SOME NOTES ON THE RISE OF SCIENTIFIC RATIONALITY & THE QUESTION OF THE GOVERNMENT OF MEN

"Know then thyself, presume not God to scan; The proper study of mankind is Man." (Alexander Pope, *An Essay on Man*, 1733)

"Western man was gradually learning what it meant to be a living species in a living world, to have a body, conditions of existence probabilities of life, an individual and collective welfare, forces that could be modified, and a space in which they could be distributed in an optimal manner .. What might be called a society's 'threshold of modernity' has been reached when the life of the species is wagered on its own political strategies. For millennia, man remained what he was for Aristotle: a living animal with an additional capacity for a political exustence; modern man is an animal whose politics places his existence as a living being in question." (Michel Foucault, 'The Right of Death and Power over Life', *The History of Sexuality, Vol I*, p. 143)

"Side by side with the major technology of the telescope, the lens and the light beam, which were an integra; part of the new physics and cosmology, there were the minor techniques of multiple and intersecting observations, of eyes that must see without being seen; using techniques of subjection and methods of exploitation, an obscure art of light and the visible was secretly preparing a new knowledge of man." (Michel Foucault, *Discipline and Punish*, p. 171)

"O that moral science were in as fair a way of improvement, that men would cease to be wolves to one another, and that human beings would at length learn what they now improperly call humanity!" (Benjamin Franklin, 'Letter to Joseph Priestley', in *The Portable Enlightenment Reader*, p. 74)

Introduction/statement of problem

- *what is 'modernity'?*
- *what is 'the accumulation of men'?*
- *on the ascendance of reason over nature ...*
- *how has power been invested in knowledge?*
- *in what ways was the accumulation of 'scientific knowledge' a precondition for the 'accumulation of men'?*
- *where does science fit-in to the history of modern governmentality?*

What is modernity?

- *historiography:* *circa.*

High Renaissance	1440 - 1627
Early Modernity	1598 - 1789
Baroque Modernity (the 'Classical age')	1760 - 1799
Industrial/Productionist Modernity	1799 - 1960
late Modernity/Postmodernity/Post-History	1965 - 21stC

What will we understand by modernity?

- *'Modernity' is what in this course we will refer to as the age of biopower: when we finally stand at the threshold of 'democratic', national governments, and when a major part of their raison d'etre is the facilitation and the strengthening of the national populace ..*

  Modernity therefore will mark for us a ***threshold****: a particular re-configuration of knowledge/power/society:*

  > " .. the system of possitivities was transformed in a wholesale fashion at the end of the eighteenth and beginning of the nineteenth century. Not that reason made any progress: it was simply that the mode of being of things, and of the order that divided them up up before presenting them to the understanding, was profoundly altered." (Michel Foucault, *The Order of Things*, p. xx)

- *a reformulation of power .. from the sovereign power holding the right to inflict death to the state/society concerned with the management of life ..*

> "Since the classical age the West has undergone a very profound transformation of .. [its] .. mechanisms of power. [What has emerged is] .. a power bent on generating forces, making them grow, and ordering them, rather than one dedicated to impeding them, making them submit, or destroying them." (Michel Foucault, 'The Right of Death and Power over Life', *The History of Sexuality, Vol I*, p. 136)

- *Foucault termed the power to 'administer' life, **bio-power** .. and the practice more widely, **biopolitics***

What is the 'accumulation of men'?

