

## GOVERNING BY NUMBERS: FIGURING OUT DEMOCRACY\*

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### Abstract

This review essay considers the relations between quantification and democratic government. Previous studies have demonstrated that the relation between numbers and politics is mutually constitutive: the exercise of politics depends upon numbers; acts of social quantification are politicized; our images of political life are shaped by the realities that statistics appear to disclose. The essay explores the specific links between *democracy*, as a mentality of government and a technology of rule, and quantification, numeracy and statistics. It argues that democratic power is *calculated* power, *calculating* power and requiring citizens who *calculate about* power. The essay considers the links between the promulgation of numeracy in eighteenth-century U.S. and programmes to produce a certain type of disciplined subjectivity in citizens. Some aspects of the history of the census are examined to demonstrate the ways in which the exercise of democratic government in the nineteenth century came to be seen as dependent upon statistical knowledge and the role that the census had in “making up” the polity of a democratic nation. It examines the case of National Income Accounting in the context of an argument that there is an intrinsic relation between political problematizations and attempts to make them calculable through numerical technologies. And it considers the ways in which neo-liberal mentalities of government depend upon the existence of a public habitat of numbers, upon a population of actors who calculate and upon an expertise of number. Democracy, in its modern mass liberal forms, requires numerate and calculating citizens, numericized civic discourse and a numericized programmatics of government.

Numbers have an unmistakable power in modern political culture. The most casual reader of newspapers or viewer of television is embraced within the rituals of expectation, speculation and prognostication that surround the public pronouncement of politically salient numbers. Of course, there are many sorts of political numbers in advanced liberal democratic capitalist societies. A superficial classification might distinguish four. Firstly, there are the diverse numbers that are connected with who holds political power in democratic nations. Electoral districts apportion persons according to numerical criteria. Elections and referenda count votes. Executive powers are related to numerical calculations of majorities and minorities. Numbers here are an intrinsic part of the

mechanisms for conferring legitimacy on political authority. Secondly, there are the numbers that link government with the lives of the governed outside the electoral process. Opinion polls calibrate and quantify public feelings. Social surveys and market research try to transform the lives and views of individuals into numerical scales and percentages. Numbers here act as relays promising to align the exercise of “public” authority with the values and beliefs of citizens. Thirdly, there are the numbers that are deployed within the perpetual judgement that today is exercised over political authority and its stewardship of national life. The balance of payments, the gross national product and the money supply pass in and out of favour as the measure of the success of

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\* An essay review of Patricia Cline Cohen, *A Calculating People: the Spread of Numeracy in Early America* (1982) and William Alonso & Paul Starr (eds), *The Politics of Numbers* (1987).

government in economic life, but modern political argument seems inconceivable without some numerical measure of the health of "the economy". The social economy is also evaluated through its numericization. Poverty is transformed into a matter of the numbers claiming social benefits. Public order is transmuted into the crime rate. The divorce rate becomes a sign of the state of private morality and family life. The rate of spread of AIDS is an index of the success of the government of sexual conduct. If sceptical vigilance over politics has long been a feature of liberal political thought, it is today increasingly conducted in the language of numbers. Fourthly, there are all the numbers that make possible modern government itself. Tax returns enable an administration over individuals and private enterprises in the light of a knowledge of their financial affairs. Counts of population, of birth, death and morbidity have become intrinsic to the formulation and justification of governmental programmes. Grants to local authorities and health agencies are distributed on the basis of complex numerical formulae applied to arrays of numbers claiming to represent states of affairs in this or that part of the realm. The rates at which pensions or social security benefits are paid, and when or whether they are to rise, are calculated according to complex indices. Paradoxically, in the same process in which numbers achieve a privileged status in political decisions, they simultaneously promise a "de-politicization" of politics, redrawing the boundaries between politics and objectivity by purporting to act as automatic technical mechanisms for making judgements, prioritizing problems and allocating scarce resources.

Accompanying this "numericization of politics" has been a variety of "politics of numbers". There is a politics of *accuracy*, perhaps most beguiling to political commentators and politicians themselves. An obvious example from the U.K. is the debate over the possible "fudging" of the statistics on unemployment under Margaret Thatcher's government. There is a politics of *adequacy*, beloved of specialists and those political commentators seeking to strike a

knowledgeable pose. Here one could class debates such as that over the relative merits of  $M_0$ ,  $M_1$ ,  $M_2$  or  $M_3$  as politically salient measures of the money supply. There is a politics of *use and abuse*, elaborated in particular by civil libertarians. Perhaps the example that has attracted most recent debate concerns the inclusion of questions concerning ethnicity in the census. There is a politics of *privacy*, also deployed by libertarians and those entranced by the vision of a "big brother" state. It seeks to place a limit on the public collection of numbers on private persons, and their utilization in making decisions about individuals. And there is a politics of *ethics*. This questions the morality of making certain political decisions in terms of numbers, as in the debates over the application of quantification to decisions over resourcing health services and the conflicts over provision of different types of medical treatment, for example hip replacement versus heart transplantation.

In this essay, I wish to consider the contribution of two books, one recent, the other published some time ago, to our understanding of the numericization of politics and the politics of numbers in the U.S. Patricia Cline Cohen's study, published in 1982, is entitled *A Calculating People: the Spread of Numeracy in Early America* (hereafter *CP*). It describes and seeks to account for the relationship between the growth of "numeracy" in the American population and the change and expansion of what she terms "the domain of numbers", considering such diverse episodes as the fad for number, weight and measure amongst a few seventeenth-century Englishmen; the inauguration of colonial censuses; the debates over mortality in the eighteenth-century colonies; the history of arithmetic education; the relations of statistics and statecraft in the early nineteenth century and the debate over the 1840 U.S. Census. The 1987 collection edited by William Alonso and Paul Starr entitled *The Politics of Numbers* (hereafter *PN*) emerges out of this trajectory. It is one of a series entitled "The Population of the United States in the 1980s" aimed at "converting the vast statistical yield of the 1980 [U.S.]

Census into authoritative analyses of major changes and trends in American life" (*PN*, p. vii). This volume testifies to the ramification of numbers in the political life of contemporary America. Its 14 essays examine the forces shaping such diverse practices of quantification as economic statistics on growth, productivity and military expenditure, official statistics of family income, national income accounts, controversies over the census, the politics of measuring ethnicity, population forecasting, the relations of statistics to democratic politics, to the relations of federal and state governments, and the ways in which technological developments such as computer technology and social developments such as the privatization of statistical services relate to political values.

What do we learn from these studies concerning the relations between numbers and politics? Firstly, of course, that the relation is reciprocal and mutually constitutive. As Alonso and Starr point out in their introduction, acts of social quantification are "politicized" not in the sense that the numbers they use are somehow corrupt — although they may be — but because "political judgments are implicit in the choice of what to measure, how to measure it, how often to measure it and how to present and interpret the results" (*PN*, p. 3). Further, it is not simply that political debate deploys numbers, or that so many political decisions affecting our lives entail the deployment of numbers in their calculation and legitimation. As Alonso and Starr again point out, our images of political life are shaped by the realities of our society that statistics appear to disclose. And many of the essays in their collection help us situate debates over accuracy, adequacy, abuse, privacy and ethics within such a perspective on how the domain of numbers is politically composed and the domain of politics is made up numerically.

