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No one doubts that the American industrial history of the late-nineteenth and early twentieth century was dominated by the development of large-scale industry, but its impact on the economics community is less known. Recent historical literature has tended to assume that economic commentators of that period viewed their newly capitalist economy through the freshly ground lenses of "marginal" economics, and that what they saw was the development of neoclassical type monopolies charging high prices.[1] It may be that the recently received wisdom is pertinent to the period after the turn of the century, when the climate of opinion and of commentary began to change following the big merger movement in manufacturing of 1895-1904, and when prices began to rise in the economy.[2] Before this time, the evidence suggests that economists observing the phenomenon, interpreted it as a new type of competition rather than in terms of monopolies (either neoclassically or classically conceived).[3] This difference is not one of semantics, rather it indicates a crucial difference in perspective. This paper outlines the contemporary response to the changing nature of competition in late-nineteenth century America and interprets it as an attempt to come to terms with a new economic phenomenon by providing explanations for its emergence and salient characteristics.

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[1] Livingston (1987) is one good example, another is Sklar (1988). For a more accurate description and sensible judgement of the extent of marginal thinking in American circles before 1900, see Goodwin (1973) and footnote 6. In an immense literature on the history of American trust legislation, few have dealt with the question of underlying competition theories; notable exceptions are Letwin (1965) who gives a brief discussion of classical and evolutionary notions, and Hofstadter (1964) who discusses the foundation of the anti-trust movement on the "competitive creed" of American thinking.

[2] Bullock's contemporary (1901) survey article suggests a recent change of tone and pace in dealing with the policy issues.

[3] Williams (1990) rightly points to the importance of Mill's ideas on natural monopoly in the policy response of American economists, but natural monopolies played only a small part in their analysis of the new competition. Lack of space prevents me from dealing with the policy issue in this paper.

I The phenomena of the "new competition".

The period after the Civil War and up to around 1900 was an era of massive structural change in the U.S. economy. In a period of rapid growth throughout all sectors, the economy was transformed from a predominantly agricultural economy to a state of highly developed industrial capitalism within a period of around 30-40 years. The diminished role for agriculture and concomitant growth in industry had been accompanied by a marked change within industry. Its concentration from many smallish firms, to a few large firms, and finally to the formation of "trusts" or "combinations", was associated in the contemporary mind with greater efficiency and lower prices. By the late 1890s, these combinations (acting as cartels or as corporate entities) had come to dominate large sectors of the supply of raw materials (eg Standard Oil) through to their final manufactured products (eg Duke's tobacco empire). The development of the combinations and the competitive behaviour of large firms were believed to be peculiarly American phenomena, moreover, ones that had arisen with startling rapidity.[4]

American economists born in the mid-nineteenth century were impressed by these rapid and severe changes in the economy, which challenged their perceptions of the nature of competition and shaped their ideas. Competition was vividly at work before their very eyes. Except by shutting those eyes, and talking to no-one, they could not avoid giving their professional opinion on the new phenomena nor escape the issues posed by their side-effects, good and bad. They mostly interpreted what they saw as evidence of a new form or type of competition, "modern competition", different from the competition envisaged (and presumably, experienced), by the classical authors.

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[4] Great Britain's competitive experience had not changed very much over the nineteenth century. Germany was developing the same sort of big business elements, but they did not appear to generate the same competition problem. See Chandler and Daems (1980) for a comparative view from economic historians. See Marshall (1890) for a contemporary view.

The structure of the situation is similar to the recent discovery of AIDS. Here was a case of a new phenomenon, which was early recognised to be both of major public and medical importance. Scientists sought explanations of the appearance of the AIDS virus, health care professionals worried about the disease's characteristics, and neither found much help in previous medical knowledge. The impact of the "new competition" was similar in many respects. American economists of the period 1880-1900 responded to the new competition at work between large firms, often in both the academic and more popular press, re-examining their theories of competition, twisting old ones and constructing new ones, in their attempts to account for the new phenomena. They developed definite views on what competition was and what it would do, but there was no shared understanding. Their literature reveals a variety of ideas: competition could be an activity, a process, a game, an economic institution, an agency of natural laws, or even a fundamental law of nature. The perceived outcomes were equally diverse. Competition was admired as the regulator of the economy, or as the generator of growth and progress, but feared as the selector which judged between the fit and the unfit in the struggle for existence.

Let me suggest another *a priori* reason why we might find an unusual degree of diversity in economists' thinking. In terms of the standard demarcations in the history of economic thought, American economists of this period were transitional in two senses. They sat on the saddle-point between the earlier classical school and the later neoclassical school, on the brink of accepting the marginal revolution but not yet fully convinced of the value of looking at the world solely through the spectacles of psychological motivation (see Goodwin, 1973). They were also transitional in the sense of representing the last generation of supposedly derivative American economists (taking their ideas from Scottish, English, French and German thinkers) and the first generation to develop a distinctive American way of doing economics (see Dorfman, 1949). Knowing this, we should expect to find a variety of views on competition amongst the economists of this period, and we do.

The new ideas were not simply various combinations of what came before and after. Their general tenor was very different both from those of the later neoclassical views assumed in most historical analyses and from those of the classical economists who came before.[5] The twentieth century neoclassical analysis of competition presents "perfect competition" as the antithesis of "monopoly". Under perfect competition, there are many firms who are passive price takers - they do not actively compete according to any common sense definition of the word (as Backhouse (1990) notes). The single monopolistic firm sets its own price, above that prevailing under competition - but it also does not actively compete with other firms. These limiting cases mould an analysis which is largely static. Marginal conditions are essential, but, as the contents of Stigler's 1957 paper testify, the other conditions or assumptions made are equally important in determining the outcome. Further, Stigler points out, after 1871 (following Jevons' work) the notion of the market became inseparable from the notion of competition. When neoclassical economists talk of the market, they often mean the structure of the industry not the relations between buyers and sellers as would be the case for classical economists. Thus a competitive market for neoclassical economists usually means an industry with many sellers (paradoxically, a market in which they do not actively compete).

In contrast to the above stylised version of neoclassical ideas which permeates the historical thinking about the period, American economists of the late-nineteenth century thought along rather different lines. Instead of the duality of perfect competition and monopoly, they believed in a continuum of competitive behaviour: that between many firms, competition

[5] There appears to have been remarkably little historical study of the concept of competition. Stigler's 1957 survey paper suggests that classical economists did not bother to define competition very exactly, while the history of the neoclassical concept amounts to the development of its conditions (or assumptions). Dennis' more substantive treatment (1977) begins with the early pre-classical development of the idea, then follows it into the era of "free competition" and its subsequent transformation into "perfect competition" under the neoclassical economists. He makes little reference to the American work discussed here. Backhouse (1990) has useful insights.

between few firms, and competitive behaviour by monopolies. Instead of the passive non-competition exhibited by both "perfectly competitive" firms and monopolists, American economists observed and analyzed both the active competition of firms across their spectrum, and the changing nature of competitive behaviour over time.

Market behaviour for these economists meant exactly that, the behaviour of buyers and sellers in the process of exchange. They had a richer view of the dynamics of competition practised between firms, which, they believed, might alter market relations and rules of behaviour, so that competitive behaviour and market conventions were related, but they were not conflated. Similarly, competitive behaviour was also connected with industrial structure, but this was not the only determinant of competitive mores as in the neoclassical case. For example, many American economists had begun to use a marginal analysis of individual decisions by the end of the century, and it played an important part in at least one analysis of the competitive behaviour of monopolists, but it was by no means the only, or even most important, determinant of competitive decisions in their understanding.[6]

The classical authors that the American economists of the late nineteenth century most read and admired were Smith and Mill (see Dorfman, 1949, p81). Yet Mill, despite his famous dictum that "only through the principle of competition has political economy any pretension to the character of a science" (Mill, 1848, Bk II, Chap IV, p284), thought that "custom" was at least as importance as competition in deciding prices. Smith's Wealth of Nations was a more useful resource: two of his notions of competition found their way into American thinking. One of these was "free competition" meaning unrestricted trading of goods and factors, in contrast to controlled trading due to mercantilist policies (and at the extreme,

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[6] Goodwin (1973) describes how marginal elements were assimilated into American thinking in the 1870s and 1880s without becoming dominant in the economic analysis or causing any revolutionary change in the ideas of the day. In the late 1890s and 1900s, marginalism did became more important, but it still remained adulterated by earlier trends and did not necessarily dictate the response to policy problems.

legally founded monopolies) (Bk I, Chap VII, p54-5). The other notion was linked to individual behaviour, and its working was described most persuasively in the situation of excess or insufficient effectual demand for a good, when "a competition" arises between the buyers or the sellers to adjust supply to demand.(Bk I, Chap VII, p50-2). A similar usage occurs in discussing rival owners of capital competing in the same industry to lower profits to their "natural state".(Book I, Chap X, p102-7.) Competition was here an active state, a non-continuous activity; it occurs when things have got out of joint and provides an adjustment process in the economy.[7]

American economists found classical economics a good resource, both of ideas to attach, and of ideas to attack, but they were not without other cultural and intellectual resources. Many had studied in Germany in their youth. They formed part of an emergent social science community undergoing professionalisation and seeking to become scientific, but also active in public affairs. And they interacted with a wider American social, scientific and intellectual community which embraced evolutionary thinking and pragmatism.[8] But, and this is a point I would like to stress, these economists were not theorizing in ivory towers (even ivory towers shared by others), they were living in a vibrant and increasingly commercialized economy. They were influenced by their own observations and perceptions of new phenomena in this economy, and they intertwined their theories of competition with their interpretation of the evidence in their economic writings.