- *precise controls, comprehensive regulations, the instrumental coding of life:*

> "In concrete terms, starting in the seventeenth century, [the] power over life evolved in two basic forms; these forms were not antithetical, however; they constituted rather two poles of development linked together by a whole intermediary cluster of relations. One of these poles - the first to be formed, it seems - centred on the body as a machine: its disciplining, the optimization of its capabilities, the extortion of its forces, the parallel increase of its usefulness and its docility, its integration into systems of efficient and economic controls, all this was ensured by the procedures of power that characterised the *disciplines:* an *anatomo-politics of the human body.* The second, formed somewhat later, focused on the species of the body, the body imbued with the mechanics of life and serving as the basis of the biological processes: propagation, births and mortality, the level of health, life expectancy and longevity, with all the conditions that can cause these to vary. Their supervision was effected through an entire series of interventions and *regulatory controls: a bio-politics of the population.*" (Michel Foucault, 'The Right of Death and Power over Life', *The History of Sexuality, Vol I*, p. 139)

- *a whole new "archive" emerged .. based upon exacting 'power/knowledge' of the human condition ..*

> " .. there was an explosion of numerous and diverse techniques for achieving the subjugation of bodies and the control of populations, marking the beginning of an era of 'biopower'." (Michel Foucault, 'The Right of Death and Power over Life', *The History of Sexuality, Vol I*, p. 140)

A *technics* of the body: *Marshall de Saxe, Guibert, Servan .. military training, tactics, apprenticeship, education ..*

A *technics* of the population: *demography (e.g., Thomas Malthus), the Physiocrats (e.g., Mirabeau, Quesney, Süssmilch, Gournay, Turgot, Mercier de la Rivière .. the natural order of political societies, land as the source of wealth* [1]*), birthrate, housing, migration*

- *these two forms of biopower would only be united in the 19thC - in modernity proper (post- Napoleon, the age of 'universal productionism') .. in a particular configuration of knowledge/power/science/man:*

> "For the first time in history, no doubt, biological existence was reflected in political existence; the fact of living was no longer an inaccessible substrate that only emerged from time to time, amid the randomness of death and its fatality; part of it passed into knowledge's field of control and power's sphere of intervention." (Michel Foucault, 'The Right of Death and Power over Life', *The History of Sexuality, Vol I*, p. 140)

- *this configuration of power-knowledge is represented foremost in the birth of the 'human sciences' ... Foucault termed this configuration the 'modern episteme'*

Knowledge/power/science/man

- *Foucault's preferred historical categorization of 'knowledge' was the* episteme, *or* 'system of elements'*:*

> "The fundamental codes of a culture - those governing its language, its schemas of perception, its exchanges, its techniques, its values, the hierarchy of its practices .. [the space of knowledge that establishes] .. for every man, from the very first, the empirical orders with which he will be dealing and within which he will be at home." (Michel Foucault, *The Order of Things*, p. xx)

- *Foucault asks:* upon what basis did knowledge and theory (of man) become possible?

> "I am not concerned, therefore, to describe the progress of knowledge

[1] there's a complex intellectual history here, but the 18thC French Physiocrats might be seen to owe much to the Germanic and Austrian Cameralists (Justi, Sonnenfels, Osse, Obrecht, Dithmar, Darjes, Gerhard), especially in their focus on land / agricultural productivity as the means to wealth, but also importantly, in their writings on 'natural law' which reflect certain basic themes (in particular the view of society as an 'organism' in which all parts moved harmoniously together) developed earlier in the late-17thC in Germanic and Austrian Cameralist writings. We find in Cameralism a resting-point between the basic concerns that would become (through Smith), modern economic liberalism (e.g., the focus on 'civic mobility', the principles of circulation), and those set out by Colbert in the mid-17thC (known to the later generation as 'mercantilism'[state economic power invested in gold bullion). The importance here is that the Cameralists were central in the trasition from the "power invested in death", to "power invested in the management of life".