But these books raise some more fundamental issues concerning politics and numbers. The organization of political life in the form of the modern state has been intrinsically linked to the composition of networks of numbers connecting those exercising political power

with the persons, processes and problems that they seek to govern. Numbers are integral to the problematizations that shape what is to be governed, to the programmes that seek to give effect to government, and to the unrelenting evaluation of the performance of government that characterizes modern political culture. What is particularly significant about the books by Cline Cohen and Alonso and Starr is that they enable one to construct, albeit in a rough and preliminary manner, a hypothesis concerning the relation between numbers and democracy. It is upon this aspect of the relation between government and numbers that I wish to focus in this essay.

The hypothesis can be simply stated: there is a constitutive interrelationship between quantification and democratic government. Democratic power is *calculated power*, and numbers are intrinsic to the forms of justification that give legitimacy to political power in democracies. Democratic power is *calculating power*, and numbers are integral to the technologies that seek to give effect to democracy as a particular set of mechanisms of rule. Democratic power requires citizens who *calculate about power*, and numeracy and a numericized space of public discourse are essential for making up self-controlling democratic citizens.

#### UNDEMOCRATIC AND DEMOCRATIC NUMBERS

How should one study the relation between politics and numbers? I would like to draw out four significant themes from previous studies. The first is the link between government and knowledge. This is made most clearly by Michel Foucault in his consideration of "governmentality" or the mentalities of government that characterize all contemporary modes of exercise of political power in the West (Foucault, 1979). From about the eighteenth century onwards, to govern a domain — a population, an economy — has entailed seeking to exercise a power over it that is modulated by a knowledge of its laws, processes and conditions.

Statistics here emerges as one of the key modalities for the production of the knowledge necessary to govern, rendering the territory to be governed into thought as a domain with its own inherent density and vitality.

The second theme is the link between government and information. This is emphasised, for example, in the work of Pasquale Pasquino (1978). In the eighteenth-century German writings of von Justi, Sonnenfels, Obrecht and other theorists of "police", a vital link is constructed between a politics of calculated administration of the population — with the ends of wealth, public order, virtue and happiness — and information. There can be no well-ordered political machinery or enlightened administration, they argue, without a knowledge of the state of the population, and the numbering of persons, goods, activities, births, crimes, deaths and much else provides the material on which administrative calculation can operate.

The third important theme I would like to emphasise concerns the formation of centres of calculation. This is stressed in the work of Bruno Latour (1987). To exercise power over events and processes distant from oneself it is necessary to turn them into traces that can be mobilized and accumulated. Events must be inscribed in standardized forms, the inscriptions transported from far and wide and accumulated in a central locale, where they can be aggregated, compared, compiled and calculated about. Through the development of such complex relays of inscription and accumulation, new conduits of power are brought into being between those who wish to exercise power and those over whom they wish to exercise it. And, as Ian Hacking has pointed out, over the past two centuries in Europe, political attempts at the calculated administration of life have been accompanied by a veritable "avalanche of printed numbers". These did not merely connect centres of calculation to other locales; they enabled the centre to act as a centre by means of its centrality in the flows of information that "re-present" that over which it is to calculate and seek to programme (Hacking,

1981). Turning the objects of government into numericized inscriptions, then, enables a machinery of government to operate from centres that calculate.

Fourthly and arising from this, it is clear that such numbers do not merely inscribe a pre-existing reality. They constitute it. Techniques of inscription and accumulation of facts about "the population", the "national economy", "poverty" render visible a domain with a certain internal homogeneity and external boundaries. In each case, the collection and aggregation of numbers participates in the fabrication of a "clearing" within which thought and action can occur. Numbers here delineate "fictive spaces" for the operation of government, and establish a "plane of reality", marked out by a grid of norms, on which government can operate (Miller & O'Leary, 1987; Rose, 1988; Miller & Rose, 1990).

If we start from these four themes, there appears to be a distinction between the European approaches to the social history of quantification and those that have emerged from the U.S. Those familiar with the writings I have just cited may well have gained the impression that this "statisticalization" of politics is bound up with attempts by the State to control and subordinate individuals and populations. Studies of the European "science of police" in the seventeenth and eighteenth centuries have certainly stressed the role played by the collection and centralization of statistics in the exercise of surveillance and discipline over the population (Oestreich, 1982). Studies of the relation between social quantification and social politics in the nineteenth century have stressed the role of statistics in charting the moral topography of populations: a quantification of the problem spaces of crime and degeneracy that would appear to find its apotheosis in eugenics (Jones & Williamson, 1979; Rose, 1985). Other accounts have linked the quantification of the mind and of human conduct to the rise of disciplinary organizations such as the prison, the factory, the school and even the hospital, and have pointed to the link between such

statistical individualization and regulatory regimes seeking to exercise a hierarchical surveillance and normalizing judgement over their inmates (Foucault, 1977). Thus, it is not surprising to find such a sensitive and perceptive historian of statistics as Ian Hacking arguing that the collection of statistics is enmeshed in the formation of a great bureaucratic State machine, part of the technology of power of the modern State. Statistics, in enabling the taming of chance, in turning a qualitative world into information and rendering it amenable to control, in establishing the classifications by which people come to think of themselves and their choices, appears to be bound up with an apparatus of *domination* (Hacking, 1981, p. 15).

Both Cline Cohen's book and Paul Starr's opening essay in the Alonso and Starr collection remark upon this link between statisticalization, surveillance and discipline. They point out that the term *censor* dates from Roman times: the censor was one who *censed*, who counted adult male citizens and their property for purposes of taxation and to determine military obligations and political status, and one who *censured*, who was charged with the control of manners. The earliest relations between statistics and politics maintained this link between numbering, surveillance and censure but combined it with the notion that the power of the prince could and should be exercised in a rational way, dependent upon a knowledge of and a calculation about those over whom government was to be exercised. Paul Starr reminds us that the term statistics derives from the seventeenth-century German notion of a science of states. In Conring's notion of *Staatenkunde*, the systematic study of states was based upon the collection of and systematic tabulation of facts, although these facts did not consist exclusively of numbers. It was the science of police that developed in Europe in the seventeenth century that entwined statistics and the census. Patricia Cline Cohen cites Jean Bodin's argument that it was expedient to enrol and number the subjects of a commonwealth partly because from the numbers, ages and quality of persons a

government could learn the military and colonizing potential of a country and plan for adequate food at time of siege or famine. But also, as he enrolled the subjects, the censor would be inspecting, exposing and judging them, serving thereby "to expell all drones out of a commonweale, which sucke the honey from the Bees, and to banish vagabonds, idle persons, thieves, cooseners, and ruffians ... who although they walke in darkness, yet hereby they should bee seene, noted and known" (Bodin, [1606] 1962, pp. 537–546, quoted in *CP*, p. 37).

None the less, both Cline Cohen and Starr trace a different, democratic destiny for the quantification of politics. It is true that, in Britain in the late seventeenth century, William Petty's political arithmetic sought, as Starr puts it, "the application of rational calculation to the understanding, exercise, and enhancement of state power" (*PN*, p. 14). But political economists were sceptical of the reliability of data, and of the assumptions of a politics of State governance of economic life. Starr draws upon Peter Buck's argument that, in the second half of the eighteenth century, a broad ideological shift transformed political arithmetic from "a scientific prospectus for the exercise of state power" into "a program for reversing the growth of government and reducing its influence on English social and economic life". For Buck, this is a matter of conceiving of people not as subjects but as citizens, and of freeing political arithmetic from State power, "allowing it to reenter the domain of public controversy on new terms" (Buck, 1982, quoted in *PN*, p. 15).