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[7] Backhouse (1990) points out the active state of competition in Smith. Stigler (1957) maintains the notion is that of "rivalry in a race". (I find this notion unsatisfactory because it misses the interactive elements which lurk in most descriptions of competition). Both refer to classical competition as a process of response. Backhouse also discusses the "perfect liberty" notion of Smith, which I think is equivalent to the classical "free competition".

[8] The cultural/intellectual influence has been well documented in studies of social Darwinism by Hofstadter (1944) and Bannister (1979) and of laissez-faire beliefs by Fine (1957). On the development of American social science see Ross (1991).

The main body of this paper outlines the views of five economists chosen to represent the boundaries of American economic opinion on competition. The five are J.B. Clark, A.T. Hadley, R.T. Ely, W.G. Sumner, and T.B. Veblen (and other economists will also be referred to in passing). These economists were born between 1840 and 1857 and their lives cover the century through to 1943. Nearly all their work which I discuss falls into the crucial period 1885 to 1905. To aid comparisons, I have categorised their ideas according to the type of concepts of competition they held.

II Competition as an institution.

History has labelled Veblen the leading American Institutionalist economist of the period, but two others, Clark and Hadley, also discussed competition in terms of an institution. They shared Veblen's notion that institutions are habits of thought, customs, conventions of conduct, and even principles of right and propriety. Most economists of the period found it natural to discussed ethical and moral questions of competition behaviour, and all three offered a wide social analysis in preference to a neutral scientific account of how competition had changed over time.

II.i Clark and competition as rivalry in service.

John Bates Clark (1847-1938) is generally regarded as one of the foremost American economists of his generation.[9] His two major books were dominated by questions of the distribution of wealth, and competition was central to this topic, but in different ways. In his

[9] Like many economists of his generation and nationality, he studied in Germany, adopted the Germanic view of society as an organic unit, and acquired at least a veneer of historicism and a belief in state intervention. Later on he gained a reputation as one of the founders of marginal theory; he stressed the role of society in determining the values of utilities. Along with Richard Ely and Henry Carter Adams, he is regarded as one of the three founders of the AEA in 1885, committed to the reform of economics (though see Coats, 1960).

first book, The philosophy of wealth (1886), he developed an institutional analysis, based on his observation that "true competition", "a rivalry for public favor" which somewhat resembled a race, was being replaced by "a bargaining process having the capacity to become a quasi-combat" (p65). Under the older sort of competition, personal relations were amicable, or even non-existent, for society intervened: "under a regime of free competition, whoever sells the thing he has produced, sells it to society. . . Under free competition, the world is seeking to serve us, and we buy what the world, not a chance producer, offers" (p85). The new competition changed the relations between buyers and sellers: "a bargain becomes a contest of strength in which one man's gain is another man's loss, a transaction which is liable to strain the personal relations of the participants, and even to render them surly or desperate" (p66).

The changing nature of market-place relations was paralleled, and causally linked, to the changing nature of firm competition from "conservative", to "destructive" or "cut-throat" and thence to combination (p120). Conservative competition is where competition is restrained by customary elements of "goodwill" and "sense of right" making competition moderate and tolerant (p122).[10] The effect of the industrial revolution and the introduction of machine processes changed the economic relations between people and the "ethics of the market" (p123). The small producer/retailer was put out of the field and a new competition was introduced between producer and sellers, not present under the old system of small shops and conservative competition. The action of "service" to the customer had given way to "rivalry" between large firms, and competition between them became increasingly fierce and destructive.

[10] He referred here to Mill's treatment of prices as ruled by both competition and custom (see Mill, 1848, Bk II, Chap IV).

Clark believed that unrestricted competition was incompatible with the notion of a "society": "rivalry in *giving* is, therefore, the essence of legitimate competition. It is the function of moral influences to see to it that the process retains this character" (p155, italics mine). In Clark's historical analysis, moral forces had grown with society to limit competitive impulses: the "just price" had been followed by the "market price", and both had involved competition under moral restraints. Without such moral forces, competition slipped back to cruder forms such as fraud, force, "higgling"[11], or in the America of Clark's day, the "modern bargain" in which each man was out for as much as he can get: "The theory of the modern bargain appears to be that of the mediaeval judicial combat: let each do his worst, and God will protect the right" (p159). A bargain involved some element of unequal exchange.[12] Crowing over a "good bargain" seemed to Clark to be characteristically American, not because of lack of moral influence in US (indeed it was stronger than elsewhere) but because the US economy had reached the degenerate days of the competitive system (large firms and combinations) before France, Germany or Britain. Because of a lack of ethical principles, modern competition also had the effect of levelling down the moral values of businessmen and thence the community. If one businessman behaved badly, the others have to follow suit in order to stay in business.[13] For Clark, a new era of competitive principles and new mode of competition required a new moral influence.

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[11] "Higgling", described by the contemporary anthropologist Henry Maine, was the bargaining free of moral influences which took place at the "mark" or boundary between non-neighbourhood sellers and buyers (with the implication of exploitation in the outcome).

[12] For Clark, the "bargain" was associated with speculation which appeared to involve the acquisition of wealth by immoral means, for no service was involved in simply buying cheap and selling dear; whereas merchants, retailers, etc, were producers of utilities to others. Speculation could not be entirely condemned because it was a way of acquiring wealth from time utility (see his footnote on p173).

[13] This was believed to be particularly evident in the labour field, where one employer paid low wages to hire an unemployed man, then rotated other workers, rehiring them at lower wages. Other employers then had to follow suit and so the general level of wages declined. Adams (1887) responded to Clark's worries by suggesting that some competitors resist levelling down by competing on quality rather than on price. He recommended that the state use legislation to raise the "plane of competition" to a higher moral level.

In this early institutional and historical analysis, Clark dealt with competition as a set of conventional rules of behaviour, rather than a timeless law of nature. He could not regard modern competition as a scientific ideal, but did recognise that it had provided a useful, if imperfect, way of producing and distributing wealth in the economy, soon, he forecast, to be replaced with some better method. As we shall see, he later changed his mind in favour of competition (section III.iii) and then he found a perfect and ideal role for it (section IV).

II.ii Hadley and competition as a process of adaptation.

Arthur Twining Hadley (1856-1930),[14] like Clark, discussed the competition that he saw around him in the modern American economy in terms of an institution, one with a past and a future and not as a natural law true for all time.[15] But that does not mean that he saw competition as an entity about which one cannot theorize, and he too believed that economic laws and ethics were interconnected. Indeed, for Hadley, ethics and economics were closely connected in the changing institutions of the economy (Hadley, 1896, p15-25 and 1906, Chap 2). Hadley's ideas on competition can be broken down into three aspects: (1) competition as an institution (discussed in his textbook, 1896); (2) the economic laws of firm competition (in his study of railroads, 1885, which recent scholarship has established as innovatory in the theory of cartels and imperfect competition (see Cross and Ekelund, 1980 and 1981)); and (3) the ethics of competition (discussed in his 1906 book). I discuss (1) and (3) here and (2) in section V.iii. Hadley's work demonstrates both considerable knowledge of the competitive activity of his day and a sharp grasp of the analytical problems it posed. His approach

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[14] Hadley studied in Berlin with Wagner, became an expert on the economics of railroads and their regulation, and was active in the public arena as an economist. Like Sumner, he became professor of political economy at Yale (1891-9), and then President of Yale (1899-1921).

[15] See Hadley, 1896, p148-50. Similarly, he regarded natural values and natural distributions as figments of the imagination of the natural rights school and rejected them.

combined description, analysis and practical problem solving, using a mixture of classical, marginal and institutional thinking.

The institution of competition was conventionally (by classical standards) defined by Hadley as the effort of rival buyers to secure goods at least possible price and rival sellers to secure as high a price as possible. But, like Mill (whose work he admired), he believed that prices were still to some extent fixed by custom rather than by rational calculation and competition "with most men, custom regulates their economic actions more potently than any calculation of utility which they are able to make",[16] custom being an "absence of judgment" or "survival of habits" (1896, p69-70). Hadley preferred the institution of competition for it appeared to have two good outcomes. First, prices fixed by other institutions such as ignorance, custom, and monopoly all result in evils: ignorance in buyers causes dishonesty in sellers; custom leads to famine or glut; and monopoly in sellers causes discrimination.