> toward an objectivity in which today's science can finally be recognised: what I am attempting to bring to light is the epistemological field, the *episteme* in which knowledge: envisaged part from all criteria having reference to rational value or to its objective forms, grounds its positivity and thereby manifests a history which is not that of a growing perfection, but rather of its conditions of possibility .. " (Michel Foucault, *The Order of Things*, p. xx)

- *what Foucault was trying to uncover was the space within which the writing of the 'human sciences' became possible .. yet, Foucault was not concerned only - as we will see - with excavating the grand space within which the modern world was 'born' .. he was also interested in how (and through what procedures) it functioned:*

> "It is not in Hegel or Comte that the bourgoisie speaks openly. Alongside these texts .. there is an absolutely conscious strategy, one that is organised and well thought out that can be read clearly in the masses of unknown documents constituting the effective discourse of political action." (Michel Foucault, 'Des supplices aux cellules', *Le Monde,* February 21, 1975)

- *hence from understanding power at its general level (power invested in 'knowledge'), Foucault would return to its application .. he never lost sight of the 'reality' of government .. it is this reality that changed in line with the broader transformation in knowledge and power that mark the threshold of the modern world:*

from 'sovereign law' we move to 'societal norms' [2] ..

> " .. a power whose task is to take charge of life needs continuous regulatory and corrective mechanisms .. Such a power has to qualify, measure, appraise, and hierarchize, rather than display itself in its murderous splendour; it does not have to draw the line that separates the enemies of the sovereign from his obedient subjects; it effects distributions around the norm." (Michel Foucault, 'The Right of Death and Power over Life', *The History of Sexuality, Vol I*, p. 144)

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[2] "I do not mean to say that the law fades into the background or that the institutions of justice tend to disappear, but rather that the law operates more and more as a norm, and that the judicial instiution is increasingly incorporated into a continuum of apparatuses (medical, administrative, and so on) whose functions are for the most part regulatory. A normalizing society is the historical outcome of a technology of power centred on life." (Michel Foucault, 'The Right of Death and Power over Life', *The History of Sexuality, Vol I*, p. 144)

On the ascendance of reason over nature ..

- *signposts in the trasition from the mediæval mind to modern rationality:*

15thC	Leonardo Da Vinci (mechanization of the body)
16thC	Baldesar Castiglione (*The Book of the Courtier*, 1528, etiquette for Renaissance gentlemen, a popular classic upon publication)
16thC	Niccolò Machiavelli (*The Prince*, 1532, the subjection of *fortuna* to *virtu*)
16thC	Nicolaus Copernicus (*De Revolutionibus Orbium Coelestium*, 1543)
17thC	Galileo (*Dialogues Concerning the Two New Sciences*, the 'scientific gaze')
17thC	Francis Bacon (*New Atlantis*, Bacon unifies science and technology)
17thC	Issac Newton (*Principia Mathematica*, 1687)
18thC	Marquis De Condorcet (*Sketch for a Historical Picture of the Human Mind*, 1794, the *usefulness* of science)

We enter, in the 15thC a new phase in social, economic and political history. The regimentation of men had begun in earnest with the invention and popularisation of a whole new range of machines: clocks, mills, guns, lifelike automata .. By the 17thC the 'mechanistic world view' (Lewis Mumford) had been well established, and was sustained by the *mathesis* and astronomy of Newton. Man is identified increasingly via the gaze of science to be nothing more than:

> " .. a machine made by the hand of God." (René Descartes, quoted in Lewis Mumford, *Technics and Civilization*, p. 41)

A new view of man is emerging; what later in the century will be known as'materialism'.[3] This view regarded man as a machine, and the proper role of 'science' as the study of that machine. In this sense 'materialism' is broadly related to Francis Bacon's rejection of scholasticism (with the view that science should study matter, not concepts). In materialism this would translate to a new focus on 'experience'.[4] Matter was to be observed. Nature was to become the object

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[3] 'Materialism' proper begins with La Mettrie (though he himself was heavily influenced by Descartes, and has been said to be foreshadowed in Thomas Hobbes and John Tolland). At its broadest level, 'materialism' is defined by its general disbelief in spiritual substance (and also, one might add, for La Mettrie at least, God). The body, its regulation and movements, was the centre of attention. It is no surprize that La Mettrie was admired and followed by the likes of Frederick II. Yet, as the 18th century moves on, materialism was to be contrasted quite radically in the reform movements aimed to regulate the soul. This move occured first in the regulation of unreason (especially toward the end of the 18thC), but was affected with most rigour in the regulation of deviancy in the 19th and 20th centuries. See Foucault's, *Madness and Civilization* and, *Discipline and Punish.* Between the early 'materialists', and the later 'reformers' (philosophically, not chronologically) lie the 'sensationalists' (including, John Locke, Etienne Condillac and Claude Helvetius), who believed that all human experience (including abstract ideas) is based upon sensation.