From this point both Cline Cohen and the essays in Alonso and Starr connect with a more benign and optimistic American account of the links between statistics and government. Starr does cite Otis Dudley Duncan's claim that social and economic statistics, like other forms of measurement, are developed, promoted and imposed at particular historical moments because they serve particular interests, including a State interest in co-ordination and control (Duncan, 1984, cited in *PN*, p. 9). But in the American writings, this interest in control and

co-ordination is not construed in terms of surveillance and discipline. Rather, it is analysed in a pluralist manner, in terms of the means whereby private entities may co-ordinate one with another; in terms of the defeat of superstition by the belief in quantitative control; in terms of the replacement of old relations of status, rank and dependence by those of objectivity and truth.

Theodore Porter has recently developed these themes (Porter, 1986, 1990). He argues that statistics certainly entails standardization. But standardization is not just a matter of the imposition of a system of bureaucratic regulation. Rather, it is a condition for interaction in diversified societies with an expanded division of labour, requiring a common means of "trading" between difficult sectors — that is to say, requiring something that will provide a certain "translatability". Stable standards thus enable the co-ordination of commercial activities across wide time-space zones, producing a means by which widely dispersed activities can be made commensurable one with another.

For Porter, quantification is significant because it standardizes both its object and its subject. It standardizes the object in that it establishes in univocal terms what is a yard, a bushel, a kilometre, the exchangeable worth of a piece of coin. Measure is no longer modulated by judgements based on experience of the quality of the thing measured (cf. Kula, 1986). This puts an end to practices such as those which for so long enabled the quantum of land or grain that counted as a particular unit of measure to be increased or decreased in the light of a judgement as to its quality. Further, quantification standardizes the subject of measurement — the act of exchange is no longer dependent on the personalities or statuses of those involved. The lord can no longer require that his bushel be measured out in grain poured from a greater height into the container, thus packing it more densely, or in a wide, shallow container that will gather a greater quantity in the heaping. Hence, while quantification is certainly bound up with the emergence of a specialist elite who calculate in terms of

numbers, this is not simply a matter of the rise of technocracy. The officials who use these statistical and calculative methods are themselves constrained by the calculative apparatus they use. And this means that quantification produces a certain type of objectivity. As Anthony Hopwood has remarked, a network of the apparently precise, specific and quantitative emerges out of, and is superimposed upon, the contentious and the uncertain (Hopwood, 1985, p. 4).

For Porter, the objectivity imposed by standardization and quantification is not merely a matter of epistemology. The establishment of a domain of objectivity is linked to those social transformations that increase mobility of populations, and expand the domain of trading into new markets and locales. The old bonds that assured the mutuality of persons entering into trade no longer figure: a new objectivity is a substitute for that lost trust. In that it attempts to externalize the individual from the calculation, the objectivity conferred by calculation establishes a potential domain of "fairness" of that which is above party and peculiar interests. And to the extent that decisions are transformed from acts of judgement to the outcome of rule following, the opportunity for discretion and the imposition of partiality is reduced. Thus numerical rules constrain: impersonality rather than status, wisdom or experience becomes the measure of truth. In a democratic society with an elaborated sphere of "civil society" and a plurality of interest groups, numbers produce a public rhetoric of disinterest in situations of contestation. One could follow Anthony Hopwood here in putting this rather more sharply: numbers, and the specialist knowledges and professional techniques associated with them "can become implicated in the creation of a domain where technical expertise can come to dominate political debate" (1985, p. 5). A spiral of "technicization of politics" emerges between the new visibility of "the facts" and the imperative of increased technical expertise to gather and interpret them. Numbers are not just "used" in politics, they help to configure the respective boundaries of the

political and the technical, they help to establish what it is for a decision to be "disinterested".

Neither of the two books under review contributes much to the array of intellectual tools available for the analysis of the numericization of politics. Cline Cohen implies that the power of numbers arises, in large part, from their "ordering capacity". Numbers are "ordering", she claims, for four basic reasons. Firstly, enumeration creates a "bond of uniformity" around the objects counted — one *can* add oranges and apples if one wants to know how much fruit there is. Secondly, numbers enable unlike orders of magnitude to be brought into a relation with one another — distances over oceans with altitudes of mountains, the volume of a barrel of ale and that of a tub of lard, the climate of Massachusetts and that of London. Thirdly, numbers can sort out the combined effects of several components and hence stabilize a process which is in flux: velocity can be decomposed into time and distance, population growth into fertility and mortality. And numbers can be utilized in matters of probability, to convey a notion of risk. These *cognitive* features of number are drawn upon in certain *cultural* conditions, she suggests, thus in contexts of social and intellectual disorder, flux and spiritual disarray, the ordering powers prove attractive and are capitalized upon — hence the spread of numeracy. How well this account fares, we shall see presently.

Paul Starr, in his opening essay of Alonso and Starr's collection, attempts something more substantial in the way of a review and synthesis of the very varied literature on the sociology of official statistics. He proposes the notion of a "statistical system" as a means of conceptualizing the social organization of numbers. A statistical system is (*PN*, p. 8):

a system for the production, distribution, and use of numerical information. A statistical system may be said to have two kinds of structure — social and cognitive. Its social organization consists of the social and economic relations of individual respondents, state agencies, private firms, professions, international organizations and others involved in producing flows of data from original sources to points of analysis, distribution,

and use. Cognitive organization refers to the structuring of the information itself, including the boundaries of inquiry, presuppositions about social reality, systems of classification, methods of measurement, and official rules for interpreting and presenting data.

From this promising beginning, however, Starr moves to a general conspectus running rapidly through issues ranging from the origin of statistics in the idea of a science of statecraft to the phenomenological critique of official statistics. Despite the eclecticism of this account, his thinking about the links between statistics and politics is certainly in the benign pluralist tradition. For example, he distinguishes the pre-modern census, "used explicitly for keeping people under surveillance and control" (*PN*, p. 11), from the modern census, which, he claims, "has as its primary and manifest function the production of quantitative information" (*PN*, p. 11). The distinction illustrates clearly the limitations of analyses that construe power as control and suppression, where suppression cannot be found, the analyst feels able to ignore power effects. Hence, while Starr suggests that the key issue to be explored concerns "the demands of the modern state for social and economic intelligence" (p. 15), it is not surprising that his analysis does little to help us to understand these demands.

Starr is similarly inconclusive in relation to the question of whether there is something, in general, that numbers can do for politics as a result of what he terms "the cognitive organization of statistics systems". He does, however, draw out some aspects of significance. At root, he argues, statistical systems reduce complexity. "Social conditions and the characteristics of people are myriad and subtly varied; statistical inquiries must be limited to particular items and categories of response. Yet the raw data thereby collected can be combined and analyzed in sundry ways; scarce cognitive as well as economic resources dictate that only some routes be followed" (*PN*, p. 40) Starr here alights upon an issue that has been illuminated in particular by a French tradition of history and philosophy of science. As Gaston Bachelard and, more recently, Bruno Latour have shown,

the technical processes which materialize the world — in graphs, figures and other traces — necessarily perform an act of simplification more akin to the “realization” of theoretical categories *in* the world than the “representation” of the world in thought (Bachelard, 1951; Latour, 1986; cf. Gaukroger, 1976).