The second argument he made for competition was that it has an unintended consequence: when things change, the institution of competition ensures that the economy adapts to the new circumstances. So, for Hadley, competition was not only an institution (a conventional behaviour or set of rules) but it also provided a process: the competitive process is the adaptive process. He spelt out very clearly how this Smithian notion of competition worked in the modern industrial system and incorporated marginal thinking into it. For example, the adaptation process for excess demand is: (1) adjust demand to supply through the competition of commercial merchants so that price=marginal utility for buyers (this is temporary market price); and then (2) make a permanent and less accurate adjustment of supply to demand through the industrial competition of investors which lowers prices (and marginal utility)

[16] For Hadley, the marginal utility school's theory explained "the psychological motives which determine the relations between price and demand" but he thought much of the work of Jevons and the Austrians "seems to belong rather to the domain of psychology than of economics, and to have a very remote application to the practical problems of business and of legislation" (1896, p80).

until they are proportional to production expenses=normal price (1896, p86-8). Because competition was as an institutional rule of individual behaviour, its role is envisaged not as an external regulator (as the classical notion of competition is sometimes portrayed) but rather as an internal and practical process of adaptation to change.

Like Clark, Hadley used an historical analysis to show that different forms of competition have different ethics associated with them (1906, Chap 2). Although Hadley had praised the institution of competition for the fairness and honesty of its outcomes and had written with approval of competition as a process of adaptive change, he believed the competitive ethics and the associated individualism of the classical school, which had taught that "rational egoism and rational altruism" tend to coincide, had been proved wrong by history. Thus, Hadley rejected the more usual invisible hand argument in favour of competition on the grounds that the nature of the economy had changed and egocentricism no longer led to the public good (1896, Chap 1). "Competition is a good medicine for some diseases; but it certainly falls short of being a panacea for all" (1906, p44).

Hadley also rejected, with equal decisiveness, the Sumnerian view that competition is another name for the struggle for existence, for this made force the basis for ethics: "Competition is a totally different thing from the Darwinian struggle for existence. Competitive ethics is not a mere glorification of force." (1906, p59-60). Hadley shared with Clark and many others the notion that "Competition is what its name implies - a simultaneous *petition* or offering of services under which the man who offers the best service is chosen."(1906, p59-60). But for Hadley, the real problem was that these ethics of rivalry in service could not apply to a society where free competition no longer exists. Very large firms and monopolists assumed they could do as they want provided they obey the letter of the constitution. Pricing was highly discriminatory, and tended to be concerned with short run milking of customers rather than longer run relations. Public interest considerations were irrelevant as far as the managers of these firms were concerned. As Hadley saw the situation, the ethics of the new business competition had still to catch up with their practices (1906, Chap 3). The new institution of "industrial monopolies" was in place, their economic laws were understood (see section V.iii), but their ethics were still lacking.

II.iii Veblen and competition as strategic games.

Thorstein Bunde Veblen (1857-1929),[17] like the others discussed here, regarded the process of extensive concentration as a fundamental and inevitable change in the nature of economic activity, but he said comparatively little about the nature of competition between firms.[18] What he did say, in his book The Theory of Business Enterprise (1904) was, as usual, thoroughly original. He was the only economist of the group discussed here who did not laud competition.

Veblen's ideas on competition and the other institutions associated with it are inextricably linked with his view of the modern industrial economy and the development of "the machine process". The more dominant the machine process became, the more closely interconnected were the different sectors in the economy, and consequently the more benefits existed from combining firms' interests. But the actual process of consolidation was an outcome of the institution of "modern business principles" and of the competition between the "captains of industry" (1904, p2-3).

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[17] Veblen's history and reputation as one of the leading thinkers in the American Institutionalist school are well known. One biographical point is are worth mentioning here: he studied with both Clark and Sumner (as well as C.S. Peirce).

[18] I forbear to discuss here those aspects of consumption rivalry which suffer at Veblen's ironic hand in The Theory of the Leisure Class (1899).

"Modern business principles" meant that profits were sought not by moving investments to the highest returns in commercial or industrial activities, but through "strategic control of the conjunctures of business through shrewd investments and coalitions" (p24). The aim of the captains of industry was thereby to gain control of large chunks of the industrial economy, both to satisfy their desire for power and to take advantage of changes in values associated with the interdependencies in the economy (p49). So the older style competition of smaller, more equal units, in which competitive activity was conventional but effective (p270), was replaced by an "excessive competition" (p31) of very different style.[19]

Veblen described this new competition between the "captains of industry" in terms of a game of strategy, in which the opponent is a rival captain (p30-1). The aim is to do a "deal",[20] and to reach this point involves a great deal of manoeuvring: "bluffing", "playing for position" and possibly even coercion. The main strategic move, and thus the best way to force the deal through, consists of blocking some other part of the industrial process by "the discovery of new opportunities for putting their competitors at a disadvantage" (p34). One of the main weapons was the captain's power over loan capital and his ability to manipulate credit for strategic purposes; this meant that the deal was usually accomplished with some element of "pecuniary coercion" (p31 and Chap 5).

In the short run, the game playing nature of competition had a number of undesirable side-effects. First it interfered with the process of pooling. Following Clark, Giddings and Hadley (see sections III.iii and V.iii), Veblen, recognised that the cut-throat nature of

[19] These "modern business principles" were so well understood by the general public, that a novelist of the period could satirize them with an account of an entrepreneur who combined a group of small independent Sunday schools into one big school in the Chicago of his day (see Norris, 1903, p123).

[20] Although one of the meanings of the verb "to deal" involved the idea of business negotiations of an underhand or secret type, the usage of "deal" as a noun with this meaning appears first in American discussions of political and big business behaviour of the 1880s/1890s (source: OED).

competition led the participants at some point to decide to pool their interests. Usually several attempts at pooling were needed before a successful combination would hold together (Veblen, 1904, p258-62). Each temporary success caused economies in the cost of production, with higher profits and lower prices than before, but as long as there were still some outside competitors, rivalry remained and competitive investment occurred until profits fell again and this led to a wider combination. Not all business men found their interests converging at the same time, (or even at all) so there was negotiation and a long drawn out struggle before control was achieved. Sometimes the business interests delayed obviously beneficial industrial combinations while rivals tried to put each other at a disadvantage.

Second, business designs were often in conflict with best industrial outcomes, so that the strategic competition harmed the economy: the continuing regrouping of interests upset the "correlations" between the parts of the economy and this caused "expensive maladjustments" (p37-9).

Third, violent swings in prices, profits and output were caused by the alternation of competition and pooling. Competition no longer acted as a regulator (or smoothing device), but as a destabilising force: ". . competition in the large industry has begun to shift from the position of a stable and continuous equilibration to that of an intermittent, convulsive strain in the service of the larger business man's strategy" (p90-1) Only with complete consolidation would prices stabilize and the chronic tendency to long-standing depressions through overproduction due to the excessive competition be relieved (p263-4).[21]

In the long run, Veblen believed competition led to combination, which he regarded with approval. He made the usual points that combinations abolished replication and gave the

[21] Others also blamed big business for the recurrent crises. Parrini and Sklar (1983) interpret this as leading to a new notion of the market.

advantages of economies of scale, both reducing prices and increasing profits. But Veblen, no lover of competition, perceived something that his contemporaries with their faith in competition could not see, namely that the activity of competing took up much management time and effort. "It is in doing away with unnecessary business transactions and industrially futile manoeuvring on the part of independent firms that the promoter of combinations finds his most telling opportunity."(p47-8) and consequently he saw the greatest contribution by the captains of industry as the retirement of lesser business men. In addition, Veblen believed that marketing or advertising costs for large fiercely competitive firms (up to 90% of costs) was a competitive activity rather than a service activity: its aim was to divert purchases from competitors and thus increase market share. Monopolies' marketing on the other hand was informative in order to divert consumption from other non-competing goods (p56-8). These wasteful competitive activities would be discontinued with consolidation.

Another advantage to ending competition was that he believed business men's influence retarded rather than pushed innovation and their control restricted industrial development (p44-5). This need not be, but by choice the captains were conservative in innovation. (This relates to Veblen's wider thesis about the importance of the engineers, and the instincts of workmanship and idle curiosity.) Veblen dissented from most contemporary opinion which regarded competition as the engine of innovation and progress; he believed technical change contained the seeds of competition's complete destruction. This movement to consolidation was not part of a natural progression, as it was in the evolutionary thinking of Ely, Sumner and even Clark (see section III). For Veblen, it was the result of a deep tension and incompatibility between the technology of the machine process and the institutions of competition: "it appears that the competitive management of industry becomes incompatible with continued prosperity so soon as the machine process has been developed to its fuller efficiency. Further technological advance must act to heighten the impracticability of competitive business. As it is sometimes expressed, the tendency to consolidation is irresistible."(p266) Veblen predicted that business principles would, in the end, lose out to the machine process.