[4] the actual philosophical history is incredibly complex, but it should be noted that there exist significant

(and increasingly the target) of scientific reason, and 'experimental philosophy':

> "Could the organism suffice for everything? Once more, yes .. The souls is but an empty word, of which no one has any idea, and which an enlightened man should use only to signify the part in us that thinks." (Julien Offray de La Mettrie, *Man a Machine*, p. 128)

> " .. man is a machine, and in the whole universe there is but a single substance differently modified .. Such is my system, or rather the truth, unless I am much deceived. It is short and simple. Disput it now who will." (Julien Offray de La Mettrie, *Man a Machine*, p. 148-9)

Yet the objective was to do more than merely produce a new knowledge. From the first, this knowledge was to be used upon nature:

> "Human knowledge and human power meet in one, for where the cause is not known the effect cannot be produced." (Francis Bacon, 'The New Science', *The Portable Enlightenment Reader*, p. 39)

Science was to be unitied with technology for the aims (and perfectability) of man. The classification, observation and factual description of nature was the first precondition for a 'science of affect' (technology).

On the transition from experimentation to systematic science

From the high popularity of experimental philosophy we pass (roughly at the turn of the 19thC) into the age of systematic science - or the 'scientific spirit'. This scientific spirit (or what Eric Voegelin called 'scientism'[5]) was also related to a whole range of social, political and economic transformations:

> "With the advent of modern times a change comes over the nature of the inquiries and formulations worked out under the guidlines of the idle curiosity - which from this epoch is often spoken of as the scientific spirit. The change in question is closely correlated with an analogous change in institutions and habits of life, particularly with the changes

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differences of emphasis between Baconian scientific method and La Mettrie's materialism based on experience. Both are radically different again from the teachings of Descartes, who stands also at the threshold of modern scientific reason. There is certainly not one single rationality or reason that unites this epoch. Rather there are a whole series of overlaps, negotiations, interventions that broadly, over the 300 year period we term 'modernity' came to define the parameters of a 'scientific civilization'.

[5] Eric Voegelin, The Origins of Scientism', *Social Research*, Vol. 15 (1948). See also, Voegelin, *The New Science of Politics* (Chicago, 1952).

> which the modern era brings in industry and the economic organization of society." (Thorstein Veblen, *The Place of Science in Modern Civilization*, p. 12)

alternatively,

> "With the transition to modern times industry comes into the foreground in the west-European scheme of life, and the institutions of European civilization fall into a more intimate relation with the exigencies of industry and technology." (Thorstein Veblen, 'The Evolution of the Scientific Point of View', in *The Place of Science in Modern Civilization*, p. 49)

- *and what began in the "system of posiivities" (capitalism), then bends back to condition the 'system of knowledge'*

> "In the modern culture, industry, industrial processes, and industrial products have progressively gained upon humanity, until these creations of man's ingenuity have latterly come to take the dominant place in the cultural scheme; and it is not too much to say that they have become the chief force in shaping men's daily life, and therefore the chief factor in shaping men's habits of thought." (Thorstein Veblen, *The Place of Science in Modern Civilization*, p. 17)

- *the best treatment of this collision between what we may call the 'system of knowledge' and the 'system of possitivities' is Foucault's,* The Order of Things.