Starr, however, focuses on the sociological implications of this reduction of complexity. This, he claims, can be neither ideologically nor theoretically innocent. On the contrary, the processes of simplification embody the expectations and beliefs of the responsible technicians and officials; the discretion that they inevitably exercise is dissimulated by the claim that their expertise, whilst indispensable, is “merely technical”. Expectations and beliefs are embodied in the framing of statistical enquiry, for example, shaping what is counted and in relation to what explicit or implicit theories. They are embedded in the systems of classification adopted, for example ethnicity rather than race, nationality, ancestry, cast or religion. They are embodied in how the measurement is done, and what forces have their concerns embedded in numbers. They are bound up with questions as to how often to measure and how to deal with change, for example data on the money supply is published monthly but estimates of poverty are annual and the census is taken every ten years. And they are embodied in the ways in which bureaucrats choose to shape and present the data, for example the “specious accuracy”, to use Morgenstern’s term, in which figures are reported to several decimal places.

The ultimate reduction of complexity in official statistics, Starr notes, is the choice of the single number that will figure in the briefings and speeches of politicians and in the headlines. Others have discussed the power of the single figure, drawing attention to the particular potency of those numerical technologies that can reduce the complexity of experience to a single comparable, quotable, calculable number (Miller, 1989; cf. Hopwood, 1986). Starr overlooks these calculatory and regulatory consequences, concentrating instead upon the features that undercut the claims of the figures

to be what they purport — their role as cognitive commitments, their place in contemporary political rhetoric, their normative content, the danger when they are used as “automatic pilots” in decision making. This is a point taken up in the contribution to *PN* by Kenneth Prewitt. To assign responsibility for classification to the statistical system, Prewitt argues, transforms the thing being measured — segregation, hunger, poverty — into its statistical indicator. The search for objective rules to eliminate subjective judgement, here as elsewhere in rule of law politics, merely pushes politics back one step to disputes about methods. Again, a technicization of the political has been accomplished: “Arguments about numerical quotas, availability pools and demographic imbalance become a substitute for democratic discussion of the principles of equity and justice” (*PN*, p. 272).

Yet, despite his criticisms, Starr ends on an optimistic note. However imperfect they may be, statistics are a means for reducing the fear of unchecked power (*PN*, p. 57):

To subordinate ourselves under an impersonal rule is the fundamental reason why we have laws and constitutions. However imperfect, a rule of law tends to restrain the use of powers and thereby enlarges liberty. Statistical systems help to accomplish similar purposes, and, despite their imperfections, they may also contribute to our freedom.

These American considerations of the politics of numeracy and quantification echo themes common to much American sociology and political science. Thus, many of the examples discussed by Cline Cohen and many of the contributions to Alonso and Starr raise points about why particular numerical indices are salient rather than others, about why this is counted rather than that, about the accuracy of the figures, or about the disputes between different forces, locales, interests about what should be counted and by whom. They demonstrate that political numbers are bound up with struggles and contestations amongst interest groups and sectional lobbies. They illuminate the clashing cultures, values and objectives of



the academics who theorize the figures, the statisticians who calculate them, the technocrats who utilize them and the politicians who calculate or pontificate in terms of them. They contribute to what one might term the "political sociology" of numbers. But beyond their own perspectives, we can link these amiable American reflections to the European concerns about power. For they enable us to explore the relations between quantification, numeracy, statistics and democracy as a mentality of government and a technology of rule.

### THE NUMERICIZATION OF AMERICA

Patricia Cline Cohen begins her book by posing an apparently simple historical question: "why was it that in the 1820s and 1830s there suddenly appeared many types of quantitative materials and documents that previously had been quite rare? Not only government agencies but private associations and individuals were eagerly counting, measuring, and churning out data" (*CP*, p. 4). She answers this question by examining two correlative processes. On the one hand, projects to spread "numeracy" in the population. On the other, the spread of what she usefully terms the "domain of numbers" as things once thought of solely in qualitative terms become subject to quantification.

Whilst in the course of her account she proposes a number of pragmatic and *ad hoc* reasons for the expansion of the domain of numbers, from administrative convenience, comparability across time and space, planning and the like, she argues that quantification itself emerges in the seventeenth century in response to major political, economic and cosmological shifts marked by disorder and even chaos. Politically, she points to the development of the new concepts of public administration embodied in mercantilism, in which the government claimed a right to regulate economic activity. This, she suggests, created a justification for evaluating national resources, including the population and the volume of trade, and increasingly such evaluations were quantitative

(*CP*, p. 41). Economically, she points to three strands of development. More people were drawn into the world of monetary exchange involving calculation and bookkeeping by the rise of capitalism. Seamen had to be introduced to mathematics in the navigational development required for overseas trading and adventuring. And the disruption of population stability "loosened some men from their roots, setting them adrift in English society, and startled other men, like Bodin, into quantitative inquiries in an effort to create order" (*CP*, p. 41). But Cline Cohen places her emphasis on cosmology — not the Weberian link between Calvinism and calculation, but the inability of the Aristotelian system of scientific classification to make sense of a world newly teeming with activities cutting across the classic categories (*CP*, pp. 44–45).

As I have already suggested, quantification emerges, for Cline Cohen, as a new mode of imposing order. Given that all the "ordering qualities" of numbers existed in the seventeenth century; in those "turbulent and disorderly years, quantification must have seemed an alluring way to impose order on a world in flux" (*CP*, p. 44). One is tempted to agree with Paul Starr, when he points out that "unsettling conditions cannot, in themselves, produce an interest in quantification, except perhaps in the context of particular intellectual traditions" (*PN*, pp. 22–23). For it is certainly as unsatisfactory to seek to explain new modes of cognition by pointing to "social conditions" as it is to point to "economic needs" or "political functions". But even to pose the question in this way is to become locked in the interminable debates about the relations between "ideas" and their "social context". Social conditions are never active in human affairs as raw experiences but only in and through certain systems of meaning and value. Ideas are constitutively social in that they are formed and circulated within very material apparatuses for the production, delimitation and authorization of truth. It is perhaps time, once and for all, to cease to distinguish the intellectual from the social only to ask how they are related.

Cosmological changes, for Cline Cohen, also

account for the spread of numbers in the eighteenth century. She denies the familiar sociological explanation in terms of the growth of commerce, proposing instead that the key factor was a change in the way in which men thought about human affairs and divine intervention. Specifically, she argues, it was the decline of religious fatalism and uncertainty, and the discovery of peculiar regularities in events once thought to be under divine powers which led to the rise of a spirit of control and the evolution of "the mathematical sense" (*CP*, p. 83). This explanatory relationship between cosmological and social changes is rather unsatisfactory, not least because it assumes what it sets out to prove. But this should be seen neither as a reason for retreating to a history of ideas, nor as a plea for finer-grained and more detailed historical investigation. Rather, I suggest, we should re-pose our question. Cline Cohen, like so many others, asks the question "why?" — why this new use of numbers at this time and this place. But what if we free ourselves from a certain principle of causality, a certain search for determinants and explanations in history (cf. Foucault, 1986). We would then be able to ask a more productive question: not "why?" but "how?" In relation to what problems, by means of what intellectual technologies, according to what ethical systems and governmental problematics, did numbers become such an essential part of American political culture?

Notwithstanding its occasional appeal to cosmology, Cline Cohen's account is rich with evidence concerning these more down-to-earth matters. She identifies two central issues in the eighteenth century: epidemic disease and personal conduct. The numerical charting of patterns of epidemic illness and the quantitative demonstration of the success of inoculation induced a change of attitude to numerical arguments: human intervention could alter the course of nature; quantification was essential as a tool for both doing this and assessing the results; one was entitled to so intervene in order for each to live their full life (*CP*, p. 108). Further, for Protestants like Benjamin Franklin,

there was an issue of personal conduct at stake. Numbers were bound up with a certain way of approaching the world. They conferred certainty, they contributed to knowledge, they revealed regularities, they created regularities. And, in doing so, numbers fostered detachment from feeling, passions and tumults (*CP*, p. 115). The promulgation of numbers was thus inseparably bound up with the valorization of a certain type of ethical system. Numeracy was an element in the ethical technologies that would, it was hoped, produce a certain kind of disciplined subjectivity.