For Veblen, the good of consolidation arose out of the evil of competition. This is a particular version of the usual invisible hand argument that personal self-interest leads to the best for society. For most of his contemporaries (except perhaps the socialists), consolidation arose from competition and both were believed to be good; and if one good did not necessarily cause the other, at least their outcomes were not antithetical in virtue. But in Veblen's formula, as in Mandeville's The Fable of the Bees, the evil (of competition) at the individual level led to the good (of consolidation) at the society level. The captains of industry and their strategic competitions were the enzymes which brought about consolidations, yet Veblen had little but contempt for them and the personal rivalry of modern business principles which so outraged contemporary opinion. Their business ethics were portrayed as without any sense of integrity, honesty, and fairness. Like others of his day such as Hadley and Clark, Veblen saw this as a problem of a lack of a conventional or ethical basis for contemporary business behaviour, rather than as a decline in morality.

Veblen discussed how the doctrines of natural rights and free contract fitted the regime of free competition during the industrial revolution in England (p270). The advent of the machine and business era in the post American civil war era had created a new standardizing force which was both practical and altered the way people saw the world.[22] But that practical economic experience had not yet become recognised and internalised into the ideas, particularly the legal thinking, of the period: "The standardization and the constraint of the system of machine industry differs from what went before it in that it has had no conventional recognition, no metaphysical authentication. It has not become a legal fact.

[22] See Mayhew (1977) on the importance of Veblen's view that the practical experience of intervening in Nature alters our view of the world.

Therefore it neither need nor can be taken account of by the legal mind. It is a new fact which fits into the framework neither of the ancient system of prescriptive usage nor of the later system of free personal initiative." (p275).[23]

Veblen's explanation of the interdependency between the economic realities and the legal and metaphysical ideas embodied in institutions is much more sophisticated than Hadley's explanation of an ethics which had not yet caught up with the practical economics of competition. But all such thinking testifies to the perceptions of these turn of the century American economists that they were witnessing a profound and irreversible change in the economy of their nation.

III Evolutionary theories: competition as a law of nature.

The evolutionary view of the world was made vivid for American social theorists of the late nineteenth century, not so much by Charles Darwin, but by Herbert Spencer's evolutionary sociology. Accounts vary as to how deep such thinking went in industrial and economic circles, and recent literature has tended to downplay the influence of these ideas.[24] I find myself in agreement with earlier authors: evolutionary ideas informed one of the main strands of thinking about economic competition for all five of the economists I discuss. But some earlier accounts appear to assume that evolutionary thinking was compatible with classical economics because both thought in terms of a laissez-faire response by government. They

[23] For example, under the new system, workmen have a *de jure* right but no *de facto* power of free contract (p277).

[24] Recent work, which questions whether captains of industry such as Carnegie really understood and sincerely believed the theory of evolution, or merely used the ideas to justify their economic behaviour, is represented by Bannister (1979). Of the early work, see the stimulating general account of social Darwinism by Hofstadter (1944) and the fine article by Spengler (1950) who discusses many different aspects of evolutionary thinking in American economics.

ignored the deeper question as to whether the implied workings of the economy under the two systems were compatible.[25] We shall see here that in some respects they were not.

III.i Sumner and the struggle for existence

It is appropriate to begin with the ideas of William Graham Sumner (1840-1910), whose early interest in political economy (stimulated by reading and rereading Harriet Martineau as a teenager) and history (reading Buckle at Oxford) was revived by his study of Spencer's work in the early 1870s.[26] For Sumner, competition was a fundamental: God[27] and Nature have set the conditions of life such that man must struggle with Nature. In this struggle with Nature, men are rivals in a competition in which each has to do all they can to gain a living from Nature. "Competition, therefore, is a law of Nature." (Challenge of Facts, 1880s, p95.)

Sumner argued that competition has taken place in the economic domain only with the advent of modern property rights, which give man the right to keep the benefits of his own work for himself; without this right, competition becomes violent and military values take over. So, economic competition is associated with the move from status relationships (of feudalism) to the contract relationships of modern capitalism. (See, for example, "Social Classes", 1883, p24-7. This is all pure Spencer.) Nevertheless, when Sumner looked around him, the

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[25] See Lerner (1963) and the excellent and wide-ranging account of American laissez-faire thought by Fine (1957).

[26] There is little doubt that Spencer's influence was strong, for Sumner successfully fought the president of Yale for the right to use one of Spencer's book in his teaching. Sumner had been appointed to a new chair in political and social science at Yale in 1872. Though he is known as a staunch laissez-faire economist, his economics was not strictly classical, and his conservative views are not always predictable. His economics writing consists of a series of institutional studies and numerous essays, but he is more generally remembered as a sociologist, because of an impressive final book on the creation of social mores called Folkways.

[27] God figured more in Sumner's theories than in those of the others discussed here. He was initially a clergyman, having studied religion in Europe; and he was he was also the oldest of the group in an era when social science was being secularized and professionalised.

competitive struggle remained all too obviously warlike: "Every day that passes brings us new phenomena of struggle and effort between parts of the societal organization. What do they all mean? They mean that all the individuals and groups are forced against each other in a ceaseless war of interests, by their selfish and mutual efforts to fulfil their career on earth" (Concentration of Wealth, 1902, p169).

The intensity and effectiveness of competition depends on the land-population ratio. Sumner argued, in a Malthusian vein, that the more people per area of land, the more intense the competition between them and vice versa. The best outcome is a middle range of population/land pressure, for this means high wages, cheap food and low rent; men can care for themselves and their families, and save capital which is the source of economic progress.[28] But, too much abundance of land reduces the intensity of competition, life is easy and few improvements are made (Earth Hunger, 1896, p186-8). Thus competition is a necessary but not sufficient condition for economic progress.

In Sumner's analysis, the outcome of competition will always be inequality. Natural selection operates through competition. The role of competition is to develop the existing powers (or talents, skills, industrial virtues, capital assets etc) of people to bring about the survival of the fittest firms/people and the failure of the least fit.[29] For example, millionaires are a product of natural selection. They may start out with inherited wealth (fitness) and if they are naturally competent (another fitness), may increase it; but if

[28] For Sumner, capital, not labour, was the crucial ingredient in economic progress and the accumulation of capital was likened to a rolling snowball (as in Spencer's work). The force of capital is in turn the necessary (but not sufficient) condition to gain control over Nature and so create further prosperity. Although for Clark and Giddings, competition was the primary force or energy, for Sumner, capital was the primary force or stored energy: "capital is force, human energy stored or accumulated" (Social Classes, 1883, p62, and see Power of Capital, 1899).

[29] Once again, Spencer's evolutionary ideas were an important influence, and his phrase "survival of the fittest" came to be one of the catchwords of social Darwinian thinking in America.

incompetent (unfit) they will lose it all (What makes the rich, 1887, p152-3). Competition helps to produce prosperity and progress, but it also produces poverty and destitution. Such variation is a sign of a healthy population for Sumner.[10]

It was an important part of Sumner's argument that Nature itself was neutral in this selection process: "nature is fully as well satisfied to make a Sahara, where such is the product of her operations, as to make the wheat fields of Iowa or Dakota. Even in Iowa and Dakota, nature offers men no wages for labor. There are the land, the sunshine, and the rain. If the men know how to use those elements to get wheat there, and if they will work hard enough for it, they can get it and enjoy it; if not, they can lie down and die there on the fertile prairie" (Earth Hunger, 1896, p174). Since Nature is not beneficent, neither, as a law of Nature, is the action of competition. This belief reinforced Sumner's laissez-faire attitudes, namely that Man and Government should both be as neutral as Nature. In his famous essay "The forgotten man" (1883), he argued that by helping the least fit either directly (by charity) or indirectly (via taxes), the middle man weakens both his own power to struggle and the power of his capital to make progress in the economy.

Sumner was clearly in favour of competition - how could he not be in favour of something he believed a fundamental law of nature. But he was also in favour of "natural monopolies" for two important reasons. The first reason was that the outcome of natural selection in Sumner's competition of life was the creation of inequalities and thus concentration of wealth and capital (A group of natural monopolies, 1888, p399). Thus, monopoly is a natural outcome of the fundamental law of competition. Trusts and monopolies are also a good

[10] Chance too is involved in producing variation: "Competition does not guarantee results corresponding with merit, because hereditary conditions and good and bad fortune are always intermingled with merit, but competition secures to merit all the chances it can enjoy under circumstances for which none of one's fellow men are to blame." (What makes the rich, 1887, p153.) Sumner understood more of the evolutionary mechanisms than Spencer, who relied on the inheritance of acquired characteristics for the ethical and physical progress of society.

outcome, because they represent a more highly organised form of industry and a more concentrated form of capital, associated with greater productiveness, higher profits and faster capital accumulation. For these reasons, like most of his contemporary economists, Sumner portrayed the trusts of his time as the source of the period's prosperity.

