Civic epistemology" is about the way different societies come to establish what counts as scientific knowledge in the public domain - it typically exhibits national variations according to the different ways in which expert knowledge is created, assessed and used in public life in those different cultures. I use "civil or community ontology" to refer both to the role of civil society as a co-operative partner in the *delivery* of social scientific knowledge, but equally - and perhaps more saliently - to the role of the community's experiential knowledge (acquired through experience) as opposed to scientific knowledge (acquired through scientific enquiry) in the construction of the *content* of that knowledge. The notion may also be relevant for some of the natural sciences. Methods of earthquake prediction in China might be framed with the notion of community ontology in mind as much as in the study of glass ceilings in contemporary society.[27] For the social sciences at any rate, "civil or community ontology" goes alongside "civic epistemology" as distinct, but related, characteristics of how a society comes to know things about itself.[28]

This study on the recognition and initial establishment of a phenomenon in the social sciences has - implicitly rather than explicitly - provided the basis for suggesting avenues where our science studies might take us if more studies of social science were undertaken. Historical, sociological and philosophical studies of the natural sciences have taught us much, and this sketch of where the study of social sciences may be different from the accounts told about natural sciences is not intended to stake out hard and fast differences. Rather it is designed to bring to light, or into better focus, the ways in which epistemology and culture intersect for the social sciences at two different levels - the level of the knowledge communities, and the level of the community within which those knowledge communities live and work. But this is not just about epistemology. Those wider communities raise questions, prompt what is found problematic, and thus what is studied. And in doing so, they are closely involved in defining matters of *content* and ontology in the social sciences, whereas, in contrast, such community matters have more often been understood as ones of *context* for those studying the natural sciences.

We can see the implications of this by returning to the inter-dependence of values and facts that characterized the research on the phenomenon of the glass ceiling: in defining what it was, what characteristics it held, and what causes might be involved. The implication I draw is not that the intimacy between facts and values

[27] See Fa-ti Fan, in the present volume.
[28] There is another sense in which they go along together in the case of liberal democracies where there is a citizenry right to express the knowledge of experience, see Morgan 2010.

inherent in any culture negates the possibility of recognizing and establishing such a phenomenon as genuine for social scientists and for their subjects. Rather it is the opposite, that the values involved were critical in problematizing, inspiring, and developing the work that was done to establish the facts of the phenomenon, while those facts describing the phenomenon revolved back onto the way values were understood and expressed. That does not mean that the fact-value distinction collapses, but rather that - by using the distinction – social scientists turned the subject of glass ceilings into an object:- they turned what was previously understood as a subjective experience of individuals into an objectively recognized and described social scientific phenomenon.[29]

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[29] There is a nice irony here that a contemporaneous strand in science studies re-interpreted the detached *objects* of scientific research to become *subjects* - ones engaged, through resistance and compliance, in the research project of the scientists under study (as in Michel Callon's 1986 discussion of the scallops of St Brieuc Bay).

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