#### CITIZENS MUST CALCULATE: NUMERACY AND DEMOCRATIC SUBJECTIVITY

It was in the nineteenth century, argues Cline Cohen, that numbers established the basis for their modern hold on the American political imagination.

The commercial revolution stimulated reckoning skills as it pulled more people into a market economy. The political revolution that mandated the pursuit of happiness as an important end of government found its proof of the public's happiness in statistics of growth and progress. And the proliferation of public schools, designed to ensure an educated electorate, provided a vehicle for transmitting numerical skills to many more people (*CP*, p. 117).

It is at this point that Cline Cohen illuminates most clearly the relation between disciplined subjectivity, numeracy and democracy. Arithmetic was to cease being commercial; it was to become republican.

Take, for example, decimal money. Decimals had been studied for two hundred years by mathematicians, but nineteenth-century America was the first country to put them to practical use. Jefferson, in 1790, had argued for the superior ease of reckoning in decimals in these terms (Jefferson, 1790, quoted in *CP*, p. 128):

The facility which this would introduce into the vulgar arithmetic would, unquestionably, be soon and sensibly felt by the whole mass of people, who would thereby be enabled to compute for themselves whatever they

should have occasion to buy, to sell, or measure, which the present complicated and difficult ratios put beyond their computation for the most part.

Cline Cohen argues that proponents of the new federal money based on the decimal system took up these concerns, and claimed

that they were democratising commerce by putting computation within the reach of nearly all. At the same time, the self consciously utilitarian spirit of the new nation invaded education and elevated arithmetic to the status of a basic skill along with reading and writing. Decimal money and arithmetic education were justified as fruits of republican ideology; numeracy was hailed as a cornerstone of free markets and a free society (*CP*, p. 127).

The pedagogy of numbers was not only republican because it generalized the competence to calculate, it was republican because it was a pedagogy of reasoning itself. As the investigation of mathematical truths accustomed the mind to method and correctness in reasoning, it was, as the author of the first American elementary arithmetic text to be published in the new republic put it, "peculiarly worthy of rational beings" (Nicolas Pike, quoted in *CP*, p. 132). Or, as Catherine Beecher put it in 1874, the object in studying arithmetic "is to *discipline the mind*" (quoted in *CP*, p. 145, emphasis in original).

As Cline Cohen puts it (*CP*, pp. 148–149):

numeracy spread in the early nineteenth century under the influence of two powerful attitudinal changes: the extension of the commercial, or marketplace, frame of mind and the growing dominance of certain ideas associated with the fostering of democracy, especially the notion that rationality in the greatest possible number of people was desirable. As commerce invaded everyday life, more people had somehow to acquire the mental equipment to participate in it. As widespread rational thinking came to be perceived as necessary to the workings of democracy, educators looked to mathematics as the ideal way to prepare a republican citizenry.

Of course, there are innumerable philosophical writings debating the meaning of citizenship and its moral basis. No doubt these texts are

significant. But this significance is not that usually accorded to them by historians of ideas. It is not that either the roots or the evidence of citizenship are to be found in them; rather they can be seen as intellectual problematizations of, and philosophical commentaries upon, their own times. To understand the genealogy of citizenship as a socio-historical phenomenon we should lower our eyes from these grand and airy deliberations and examine also the mundane, the small scale, the technical. Citizenship should be studied at the level of the practices, technologies and mentalities within which citizens were to be formed, not simply as the moral subjects that philosophical deliberation seeks to equip with abstract rights and freedom, but as the subjects of governmental technologies, ethicalized individuals capable of exercising self-mastery, discipline, foresight, reason and self-control. Ian Hunter has shown the ways in which pedagogic discourses and techniques in the nineteenth century took such a "responsibilizing" role upon themselves, seeking to utilize practices ranging from playground supervision, through teaching style to curriculum content in the service of the production of a regulated subjectivity (Hunter, 1989). Such a genealogy linking democratic mentalities of government, pedagogy and regulated subjectivity gains support from Cline Cohen's account of republican arithmetic. Democracy requires citizens who calculate about their lives as well as their commerce. Henceforth, the pedagogy of numeracy was an essential part of the constitution of subjects of a democratic polity. If government was to be legitimate to the extent that it was articulated in a discourse of calculation, it was to be democratic to the extent that it required and sought to produce responsible citizens, with a subjectivity disciplined by an imperative to calculate.

#### CALCULATING AUTHORITIES: FROM STATISTICS TO THE CENSUS

In the American case, the statisticalized census was to be a vital point of linkage

between government and number. Of course, as we have seen, both the census as a count of population for purposes of tax and surveillance, and statistics as science of state, predate democracy. Furthermore, the will to quantify was not the prerogative of the public powers. In the U.S., from the late eighteenth century and throughout the first half of the nineteenth century, a host of individuals carried out enquiries into the civil condition of the people and compiled these into gazetteers. It was, in the first place, these diverse quantifiers who made the link between number, fact and good government. To govern legitimately was not to govern at the mercy of opinion and prejudice, but to govern in the light of the facts. On the one hand, government needed more facts. On the other, government could be pressed to adjust its policies — in relation to the miseries of the public prisons, the suppression of intemperance, the availability of educational facilities — in the light of the facts. The formation of a numericized public discourse is not only a resource for government; as Kenneth Prewitt points out in his contribution to *PN*, it is also a resource whereby various forces may seek to mobilize government by challenging its claims to efficacy. Indeed information, “facts and figures”, “may give an advantage to the weak, whose case, if strong and technical, can count for something” (Wilensky, cited by Prewitt, *PN*, p. 271). In modern democratic discourse, numbers are thus not univocal tools of domination, but mobile and polyvocal resources. I shall return to this point at the conclusion of this essay.

But statistics in America were to have a second democratic vocation. They were to be deployed in a problem space peculiar to an ethic of democratic authority — that of constituting a public domain that unifies individual wills, of governing diversity in the name of the common good. As Cline Cohen puts it: “proponents of statistics claimed that a comprehensive knowledge of general social facts could be the foundation of a new politics. Knowing the exact dimensions of heterogeneity would compensate for the lack of homogeneity in the

diverse United States ... Facts would dispel the factious spirit” (*CP*, p. 155). Facts, being above factions, would illuminate that overarching realm within which the nation was to be unified in a single moral universe.

This theme is developed in various contributions to *PN*. Thus Nathan Keyfitz cites William Kruskal's argument that the census “provides a sense of social cohesion, and a kind of non-religious communion: we enter the census apparatus as individual identities with a handful of characteristics” but the census itself confers a kind of group national identity upon us (*PN*, p. 238). And Steven Kelman, in his discussion of the political foundations of American statistical policy, singles out this celebratory aspect of the census, its place as a ritual of national identity. The census, argued members of congress in 1879, was “the great picture of our physical and social freedom ... displayed for the judgment of mankind” from which not only foreigners but also “our own people” were to learn “what we really are” (*PN*, pp. 287–288).