Secondly, monopolies are not just an outcome of the evolution of industry, they are an important element in gaining control over nature. We have to struggle to get the necessities of life out of Nature and we do this by pitting our own skills (a natural monopoly) against Nature (another natural monopoly), we gain control over nature and create progress and civilization (Another Chapter on Monopoly, 1888). In playing off one monopoly against another, we are, in his words, "employing natural agents" (Trusts and Trades Unions, 1888, p257). Monopolies therefore in an important sense form the basis of our created civilization.

Despite this view that competition via natural monopoly leads to civilization, Sumner rejected Spencer's attempt to join a scientific ethics onto his evolutionary theory of economic, social and biological development. For Sumner, competition does not reform mankind; there is no ethical or moral evolution along with the economic evolution, no movement to the ideal person or society. Sumner's views were typical of what has since become known as "conservative social darwinism". This view was in strong contrast to Ely, who shared the evolutionary framework of ideas, but whose interpretation of evolution was that of the "reform social Darwinist".[31]

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[31] This useful depiction of evolutionary laissez faire versus reform politics comes from Goldman (1953).

III.ii Ely and competition as cooperation.

Richard Theodore Ely (1854-1943) regarded himself as one of the leaders of the American historical school of economists,[32] but his early thinking was dominated by ideas based on the natural: those of organic arrangements of society and of evolutionary change. His notion of economic competition was grounded in his understanding of biological theories of evolution as they applied to man. He believed this involved two notions: (a) the struggle for livelihood which is constrained by the social order; and (b) the dynamic social evolution which leads to changes in the social order (1901, p59).[33]

Competition is "the chief selective process" in evolution and is "a permanent feature of human society" (1901, p64 and 67). But Ely believed that Nature's selection was different from man's selection. In Nature, competition leads to the survival of the physically fittest, but, as he pointed out, weeds are as fit as crops. In the case of Man, selection also leads to the survival of those fittest for modern society, but society establishes the conditions for struggle.[34] In contrast to Sumner's neutral Nature, Ely believed that man acts as a regulator of competition to encourage those best fitted for the constantly evolving society. He

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[32] See his manifesto on method (1884). Ely studied (like J.B. Clark) with Knies at Heidelberg. He is also usually portrayed as a Christian socialist, but his socialism was typical of the period and place in being wishy-washy and reformist (ie "progressive") rather than revolutionary; nevertheless he had to publicly renounce it during an academic freedom case at Wisconsin in 1894 (see Furner, 1975). Though not regarded by history as an economic thinker of great merit, he was widely influential through his several textbooks (eg 1889, 1893), later editions of which included a marginal analysis.

[33] The main references to his evolutionary thinking about competition are his 1900 presidential address on competition to the AEA (1901) and a set of essays Studies in the Evolution of Industrial Society (1903), particularly Part I, and the essay "Rivalry and Success", p152-63. The latter book includes the former 1901 essay, with some revisions (see 1903, p123-151).

[34] It was the analogy with plant and animal breeding which led Ely to this claim, via the work of A.R. Wallace and the sociologist L.F. Ward, who portrayed human evolution as different from animal evolution because the former was modified by purposeful action. Where Sumner drew on Spencer, Ely drew on Ward, but neither copied slavishly. Whilst Sumner rejected Spencer's ethical attachment to evolution, Ely rejected Ward's view that man's successful evolution amounted to the suppression of competition.

regarded man's manipulation of nature not as the suppression of competition but as improvement on the work of unaided nature.[35] Ely's evocative phrase, "man makes competition do its perfect work" (1903, p142), encapsulates his vision.

Not only did competition work better under man's guiding hand than under nature's uninterested power, but Ely believed it was beneficent in action and progressive in effect. First, in contrast to the biological struggle for existence, in which the reproduction of the fit is the only outcome, services are rendered as part of man's economic struggle so production, ideas and the economy are all stimulated (1903, p158-9). This complements Clark's notion of competition as rivalry in service which he also used directly (1901, p70). Second, in further contrast to Sumner who observed that the struggle for existence was a war-like activity, Ely believed that "Cooperation is the great law of social life growth" (1903, p89). This reflected both a strand in current social theory[36] and Ely's observations that individualism had given way to unconscious co-operation and thence to conscious cooperation in the economy (eg the Granger movement and the Interstate Commerce Commission, and in other senses: combinations of labour and capital, old age pensions) (1903, p90-1, p162-3). Third, while the competitive struggle in Nature is unconstrained, man's struggle is constrained by the social order. It is limited by custom, institutions and laws, which themselves undergo evolution so that society improves. Fourth, Ely's

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[35] Ely wanted to differentiate his view from Spencer's theory of natural selection which was unconscious, rather than manipulated (see Ely, 1893, Bk I, Chap 10). Nevertheless, for Ely as for Sumner, the unfit or feeble are still likely to be left on the rubbish heap. They should be treated with humanity, but not encouraged to become dependent: 'a good social measure must strengthen the individual and the group for competition" (1901, p66).

[36] He referenced Kropotkin's suggestion that ability to cooperate is a weapon in the struggle for existence in connection with this sentiment (1901, p61).

cooperative, socially manipulated competition led to spiritual/moral progress (in contrast to Sumner's competition which was morally neutral).[37]

These notions were applied by Ely to a rather standard historical description of the stages of economic development and to the evolution of economic relations and institutions. His outline of the evolution of competition within the industrial economy began with the stage of universal competition, an idealized classical world in which "competition among a large numbers of producers" which would "fix a natural price automatically" (1903, p63). The second stage was one of bitter or cut-throat competition (which had earlier excited Ely's sympathy for the employer, see 1893, p58) and which caused the concentration of industry in the period after the Civil War. Finally, most recently, he observed the third stage of integration, characterised by the emergence of combinations which had secured "harmony and unity of action" to achieve more output with the least input, and with the least waste (1903, p91-2).

Yet the evident tension between the law of cooperation and the competitive struggle for existence remained a problem and source of confusion in Ely's analysis of competition within social evolution. This ambiguity was reinforced by his (waning) commitment to socialism which appears to have been stronger emotionally than intellectually. Ely stated several times that competition was "the cornerstone of the social order" (1901, p58; 1903, p97) but he believed competition was constrained by two other vital elements in the economic society of his day: one was the institution of private property; and the other was the tendency towards the equality of opportunity in economic competition (1901, p69)! By focusing on man's role in changing society and in manipulating competition, Ely had hoped to present a view of

[37] There were two other elements in the evolution towards the ideal man: the role of religion was "to raise competition to higher planes" (1901, p70) (an echo of Adam's influential 1887 paper which attributed such a role to the state); and the other was Spencer's Lamarckianism. This implies the inheritance of acquired characteristics (implicitly Ely thinks only of desirable ones!) and thus the prospect for man and society to improve (1903, p129-32).

competition which avoided what he termed the "anti-rational" view (the view that competition is against the interests of society) as well as the "ultra-rational" view (the idealized notion of a world ruled entirely by competitive self-interest). He was not entirely successful.

III.iii Clark and economic Darwinism

In a revealing article "The limits of competition" (1888)[38], Clark provided an evolutionary analysis of the dynamic manifestations of competition in the American economy of his period. Though written soon after his first book detailing institutional aspects (1886), Clark's attitude toward competition had shifted a little in its favour. He shared Sumner's belief that competition is inextinguishable, and shared Ely's belief that cooperation is the natural end point of competition. His co-author, Giddings, was also influenced by Hadley's analysis of large firm competition and pooling (see section V.iii).

Clark depicted the competition of Ricardian economics as "economic Darwinism" for the industrial revolution had created a new type of competition "a struggle for existence" between "parties of unequal strength" that is, a struggle between "competitors of the new and predatory type" with the old "peaceable type" (1888, p2). "The process was savage" but in the long run, the survival of the stronger was desirable because machines and factories meant cheaper goods and a better standard of life. This process was also transient, so laws derived from observing it were unlikely to apply when the struggle was over. Hence, Ricardo had observed the struggle, but what he really saw was that the "social organism was perfecting itself for its contest with crude nature" (p2). Clark saw that the struggle had given way to centralized firms, but he no longer believed that competition disappeared in this newly organised society, merely that the mode of competition had changed.

[38] Originally written on his own in 1887, then placed in conjunction with another of his own papers and two articles by Giddings in a small collection titled Modern Distributive Process (1888); references are to this version.

Clark extended Cairnes' thesis of non-competing occupational groups in the British labour market[39] to the American output market, where he saw that employers had erected great barriers against competition to control the supply and prices of their products. "This apparently wholesale abrogation of economic law was unthought of by early economists", but "while we [the economists] slept, as it were, and dreamed of the regulation of values by the automatic flow of capital to the points of highest profit, the principle apparently ceased to operate within very extensive fields" (p10). This did not mean that competition "the old regulating principle" was not working any longer. Rather, "True competition is limited by nature to the strata" (p12), within group competition is the dimension of real competition; only firms already in an industry compete.