Here, Foucault intended to locate the moment at which man became an object of knowledge. He did so by studying three 'systems of elements' that emerged around the sign of the classical *episteme* of scientific method (linguistics, representation and grammar; the analysis of wealth; and natural history), and their translation in the modern episteme (into philology, political economy, and biology). Man - through science - became an object who speaks, who works, and who exists.

- ***the question to ask is****: did the transformation of science from experimental philosophy (of the few), to the scientific spirit (of the many) occur independently, or cooperatively with modern political reason?*
- *alternatively, in what ways has the social extension of scientism written modern political order into stone, rather than subject it to critique? Is 'scientific method' - as it has developed over the modern period - in part responsible for the separation of*

politics from autonomous man (the birth of conservative political reason)?[6]

to get close to a response to these questions, it is important to think again about the relationship between power, truth and knowledge

How has power been invested in knowledge?

- *power invested in knowledge*

> " .. in a society such as ours .. there are manifold relations of power which permeate, characterise and constitute the social body, an these relations of power cannot themselves be established, consolidated nor implemented without the production, accumulation, circulation and functioning of a discourse. There can be no possible exercise of power without a certain economy of discourses of truth .. We are subjected to the production of truth through power and we cannot exercise power except through the production of truth." (Michel Foucault, *Power/Knowledge*, p. 93)
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> "Knowledge works as a tool of power. Hence it is plain that it increases with every increase in power - " (Friedrich Nietzsche, *The Will to Power*, §480)

- *power invested in knowledge (technology)*

> "This employment of scientific knowledge for useful ends is technology, in the broad sense in which the term includes, besides the machine industry proper, such branches of practice as engineering, agriculture, medicine, sanitation, and economic reforms." (Thorstein Veblen, *The Place of Science in Modern Civilization*, p. 1)
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> "In order for a particular species to maintain itself and increase its

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6 all the more insideous in that the birth and growth of liberalism has been founded on the autonomous, knowing subject. One, at least, of Veblen's charges against modern science is that it has delinked itself from pragmatics (the areas in which knowledge and actual social situations meet and interact. Scientific method - in his view - is introvert, claiming an autonomy beyond the real world. Another of his charges is that scientific method has systematically excluded generalised reflection on the modern world. Only specifics will be permitted, with all the resistrictions on social critique that this delimitation entails. Modern scientific rationality works to arrest reflection on the generalised questions of the habits of life, while elevating the status of questions of efficiency in day-to-day work. Veblen's question, then, is quite urgent: how has this rationality of systematic science penetrated the western political imagination? In the second essay, Veblen provides his answer: capitalism writ large. Scientific method emerges as the technical means by which the work process would be synchronized, and simultaneously the vector through which the institutions of social order, and the conditions of material life, would coincide in a disciplinary matrix.

> power, its conception of reality must comprehend enough of the calculable and constant for it to base a schema of behaviour on it .. the measure of the desire for knowledge depends upon the measure to which the will to power grows in a species: a species grasps a certain amount of reality in order to become master of it, in order to press it into service." (Friedrich Nietzsche, *The Will to Power*, §480)

- *power invested in truth*

> "Truth is the kind of error without which a certain species of life could not live." (Friedrich Nietzsche, *The Will to Power*, §493)

- *truth invested in technology*

> "The word [technology] stems from the Greek [*technë*] .. From earliest times until Plato the word *technë* is linked with the word *epistëmë* .. Thus the clue to what the word *technë* means and to how the Greeks defined it leads us into the same context that opened itself to us when we pursued the question of what instrumentality as such in truth might be. Technology is a mode of revealing. Technology comes to presence in the realm where revealing and unconcealment take place, where *alëtheia*, truth, happens." (Martin Heidegger, *The Queston Concerning Technology*, p. 12-13)

- *the arrogance of science as 'truth'*

> "A civilization which is dominated by this matter-of-fact insight must prevail against any cultural scheme that lacks this element. This characteristic of western civilization comes to a head in modern science, and it finds is highest material expression in the technology of the machine industry." (Thorstein Veblen, *The Place of Science in Modern Civilization*, p. 2)