If facts are necessary for good government, then it makes sense for the facts to be governmentalized. Herein lay the argument for an expanded census. The requirement for a census was built in to the Constitution, for a periodic count of free and enslaved persons was necessary to determine the numerical basis for representation in the lower house of Congress. In the early nineteenth century, many agreed with James Madison that an expanded census was desirable because “in order to accommodate our laws to the real situation of our constituents, we ought to be acquainted with that situation” (quoted in *CP*, p. 160). Yet, whilst some made demands for all sorts of information in addition to the count of occupations that Madison had sought, others opposed anything but a simple head count. Why the controversy?

One issue concerned the content of counting — what it was legitimate to count and why. To this I shall return. But a second, perhaps more fundamental issue concerned the nature of the polity in a democracy. As Cline Cohen argues, this was a controversy over the existence of

peculiar interests as opposed to the common good — should democratic government be based upon the premise of a single common good embracing the whole community, or should it seek to adjust itself to the several classes of persons with their various, principally economic, interests. Some viewed society as an organic whole. For them, as Prewitt points out, the object of government was the pursuit of a public good that could not be divided, and the pursuit of politics an exercise of virtue. Others, notably Madison, “viewed society as consisting in multiple and diverse interests. To govern such a society in democratic fashion required complex information about the composition of the public” (*PN*, p. 268). By 1820, the Madisonian ideal of democracy, as a nicely calculated exercise of power, had prevailed. The polity was now to be broken into its several classes; the census was to require each household to be allotted to one, and only one, sector of the economy. As Cline Cohen puts it “The common good was being broken into constituent parts, and the social order could now be comprehended through arithmetic” (*CP*, p. 164).

In the preface to the 1838 edition of his almanac, Joseph Worcester wrote: “all intelligent and judicious legislation must be founded, in great measure, on statistical knowledge”: if statistics on population, manufactures and agriculture, crime and pauperism, education and religion were collected regularly, it would “greatly increase the ability of the national and state governments, as well as of societies and individuals to promote the interest, and advance the moral civilization and improvement, of the people” (Worcester, 1838, quoted by Kelman in *PN*, pp. 281–282). And Steven Kelman quotes President Martin Van Buren: the 1840 census should “embrace authentic statistical returns of the great interests specially entrusted to, or necessarily affected by, the legislation of Congress”. (*PN*, p. 282.) It is with this census of 1840 that Cline Cohen’s book ends. Some had hoped that this was to be a “full dress inventory of the greatness of America”, but Cline Cohen argues that this census led to a new scepticism over the reliability of numbers, a scepticism

that arose around the issues of race, slavery and insanity.

Amongst those who had become objects of government by 1840, and hence objects of statisticalization, were the mad. The 1840 census added a count of the insane and idiots, distinguished by race and by mode of support, to the counts of the blind, deaf and dumb, that had been included in 1830. When the results of the census were published in 1841, the total number of those reported as insane or feeble minded in the U.S. was over 17,000. More to the point, perhaps, nearly 3000 were black, and the rate of insanity amongst free blacks was 11 times higher than that of slaves and six times higher than that of the white population. For those who opposed abolition, like U.S. Vice President John C. Calhoun, these census figures proved that blacks were congenitally unfit for freedom. Abolition, far from improving the condition of “the African”, worsened it: where “the ancient relations” between the races had been retained, the condition of the slaves had improved “in every respect — in number, comfort, intelligence and morals...” (quoted in Gilman, 1985, p. 137). Gilman cites an essay in the *American Journal of Insanity* as late as 1851, citing the 1840 census as proof of the inferiority of the blacks. For Cline Cohen however, the significance of the public and ill-tempered wrangle between the various officials and congressmen is that it took a novel form: a questioning of the factuality of numerical facts. This debate marks, for her, the moment of loss of innocence for political statistics — the recognition that statistics could lie, and that statistics could be challenged by other statistics. But the key point of this episode, as she also recognizes, is that political controversy and numerical controversy have become inseparably intertwined. From this point on, that is to say, political disputes will be waged in the language of number.

The key argument for the expansion of the census in the U.S. from the 1840s to the present was put succinctly in 1849: “the American statesman”, argued Senator Hunter, must “obtain a full and accurate view of all the parts of that

vast society whose machinery he directs" (quoted by Kelman in *PN*, p. 282). The obvious, but none the less significant, consequence was that what was counted was what was problematic for government. As Kelman points out (*PN*, p. 283):

The introduction of questions on manufacturers in the 1810 census reflected a new interest in the industries of the industrial revolution and demands for legislative action to aid them. The dramatic expansion of statistics about social problems such as illiteracy, ill health, insanity, pauperism, crime and so forth, that began in an important way with the censuses of 1840 and 1850 mirrored a growing concern that the large wave of immigration of poor people was creating social problems. The collection of wage statistics and detailed information about the railroad and insurance industries, introduced after the Civil War, was a sign of the growing legislative interest in labour relations and big business.

By 1880, few would dissent from Representative Cox's assertion that "a country without a census cannot be well-governed" (quoted in *PN*, p. 283).

Three themes emerge clearly from the genealogy of the American census in the nineteenth century. Firstly, numbers are linked to specific problematizations. To problematize drunkenness, idleness or insanity requires it to be counted. Reciprocally, what is counted — slavery, pauperism, insanity — is what is problematized. To count a problem is to define it and make it amenable to government. To govern a problem requires that it be counted. Secondly, numbers are linked to evaluation of government. To count is bound up with a new critical numeracy of government, to measure the success of government is to measure quantitative changes in that which it seeks to govern. As George Tucker put it in his 1847 prospectus for a nationwide General Statistical Society, statistics alone enable us to trace the success of government in relation to "a nation's moral and religious improvement; its health, wealth, strength and safety" (*CP*, p. 221). Thirdly, numbers are essential to authority's claim that it is legitimate because it is representative. Numbers figure out the continual adjustment between those who have power and those

over whom they claim the right to exercise it.

### MAKING UP THE NATION: DEMOCRACY AND THE CENSUS

What is the nation? This question has a particular salience for democracy. Democracy as an ethico-political governmental rationality is based upon the legitimacy apparently conferred upon political power by a quantitative relation between those holding political authority and those subject to it. The debates over apportionment illustrate the complex relationship between such a political rationality and the technologies of government which can help to operationalize democracy. Prior to the Constitutional Convention of 1787, each state had equal power within the Confederation. However, at that convention the delegates from the larger states wanted to give equal weight to each person, and thus most power to the states with the biggest populations. As William Petersen explains:

The compromise effected was to balance power by establishing a bicameral Congress; in the Senate, with equal representation from each member of the Union, the less populous states had relatively more weight; and in the House, with representation proportional to the population, those with more inhabitants dominated. To maintain this balance the number in the lower house had to be adjusted periodically to population growth, and the first link between politics and enumeration was thus inscribed in the Constitution itself (*PN*, p. 192).

But, of course, the delegates from North and South were divided, above all, on the question of slavery; the compromise on this was precisely numerical: apportionment was based on all free persons except Indians "not taxed" (that is, not living in the general population), plus three-fifths of "all other persons". For each 100 slaves in a congressional district, that is to say, it received representation equivalent to that for 60 free persons (*PN*, p. 193).

From the time the Constitution was written, the census was bound up with both the spatial and the racial distribution of political power. By

the end of the nineteenth century, this was taking the form of a new politics of blood and race, problematizing now not the rate of increase of the population of free white men and coloured slaves but immigration. Francis Walker, "the intellectual founder of the immigration restriction movement ... warned native Americans that they were being overrun by hordes of 'degraded' immigrants from Southern and Eastern Europe: 'beaten men from beaten races'" (Walker, 1899, quoted by Conk, *PN*, p. 162). And Francis Walker was none other than director of the census.