But, as Clark noted, within some groups, "competition has exterminated the weak producers, and becoming fiercer as the survivors become fewer and stronger, is compelling them, in the end, to unite or perish" (p13) so that combinations resulted. Why do firms move from predatory competition to union? Initially, the firms which combine are those that compete within the group, but once the number of competitors is few, it is easy to pool; this then turns the energies of the group outwards, to compete with other industrial groups (eg railroads with other trusts) so that a new industrial war breaks out across the lines of the industries. But even if all groups became combinations, there would still be "residual competition" between the combinations of equal strength in different industries, and between the combinations and the rest of society.

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[39] Clark had suggested such an analysis in his 1886 book, but had not developed the idea there. Clark claimed that Cairnes' 1874 thesis no longer applied in America because modern production methods had obliterated the dividing lines between labour. Instead over the last 10 years, there had been almost universal labour mobility ("potential competition extends to every part of the industrial field in which men work in organized companies") so that wages had been levelled, due to increased education; new countries having less lines of demarcation; and the adoption of machine processes etc.. (1888, p7-10).

There were two interesting extensions of this analysis. Both Clark and his co-author Giddings discussed whether the combination would be stable. Clark thought that a successful combination depended on equality of the firms involved: "The surviving competitors [who make up the combination] must be few, strong and nearly equal. Marked inequalities of strength among the members of the group defer the formation of the union, or break it when it is formed prematurely" (Clark, 1888, p15), while labour and capital could still move within the pools and in and out of the pools. Giddings, in his paper "The persistence of competition" (1888), believed the "combination equilibrium" was "at best, an unstable one. . . The relative advantages of members as possible competitors cannot remain long unaltered. And however nearly equal they may be at any moment in economic strength, they will be unequal morally" (Giddings, 1888, p22). They may also be unequal in productive efficiency or in innovatory power, which may renew the competition within the group while outside capital may also force competition back into the group. Combinations for Giddings were defensive organizations, whereas competition was an offensive activity. But neither competition nor combination were likely to be stable.

Clark's second extension was to Cairnes' notion of "potential competition" (ie from those outside the group), which came in his two books on monopoly (1901 and 1904).[40] Potential competition was the threat that new firms would enter the industry if prices (and therefore profits) were overly high: "The mill that has never been built is already a power in the market."(1901, p13). Clark thought that potential competition was better than actual competition because it worked more smoothly and benignly than the actual competition: potential competition "relieves the harshness of more overt competition which forces both wages and prices to low levels. There will be a quiet and real force at work which will ensure a certain justice in the fixing of wages and prices" (1904, p122). But the action of

[40] Backhouse (1990) notes the historical importance of this notion which reappears in Baumol's contestable markets.

potential competition was not necessarily real. Successful combinations, by fixing prices and production could limit both real (ie actual) and potential competition. Clark envisaged that potential competition would only work in the same way as actual competition if it were not blocked by "abnormal" or "unfair" competition by the trusts. Abnormal competition meant selling below costs, and was usually combined with unfair competitive practices, namely selling at discriminatory prices and with non-standard supply policies to different groups of people.[41] "Fair" competition involved price-cutting justified by any real cost or efficiency advantage stemming from better organization of the work, economies of size,[42] innovations of technique, management etc etc.. Unfair and abnormal competition were considered bad for three reasons: 1) they prevent potential competition; 2) they force "fit" firms out of the market; and 3) they distort competition elsewhere in the economy.

Thus for Clark, changes in the nature of industry and in the way competition did its work were part of the evolutionary process. Competition worked in the dynamic economy to ensure the survival of the fittest, and this led to centralized production and combinations. But competition was not extinguished: residual competition still operated between groups and even within the groups, and potential competition always remained at work.

IV Competition as an agent of natural laws: Clark and competition as economic ether.

Though Clark in 1885 had been highly suspicious of competition, by the turn of the twentieth century, he had fallen in love with the notion of competition as a fundamental agent or actor

[41] In a later version of his 1901 book with his son J.M. Clark (1912), they pointed out two problems: 1) that the only evidence one has that potential competition worked is if actual competition occurred; 2) that the unfair methods of competition were only unfair if practised by a monopoly, making the issue intent to drive out of the market rather than intent to compete.

[42] Size (or scale) efficiencies mentioned included those of supervision, use of machinery, efficiency of capital and selling systems.

in the economy. The institutional and dynamic (evolutionary) notions of competition in his earlier work (section II.i and III.iii) were supplanted by competition as some all-pervasive entity, enveloping and acting on men and on the economy at all points and times rather like some sort of powerful economic ether. This notion of competition played a central role in the workings of the economy as discussed in his major theoretical work, The Distribution of Wealth (1899), which developed earlier ideas to produce a fully articulated scientific theory of value and its distribution.

Competition works in three interconnected ways in his model of the economy. First, competition was the all-powerful agent which made the economy tend to its ideal static state: "there is an ideal arrangement of the elements of society, to which the force of competition acting on individual men, would make the society conform. The producing organism actually shapes itself about this model, and at no time does it vary greatly from it." (Clark, 1899, p68). In order to explain what he meant by his idea of an economy defined by static laws,[43] he resorted to a natural law analogy of water in a hydraulic model: the ocean appears governed by the dynamic forces of waves and tides, but these are less powerful than the static forces which work constantly to keep it tending to its natural level. Clark's idea economy was characterised by prices which are at one and the same time "natural" (the old classical term) and "normal" (the more recent label, meaning the result of letting the economy work freely without disturbance (p29)) and competitive (p77). So he proposed the equality: natural=normal=competitive=static,[44] although this state is never actually attained

[43] Statics was defined in terms of as stable population, capital, methods of production, form of firms, and consumer wants. It excludes dynamics (likened to hydrodynamics) and any evolutionary changes in society.

[44] Clark's "normal" definition is as in Marshall and Marshall (1879, p65-7), a discussion taken up in later editions of Marshall's Principles (5th edition, 1907, onwards) where he denies that normal=competitive (p347 in 8th edition, 1920). See Hacking (1990) for a discussion of the term "normal" in nineteenth century science and society.

because of "frictions" or imperfections in the market delaying the effects of the workings of the static laws, and because of the less powerful dynamic forces at work (p406).

Second, competition ensures economic justice: it ensures that employers pay labour the value of his marginal product and acts to similar effect in the other factor markets. From this Clark offers one of the first (or perhaps most lucid)[45] expositions of the neoclassical theory of distribution: that in the static case, payments to the factors exhaust the product when each receives its marginal product. Competition thus ensures an ethical distribution of income.

Third, competition ensures efficient apportionment of capital and labour between activities because: "Competition acts as a leveller in reducing the earning power of the final increments of different men's capital to equality. This it does by putting out of the field the competitor whose last increment of capital . . creates less than the standard amount of product" (p254-5), that is, "under perfect competition"[46] labour has the same power to produce value in one part of the system as in another, and the same for capital (p280).

The ethereal quality of Clark's notion was enhanced by the fact that he rarely linked his notion of competition to the individuals in the economy. Very occasionally, he discussed competition in relation to motivation: "There are impulses that cause men to do other things than to compete with each other in business; but competition is the activity which causes prices to be, in the customary sense of the term, natural. This process is, in reality, a rivalry in serving the public . . The motive is, of course, self interest; and the action that results from it is a spontaneous and general effort to get wealth" (p77). Competition here is not the

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[45] See entry on J.B. Clark in the New Palgrave.

[46] The term was not often used by Clark, though it had been much used by another American economist, F.A. Walker, in connection with wage competition. For Walker, perfect competition meant something stronger than competition free from legal restraints (free competition); it meant competition unhindered by constraints of poverty, ignorance, moral considerations etc (see his 1876, Chap. X).

motive,[47] but it provides the "process" or "activity" by which the motive is played out. Clearly, Clark's entrepreneurs do not aim to carry out three functions of competition when they indulge in the activity of competition. This leaves a worrying gap between the action/process of the individuals and the economic ether, suggesting that at least an unintended consequence type of argument is needed as a bridge between the two levels. Much more usually in Clark's book, such an argument is unnecessary, for competition is an outside agent of natural laws rather than a spontaneous action of individuals: "it is entrepreneurs who do the moving, and it is competition that makes them do it" (p289).

There is something in common between Clark's notion of competition as an agency of natural laws unconnected to the individual and elements of both classical thinking and later neoclassical ideas. Granted, Clark's ether notion is unlike Smith's view of competition as an activity stemming from the individuals' desire to buy cheap and sell dear. But, it is similar to the notion of competition as a naturally conceived universal regulator that some Americans believed true of classical, particularly, Manchester laissez faire economists. No doubt Clark was familiar with Walker's attack on the latter, which characterised their competition as follows: "Competition to have the beneficent effects which have been ascribed to it, must be all-pervading and unremitting; like the pressure of the atmosphere of which we are happily unconscious because it is all the while equal within and without us, above and below us. Were that pressure to be made unequal, its effects would instantly become crushing and destructive. So it is with competition" (Walker, 1876, p163).