> "But whatever the common-sense of earlier generations .. modern common-sense holds that the scientist's answer is the only ultimately true one." (Thorstein Veblen, *The Place of Science in Modern Civilization*, p. 4)

- *science as a false 'truth'*

> " .. the value of the world lies in our interpretation .. The world with which we are concerned is false, i.e., it is not in fact a fable but an approximation on the basis of the meager sum of observations; it is 'in flux', as something in a state of becoming, as a falsehood always changing but never getting near the truth: for - there is no 'truth'." (Friedrich Nietzsche, *The Will to Power*, §616)

Is/was scientific knowledge the essential precondition to biopower?

- *the history of statistics (political arithmetic: the 'moral science')*

> "Government is only possible if the strength of the state is known; it can thus be sustained. The state's capacity, and the means to enlarge it, must be known .. Government therefore entails more than just implementing general principles of reason, wisdom, and prudence. Knowledge is necessary; concrete, precise, and measured knowledge as to the state's strength .. " (Michel Foucault, 'Omnes et Singulatim: Towards a Criticism of Political Reason', p. 245)

> "Statistics has helped determine the form of laws about society and the character of social facts. It has engineered concepts and classifications within the human sciences .. It may think of itself as providing only information, but it is itself part of the technology of power in a modern state." (Ian Hacking, 'How should we do the history of statistics?', in *The Foucault Effect*, p. 181)

- *Italian innovations (the census, statistical science)*[7]
- *Statistics in the modern period: deviancy, criminality, court convictions, suicides, prostitution, divorce, poverty, mortality, demographics, 'normalcy'*
- *Also related to "state building"*

> "The avalanche of numbers is at least part the result of industrialization and the influx of people from the country to the town. Many of the thought patterns for the new counting must have been set up in the Napoleonic era. We can hardly imagine that those extraordinary armies got about without a great echelon of quartermasters keeping track of how much of what was needed to feed, arm and equip scattered units all over Europe, Egypt and the East." (Ian Hacking, 'How should we do the history of statistics?', in *The Foucault Effect*, p. 191)

- *modern statisticians: Helvetius, Say, Smith, Bentham, Malthus, Ricardo*

> "Galilean science had once said that the world was written in mathematical language, but geometry and algebra furnished the model. Only in the nineteenth century did empirical numbers assume their paramount role. It had finally become the task of the natural scientist to measure." (Ian Hacking, 'How should we do the history of statistics?', in *The Foucault Effect*, p. 186)

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[7] see, Jacob Burkhardt, *The Civilization of the Renaissance in Italy* (1954). Also, Ian Hacking, *The Taming of Chance,* and 'How should we do the history of statistics?' in, Colin Gordon (Ed.), *The Foucault Effect*.

How has political rationality worked to 'accumulate men'?

knowledge

- *insanity, vagrancy, delinquency, libertines, idleness, treason, agitation, disorder .. (recognition, exclusion & annihilation)*

power/discipline

- *asylums, prisons, workhouses, schools, factories, baracks .. (differentiation, assimilation and channelling)*

truth/happiness

- *normalization, consumerism, healthcare, leisure, sex .. (pacification, sterilization & diversion)*

What is science if not the 'world of detail' of the organization of men?

> "'Although those who concern themselves with details are regarded as folk of limited intelligence, it seems to me that this part is essential, because it is the foundation, and it is impossible to erect any building or establish any method without understanding its principles. It is not enough to have a liking for architecture. One must also know stone-cutting' (Saxe, 5). There is a whole history to be written about such 'stone-cutting' - a history of the utilitarian rationalization of detail in moral accountability and political control. The classical age did not initiate it; rather it accelerated it, changes its scale, gave it precise instruments, and perhaps found some echoes for it in the calculation of the infinately small or in the description of the most detailed characteristics of natural beings." (Michel Foucault, *Discipline and Punish*, p. 139)