Walker's theories of the difference between old immigrants and new immigrants, and the evidence he gathered in his new techniques for monitoring changes in the population through centre of population maps and population density maps, proved crucial in the passage of the legislation that restricted immigration to the U.S. on racial lines. A range of events — the effects of mobilization for the war on perceptions of immigrants from the Central Power nations, the 1919 strike wave — led many to see the cities and their polyglot population as destroying the fabric of American democracy. Congress balked at passing the reapportionment legislation that was indicated by the 1920 census, for population growth would add representatives to those urban industrial states with large foreign-born populations. But if the census produced and demonstrated the problem, it could also promise to resolve it.

A study of the national origins of the population, showed that though immigrants were one of the fastest growing groups in the population in the early twentieth century, the descendants of persons enumerated at the second census actually made up over half the 1990 white population. The grounds for this characterization of the composition of the American population in 1790 was W. S. Rossiter's rather speculative estimate made on the basis of the surnames listed in the enumeration. None the less it enabled the restrictionists to argue that, since the majority of Americans in 1800 came from Northern Europe, the majority of twentieth-century immigrants would have to

come from Northern Europe in order to preserve the exiting racial balance of the nation. The National Origins Act of 1924 called for a calculation of "the number of inhabitants in the continental United States in 1920 whose origin by birth or ancestry is attributable to [each] geographical area" (quoted by Petersen, in *PN*, p. 220). The Act operationalized the numericization of the population through immigration quotas, cut immigration to 150,000 per annum, and allocated 71% of the quotas to Great Britain, Germany and Ireland. As the related events of the next two decades in Europe were to show, such a numericization of a politics of the population founded on blood, race and territory was to have global implications.

But the numerical inscription of race is two faced: it can also ground a positive politics of identity. As Petersen points out (*PN*, p. 218):

those departing from the multi-ethnic pre-1914 empires of Central and Eastern Europe had little or no consciousness of belonging to a nationality. He was the subject of a particular state, for example Russia; he spoke a particular language, for example Lithuanian, he was an adherent of one or another religion, and he regarded a certain province or village as home ... The technical requirement that the question on ethnicity be put in a simple form — "What was your country of birth?" or something equivalent ... helped solidify new ethnic groups. Having learned that they belonged to a nation, some of the immigrants submerged their provincialisms into a broader patriotism, their local dialects into a language.

Hence it is not paradoxical that the first Lithuanian newspaper was published in the U.S.; that the Erse revival began in Boston; that the Czechoslovak nation was launched at a meeting in Pittsburgh. Identity, here, as in the case of the contemporary fabrication of Hispanic identity in the U.S., is literally a matter of being counted as identical.

The controversies that surrounded the 1980 census included 54 lawsuits filed by cities, states, private citizens and lobbying groups against the census bureau claiming that it inadequately or improperly counted the population

(Conk, in *PN*, pp. 155–156). So much was now at stake, including not only the reapportionment of seats in Congress in the light of population movements, but also the use of population numbers in attempts by minorities to press their case for social justice. But if the census has become an arena of political struggle, this has a significance that goes beyond the bargaining of interest groups: it reveals the intrinsic dependence of the problematics of democratic politics upon technologies for numbering of the population.

### AN ECONOMY OF NUMBERS

Census numbers are not only politicized, they are also monetarized. In the U.S., complex allocative mechanisms have been built into legislation that tie grants of government funds to population statistics. Grant programmes from federal to state and local governments in the pre-Depression period already used numerical formulae in making their allocative decisions, based on such measures as population, area or road mileage. With the New Deal programmes of the 1930s, in which large sums of federal money were allocated to state and local agencies for social welfare programmes, new measures were introduced based on such numbers as per capita income, maternal mortality rates or population density. The census, that is to say, became enmeshed in national income redistribution. As Margo Conk points out “A new set of census apportionment mechanisms — this time designed to distribute economic power — was being born” (*PN*, p. 169).

Margo Conk argues that Congress and the public had looked to the census in the early years of the Depression for a description as to what was happening and clues as to why. The census could not even provide a credible count of the unemployed. Hence the Roosevelt administration and the New Deal put the experts to work in upgrading the statistical system. More people were employed in counting and in analysing numbers, more things were counted, more numbers were published. The bureau and

its statisticians dreamed of further advances in statisticalizing national reality. Amongst their products over the next decade were the Current Population Survey, monthly unemployment statistics and the National Income and Product Accounts.

The case of National Income Accounting is revealing, as Mark Perlman shows in his contribution to *PN*. Like the other examples that I have discussed, national income accounting demonstrates the relations between the formation of political problematizations and the attempt to render them calculable through numerical technologies. Prior to the 1930s, attempts to estimate the distribution of American income and wealth were bound up with issues of social distribution, with which social classes bore the costs and reaped the benefits of the incidence of taxation, of seasonality in employment, of the growth in manufacturing output. By the 1930s, Simon Kuznets was pointing out that the play of economic forces could be measured at a number of levels, production, distribution or consumption, the level of measurement being determined by the question to be asked. Kuznets was concerned about the social importance of the distribution of family income, and the roles played by banking and by government in stimulating growth. He concluded that the best measures of welfare and growth were to be found at the level of income received by individuals “after it leaves the productive units proper and before it has been diverted into the various channels of consumption” (Kuznets, 1933, p. 205, quoted in Perlman, *PN*, p. 137).

During the 1930s statisticians helped to shape a new problematization to which national income accounts would be the solution. The arguments put forward by those who advocated an increased governmental role in the preparation of such accounts sought to enrol a variety of allies in support of accurate and adequately classified national income data. The administration needed them in order to design appropriate welfare and economic recovery programmes. The Inland Revenue needed them for making projections of the effects of tax changes. Business needed them for market analysis. But



only the federal government had the resources to provide them in a form that was untainted by accusations of unreliability and bias. "Thus developed an identifiable new objective for national income accounting, namely an equitable, efficient, reliable, and speedy numbers supply, essential to the experimental functions associated with economic reform through legislative action" (Perlman in *PN*, p. 139). A new plane of reality was to be composed in the process, a public habitat of numbers encompassing business activity, purchasing power, demand for employment, government action, social welfare and economic recovery, and within which businessmen, politicians, economists and scholars could calculate their way to their objectives.

One might regard this public habitat of numbers, in the 1930s and 1940s, as "Keynesian". This was not in the sense that it was originated or inspired by Keynes, but in that Keynesian "macroeconomic" theory came to provide the intellectual medium within which measures of economic activity could be seen as vital relays between socio-economic problematizations — fears of economic stagnation and large scale unemployment — and political programmes — calculated attempts at economic management by government. Indeed, as Perlman points out, this "Keynesianism" was embedded in the way in which the whole national accounting system focused on measuring consumer purchasing powers as a key to economic recovery.

Wartime was to provide a key test and a key triumph for these projects of "accounting for government". Roosevelt demanded far more in the way of tanks and planes than his experts had deemed possible; Kuznets, who with Raymond Nathan was now at the War Production Board, took charge of military procurement, estimating how and where the American economy could summon up the resources to meet the new targets. They used the national accounts system and accounts of capital formation in devising measures ranging from the transfer of \$7 billion of resources from civilian capital formation to war-related purposes, to reduction of consumer demand by increased taxation.

Their success in the case of military procurement appeared to demonstrate that a calculable relation could be established between the deployment of national resources and the achievement of national purposes.