Clark is rightly credited with helping to define the neoclassical notion of "perfect competition", by laying out the market conditions under which his static ideal type of

[47] I do not think he has in mind competition as a primary motive for he does not refer to anything like a competitive instinct or spirit.

competition would work.[48] Clark's theoretical assumptions about competition and its outcomes were crucial to his model, and he was only too aware that his assumptions would appear peculiar in his period: "to many persons any theory based on competition may seem to have somewhat of a character of theoretical romance. Will not competition soon be a thing of the past?" (Clark, 1899, p440), not because of attainment of static state, but because of growth of combinations. Here Clark proposed to go back to his more realistic dynamic analysis: "It remains for economic dynamics to show that competition is an inextinguishable force. The consolidations of the present period change the mode of its [competition's] action, but they do not destroy it; and therefore they in no wise invalidate a theory that assumes the existence of it." (p441).

V Competition as an economic law.

Clark's static notion of competition remained largely unconnected with economic actors such as firms and consumers, and because of this seemed to float equally unconnected to the economic laws. Sumner made some attempt to spell out such links for his evolutionary theory, but he was not nearly as explicit as Hadley and Ely. They both proposed economic laws of industry competition which were linked to the firm behaviour of the period, and are recognisably modern in analytical terms.

V.i Sumner and the relation of economic laws to competition.

Like Ely and Spencer, Sumner regarded the modern capitalist economy as a complex biological organism not a physical mechanism. In this organism, competition does not directly determine economic outcomes, rather economic (or social) laws and forces intervene

[48] See Stigler 1957, who also suggests that it was through Clark's work that the notions of perfect competition and stationary equilibrium became identified.

between competition (the law of nature) and the economic outcomes. Economic forces (such as the self-interest motive and capital) are natural in the sense that they act with regularity under economic laws (such as the law of diminishing rent and the laws of supply and demand).[49] (See Commercial Crises, 1879, p46-50) An example may help to make Sumner's ideas clearer: Wages are not determined by prices, or profits, but are regulated directly by the laws of supply and demand; these in turn relate directly to the forces of self-interest which are unleashed only by the competition of life. Sumner wrote: "Supply and demand does not mean that social forces will operate of themselves; the law, as laid down, assumes that every party will struggle to the utmost for its interests - if it does not do so, it will lose its interests. Buyers and sellers, borrowers and lenders, landlords and tenants, employers and employees, and all other parties to contracts, must be expected to develop their interests fully in the competition and struggle of life. It is for the health of the industrial organization that they should do so." (Strikes and Industrial Organization, 1887, p42). So, though competition was the fundamental law, Sumner conceived of the economic laws (not institutions) as being the glue that held the parts of the economic society together.

V.ii Ely: competition and economies of scale.

Ely shared in the common belief, of all economists of the period that competition lead inevitably to large-scale production and trustification; indeed for them all, this was a matter of historical reality. And, like Sumner, Ely supposed that competition created large firms in the modern economy through the mechanisms of an economic law, but Ely's law was linked more firmly to both individuals and firm behaviour. Ely argued that the motive for business is gain, and those methods which provide most gain will drive those which provide less gain out of the field. But only in some industries is increasing size associated with increasing

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[49] Other forces are merely conventional and historical: eg the idea that all non-mental labour is degrading. These forces are effective, but are not reliable across time and space.

gain. Here he adopted Henry Carter Adam's (1887) analysis of returns to scale:[50] in manufacturing there are constant returns to scale, and competition will be a steady pressure which is constructive, stimulating and beneficent. In agriculture, there are decreasing returns to scale, so little producers will always remain. Increasing returns to scale denotes a natural monopoly, usually utilities, transport, communications industries etc.; in these industries, competition will be an intermittent rivalry (a temporary but destructive war) followed by collusion (see Ely, 1888, Chap XIX).

V.iii Hadley and the law of large firm competition

The economic law governing this process of competition and collusion was first and most ably discussed by Hadley, with whose ideas and work Veblen, Clark, Giddings and Ely were all familiar. The new theory for this economic law was based on his observations of the behaviour of railroads, articulated in his book on that subject in 1885, and expanded to the general case in his 1896 textbook (see Cross and Ekelund, 1980).

From the earlier discussion of Hadley's institutional ideas (section II.ii) we know that Hadley believed he lived in an age in which legal restraints and physical constraints had disappeared, leading to the abolition of legal and natural monopolies (based on physical or geographical considerations). In their place, he saw that the so-called "free competition" had created a formidable system of "industrial monopolies", where the businesses involved "make competition practically impossible" (whereas a natural monopoly is where "competition is physically impossible") (Hadley, 1885, p64-77). Since industrial monopolies were a new institution, and the old theory failed to explain their behaviour, Hadley saw that a new economic theory of competition was required.

[50] This, in turn, had probably been adopted by Adams from Jevons' work. I am indebted to A.W. Coats, who allowed me to read his unpublished manuscript on Adams.

Commenting from American experience, Hadley argued that the first farms cultivated are not the best but those requiring least capital outlay. The same was true for firms: with population and market growth, we see a move from a minimum of fixed capital to much higher levels so that the proportion of fixed to total continues to grow (1896, p125-7). Two facts were important, 1) when fixed capital is large, the firm experiences high interest charges and maintenance costs and low variable costs; and 2) large fixed capital is very difficult to move, and to do so usually involves much loss to the investors. In these circumstances, classical economics is incorrect, for price competition no longer "furnishes a natural regulator of prices, with which it is wicked to interfere . . . Ricardo's theory was based on the assumption that when payment fell below cost of service active competition would cease. His theory fails, because, far below the point where it pays to do your own business, it pays to steal business from another man. The influx of new capital will cease; but the fight will go on, either until the old investment and machinery are worn out, or until a pool of some sort is arranged."(1885, p70-2.) In Hadley's analysis, price competition and new entry continues until price=variable cost (or, as Hadley called it, the handling costs), and at this point no new firm enters the market.

But, this does not end price competition between existing firms, for in further opposition to the classical view, Hadley (like others of his day) observed that in this new sort of competition, the smaller the number of competitors, the more intense the competition (1896, p117). This was because in the new competition, there is no natural limit. The loss from stopping production is so great (since major expenses such as debt servicing and capital equipment maintenance, run on just the same), that the enterprise may go bankrupt but is still present in the market and becomes an even more reckless competitor. Writing about a specific railroad war, Hadley noted "It is all very well to talk of free competition and survival of the fittest. But permanent competition is virtually out of the question. And survival of the fittest is only possible when the unfittest can be physically removed - a thing which is impossible in the case of an unfit trunk line." (1885, p99). There being no natural limit to the new competition, an artificial limit is found in combination, or in the monopoly principle of determining prices by agreement of sellers (1885, p74).

Hadley did a case by case analysis to predict the outcome of competition for firms with large permanent capital investment:

1) firms which faced competition in all their markets, would have to set prices equal to their variable costs in all markets, and would therefore face ruin.

2) firms which faced competition in some markets would fix prices equal to variable costs in those markets, and prices to cover fixed costs in the non-competing markets; that is, it would have to practice price discrimination in order to make profits.

3) firms facing competition nowhere fix prices to cover fixed charges, and must already be a monopolist or a member of a pool; if the latter, it will most likely end up in a combination agreement. (1885, p142-3).

Using his new economic law of large firm competition, Hadley could explain both the competitive pricing behaviour of firms to their customers and the competitive interaction between firms.

VI Diversity and Observational Circumstances

The five economists discussed here interpreted the phenomena of the new competition in such different ways that their explanations involved novel and disparate definitions of competition and they developed a number of unconventional theories about it.

It might be argued that I stacked the odds in favour of diversity by choosing these particular five economists. This is true. It was my purpose to seek out the full range of views by picking economists traditionally regarded as at the boundaries of opinion: one has been labelled the leader of the Institutionalists (Veblen); one has been hailed as the American marginalist (Clark); one as a traditional scholar of the old school (Hadley); one a Christian socialist (Ely); and one a conservative free-trader turned sociologist (Sumner). Not only do my five bear different labels given by history, but in their time, when professionalization partly proceeded through academic freedom cases and there was a strong pressure to conform, these economists largely stood out for their views. Two of them fought academic freedom cases (Sumner and Ely), two of them led the reform movement for historical economics against Manchester laissez-faire economics (Clark and Ely) and one was the only economist excluded from membership of that movement (Sumner). Hadley always looked secure, but only Clark also later joined the establishment; Veblen remained an outcast.[51] I chose these economists precisely because they were likely to disagree. I was rewarded not just by five notions of competition, but more, for several of these economists held different notions concurrently to explain different aspects of competition. How can we account for this?

The conventional route to understanding why Ely in particular was a cooperative social Darwinist and Sumner in particular a conservative social Darwinist begins with their family circumstances, their mentors, and their intellectual milieu. This information should also help to explain the more interesting question of how Clark, with a similar background and study experience to Ely, developed a different theory and notions of competition. These accounts offer an input-output type of explanation: specific individuals come to hold the beliefs that they hold because personal circumstances, learning and contemporary ideas feed in, and theories and prejudices come out. This approach offers an indirect explanation for variance in views and theories.[52]

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[51] For the place of these five in contemporary economics, see A.W. Coats (1960) and M.O. Furner (1975).

[52] Two such accounts are available in Fine (1956) and Ross (1991).

The question I raised in Section I, and want to explore further here, is whether we can offer an account for the diversity in views held by these economists based on structural reasons rather than individual or sociological ones. Earlier, I appealed to a medical analogy and the case of AIDS. Doctors faced an important new disease apparently unlike any other. My five nineteenth-century economists faced an equally new and important economic phenomenon, a dominant new sort of competition between large firms, one which did not conform to existing rules of economic behaviour, and was not covered by existing explanations. Although classical economics offered a strong thesis about the beneficial regulatory effects of the old sort of competition, it had little to offer about its likely development and behaviour or actions under other circumstances. So, for example, when Hadley reviewed Ricardo's theory, he found it wrong for the new competition. Both as an abstract idea, and as a set of customary rules of behaviour, the classical notions of competition proved inapplicable in the new circumstances. The new phenomena demanded new theories and the opportunity for diversity was open.

Opportunity is necessary but not sufficient. We also need to understand how my group of five economists were able to entertain more than five different notions and theories of competition when faced with the same observational circumstances? A further argument is necessary. I have assumed that my five economists, like most scientists, viewed the economic environment as a source of useful information about their subject. If the nature of that evidence were clear cut, then the many different elements involved in competition might be ranked and a consensus view as to notions and causes might emerge. But, I argue, for diversity to occur, the five economists must have picked on different aspects of competition as they saw it, and so developed different definitions and theories. This suggests that the nature of the evidence must have been ambiguous and the circumstances open to diverse interpretations.

This ambiguity argument is well supported by the long experience of evidence for economic laws. Such evidence emerges, if at all, from the muddle of everyday life rather than in the controlled laboratory environment. Economic observers have to separate out the real wheat from the disturbing chaff. "Nature" rarely shouts "Yes" or "No" for economists, perhaps only in times of crisis are the workings of economic laws seen at all clearly (for example, during hyperinflations). In normal times, economists fix on different aspects, just because the evidence is muddled, or even seems to point in different directions.

For this argument to work here, we have to be satisfied both that evidence of the new competition was as my five economists suggested, and that they used their observations on the real world around them as starting points to develop their diverse theories.[53] The question of the accuracy of their observations is a difficult one, but it is possible to measure their evidence against that of modern historians working on the period. It is comforting to find that economic historians have tended to agree with the contemporary economists: the competition of the period was a new sort of competition and America was the first to experience it. The period has been memorably portrayed as the first development of large scale industry (Chandler, 1977) and the first period of freely negotiated monopolization on a grand scale (for references see Porter, 1973 and Lamoreaux, 1985). The business history of the period reflects the concurrent development of cut-throat competition and price wars (Lamoreaux, 1985 and many others) alongside a period of growing cooperation of which combinations were one example (see Ross, 1977-8). All the main observational starting points (save perhaps for Clark's "ether") for my economists' theories and notions are well supported by subsequent research into the American economy of their time.

[53] See Stigler's (1960) discussion of the environmental influence of events on economic theory.

On the related question of their use of evidence, it is certainly the case that all the five economists began their accounts with various observations on the phenomenon of large scale firms and motivated their theories with descriptions of the new competitive practices. Much of this has been indicated in the text of the paper, where I have described the sorts of observations they made, and the way they were used in their arguments. Sometimes their sources are obvious, for example, Hadley's law of large firm competition was derived directly from his observations of railway behaviour, with which he gained detailed acquaintance early in his career as a writer for The Railroad Gazette and other journals. Veblen's account of competition as a strategic game relied on evidence given to governmental investigations and could have been as easily constructed from reading accounts of deals in the financial press of the period. Others' sources are not so clearly cited, but there were many contemporary discussions of the new competition which gave detailed descriptions of firm behaviour. For example, Sumner's vision of competition as a fundamentally nasty economic struggle law is evidenced by the criminal cases of the period, "dramatized" into a more popular format by Lloyd (1894) and fictionalized in Bellamy's novel Looking Backward (1888).[54]

Let me comment further on two more difficult examples of the relation between economic ideas and the evidence of the period. One is Ely's concern with cooperation, which now seems the most ill-fitting element of his ideas on economic competition in the evolutionary framework, and the one least supported by consequent historical development. He apparently drew this thesis from social theory of the period, and it would be easy to dismiss it as utopian, bearing little relation to the world around him. But the notion was mirrored in the real economy, for commentators like Ely noted that the co-operative movement was growing, and combinations of employees matched those of big business. Above all, the

[54] Lloyd drew on transcripts of court proceedings and evidence to federal and state bodies etc to tell the story of Standard Oil's competitive behaviour. Both it, and Bellamy's utopian socialist novel were widely read.

interdependence of the economy had become considerable: no longer was the American market a series of local or regional markets. The unified capitalist economy of late nineteenth century America matched in many respects the unconsciously cooperating industrial society depicted by Spencer. The law of social evolution portrayed as a law of increasing cooperation might be reasonably justified by the characteristics of Ely's world as reported by those around him. The fact that economic texts of the late nineteenth century in America (and in Britain) included long descriptions of existing cooperatives and serious analyses of cooperation testified that if Ely's view of the future was deluded, it was a shared delusion based on the evidence of their era.

The second example is more subtle. Clark's early suggestion that service gave way to rivalry in the practice of competition has the appearance of nostalgia, yet the idea was echoed in the work of Hadley and more clearly developed by Veblen in his discussion of the rivalrous nature of competition. Clark's thesis began with the observed personal relations of the new competitors. When there are a considerable number of firms involved in an industry, or considerable numbers of buyers and sellers, it may be as Adam Smith puts the matter: "a competition arises", it is relatively impersonal activity, one firm amongst many, and the immediate concern is the firm's relationship with customers. When there are few firms, Clark and Hadley noted that competition becomes cut-throat and destructive, competitors know their rivals, compete directly against them, and as Veblen saw, measure their success by their own share of the market or ability to control it. That some captains of industry really thought consciously in such terms about competition in the late nineteenth century is evidenced by a quote that Chandler (1959) uses from a newly merged conglomerate at the turn of the century: "In the past, the managers of large merchandising corporations have found it necessary, for success, to control or limit competition. So when this company started, it was thought that we must control competition, and that to do this we must either fight competition or buy it. The first meant a ruinous war of prices; the second, a constantly increasing capitalization."[55]

My thesis that new notions of competition could have all been based on observations made in the period can be supported with a single doubtful exception. That is Clark's notion of competition as an abstract ether or force acting on the economy. Although it is difficult to see how he could have any direct observational evidence for such an entity, there was an indirect route between his observations and his development of the idea. Clark was committed to a new theory of value in 1885 but not to competition as an important element in that theory. He then developed his opinions on the inextinguishable nature of competition from his observations on the competitive behaviour of large firms in the economy and incorporated these ideas into his dynamic evolutionary economics of the later 1880s. This view, that competition was always somewhere at work, was then transformed into his idea of competition as an all pervading force in his static ideal model of the 1890s. In Clark's subsequent writing on monopoly, his observation of residual competition (based on the recurrent wars between combinations) turns into the unobservable potential competition, nicely compatible with his static notion.

The outward signs of competition at work in the late nineteenth-century economy were compatible with Sumner's competitive struggle along with Ely's cooperative competition, and Clark's abstract force along with Veblen's habits and customs. But, in arguing for the importance of multifaceted evidence to explain the diversity of views amongst economists of the period, I do not want to argue against the complementary accounts provided by intellectual or cultural history. If there had been no social Darwinism in the America of the 1880s, then Ely and Sumner would have had no evolutionary holders for their theories of

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[55] Annual Report of the National Biscuit Company for the year ending December, 1901; January 3, 1902.

competition. If there had been no classical economics, there would have been nothing for Clark and Hadley to reformulate. If there had been no existing prejudice in favour of competition, there would have been nothing for Veblen to contradict. But, if there were no new phenomena, none of these interesting notions and theories of competition would have arisen. It is in this sense that I argue observation and evidence of the new phenomena must have been the source for the competing notions of competition in late nineteenth-century American economics. Without it, American economists might have passed unhindered along the conventional historical path from free to perfect competition.

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