Equipped with the intellectual technology of Keynesian macroeconomic theory, with the techniques and inscriptions of national income accounting, with the regulatory powers conjured up in the face of total war, accounting had demonstrated its capacity to calculate its way to national objectives. In the post-war American economy, the economists were confident that they could provide for growth in peace as in war, and many new measures of national and international economic activity were devised and tabulated. The measures for operationalizing accounting technologies would certainly entail an increase in the scope of action of the public powers. But, to the extent that they operated by shaping the conditions under which free agents made their choices, this exercise of power for national purposes would not be totalitarian but democratic. And to the extent that they were guided by expertise, it would not be arbitrary but scientific. It appeared as though a democratic society could be governed in the national interest through accounting, expertise and calculation. National Income Accounting thus took its place within a range of other measures that sought to calibrate the welfare of the nation in order to improve it. The Great Society programmes of the 1960s prompted increasing use of census data for social programmes. "One man, one vote" entered the national political vocabulary, and it was argued that the bureau had a constitutional duty under the equal protection clause of the Fourteenth Amendment to count everyone. Counting was seen as a central plank of regulatory government.

Ronald Reagan was elected to President as the 1980 census was being completed. His election appears to mark the start of a reversal in the rise and rise of political numbering. Funds for the Census Bureau were cut, the Office of Federal Statistical Policy and Standards was disbanded. The political problematics of

Reaganomics and neo-liberalism are, of course, marked by a profound suspicion of the capacity of governments to calculate and regulate in the national interest. But, at the same time, neo-liberalism relies upon and seeks to utilize the calculative capacities of individuals and firms, who, in calculating to serve their own best interests, will cumulatively serve all our best interests. The numerical saturation of public discourse in contemporary Britain and the U.S. reveals the new potential that such modes of government provide for a public habitat of numbers, and the new importance that is accorded to all those private agencies and consultants who claim that they can transform market conditions into numbers and to make private calculation effective. Under neo-liberalism, a new "privatized" relationship between numbers and politics is born.

#### A PUBLIC DISCOURSE OF NUMBERS

Of the essays in Alonso and Starr's collection, Kenneth Prewitt gives the most considered account of the relation between public statistics and democratic politics. "Public statistics in the United States", he argues, "are generated as a part of democratic politics" (*PN*, p. 262). For him this invites enquiry into the ways in which the "number system" of the United States "advances or retards democracy, informs or distorts civic discourse, helps or hinders political participation" (*PN*, p. 262). In particular, Prewitt argues that democracy entails practices that will call power holders to account, and he cites evidence that voters hold office holders to account less on the grounds of their own personal experience than on the basis of what they know about national economic performance. And, of course, what they know comes to them largely in terms of the "upward or downward movement of statistical indicators of those important issues for which government has assumed responsibility: unemployment, inflation, balance of trade, interest rates, test scores, poverty levels, crime rates" (*PN*, p. 264). Prewitt's argues that "A democratic

society is preserved when the public has reliable ways of knowing whether policies are having the announced or promised effect. Is inflation being brought under control? Is a war of attrition being won? Are defence expenditures buying national security? Numbers, a part of this publicly available political intelligence, consequently contribute to the accountability required of a democracy" (*PN*, p. 267). Numbers that have integrity, numbers that are safeguarded against political or professional manipulation, are essential elements for informed civic discourse in advanced industrial societies.

Few would disagree with Prewitt's description. But we need to locate this morality of numbers within its own politico-ethical matrix. As Paul Starr and Ross Corson argue, a tradition of American political thought going back to Madison and Jefferson has asserted that the success of democratic government is dependent upon an informed public, for "access to information is vital to the knowledge of one's own interests and of the broader life of the community" (*PN*, p. 438). That is to say, democratic political rationalities that accord significance to rational and calculative self-steering of independent citizens in their personal and business activities also must sustain a public environment of numbers within which those citizens may calculate. This is not only a matter of any individual's own personal evaluation of this or that course of action. It is also a matter of the organization of economic life. As Prewitt points out, substantial amounts of money are committed in the market-place on the basis of the figures in national statistical series — hundreds of thousands of dollars change hands in the commodity markets as soon as data from the Crop Reporting Board of the Department of Agriculture are released.

Whilst nineteenth-century arguments stressed the need for numbers as an aid for governmental legislation and actions action, contemporary economists, as Steven Kelman points out, argue for just such a public statistical habitat which will enable differentiated and private enterprises to calculate actions and decisions.

It is in this context that we should locate the evidence that Starr and Corson provide in their account of the rise of the statistical services industry which concludes the Alonso and Starr collection. Whilst statistics might once have been a governmental activity, since the mid-twentieth century it has become a business. For “with the technological and economic changes of the 1970s [emerged] a substantial industry of private firms selling repackaged public data and privately collected statistics, statistical models, and analytical skills” (*PN*, p. 415) Statistics are now intimately connected to corporate strategy, through the new discourse which binds economic success and business expansion to market segmentation and targeted take-overs and marketing. Statistical information, linking public demographic information on socio-economic and geographical distribution to all manner of other computerized information, is vital in the programmes to sell different products, in different ways, to different customers.

Neo-liberal rationalities of government may revive the old nineteenth-century liberal themes of freedom, the market and choice. However, they become possible bases for a technology of government only in the presence of a population of personal, social and economic actors who will reason and calculate their freedom. They require a numericized environment in which these free, choosing actors may govern themselves by numbers. And they depend upon the elaboration of an expertise of number, embodied in all those professions (economists, accountants, statisticians, demographers) and all those techniques (censuses, surveys, national income tabulations and formulae, accounting practices) which render existence numerical and calculable.

### FIGURING OUT DEMOCRACY

Today, the word democracy is uttered reverentially in more and more nations, by more and more diverse political forces, as if embracing democracy were a matter of a philosophical

or moral commitment, as if it were a charm that ensured liberty, fairness and justice. Perhaps it is. But democracy, as it has come to operate in the advanced liberal capitalist societies of the west, is more than a set of political ideals, and more than a set of mechanisms for delivering a representative executive and holding them periodically to account. As we are beginning to recognize, democracy, as a way of seeking to exercise and justify power, depends upon a complex set of technologies for linking up the exercise of government with the entities — civil society, independent power sources, private wills, and so forth — upon which it depends. And numbers have been, and remain, indispensable to such technologies of demographic government.

Democracy, if it be taken seriously as an art of government rather than as philosophy or rhetoric, depends upon the delicate composition of relations of number and numeracy enabling a calculated and calculating government to be exercised over the persons and events to be governed. Democracy in its modern, mass, liberal forms requires a pedagogy of numeracy to keep citizens numerate and calculating, requires experts to inculcate calculative techniques into politicians and entrepreneurs, requires a public habitat of numbers. Democratic mentalities of government prioritize and seek to produce a relationship between numerate citizens, numericized civic discourse, and numerical evaluations of government. Democracy can operate as a technology of government to the extent that such a network of numbers can be composed and stabilized. This is not a question of the *intrinsic* capacity of numbers — we should not expect to find any essential unity to the relations of numbers and politics. Rather, it is a question of the “what” and “where” of the deployment of numbers, and the “how” of their alignment with other governmental technologies. These two books deserve to be read, whatever their conceptual limitations, for they help us to turn our eyes from the grand texts of philosophy to the mundane practices of pedagogy, of accounting, of information and polling, and to the mundane

knowledge and grey sciences that support rationalities and the numerical technologies that promise to make them operable. They enable us to begin to map out this relationship between democratic political

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