Networks and Knowledge:
The Beginning and End of the Port Commodity Chain, 1703-1860

Paul Duguid

Abstract

Diversified trading networks have recently drawn a great deal of attention. In the process, the importance of diversity has perhaps been overemphasized. Using the trade in port wine from Portugal to Britain as an example, this essay attempts to show how a market once dominated by general, diversified traders was taken over by dedicated specialists whose success might almost be measured by the degree to which they rejected diversification to form a dedicated "commodity chain." The essay suggests that this strategy was better able to handle matters of quality and the specialized knowledge that port wine required. The essay also highlights the question of power in such a chain. Endemic commodity-chain struggles are clearest in the vertical brand war that broke out in the nineteenth century and which, by concentrating power, marked the final stage in the trade's transformation from network to vertical integration.

Networks and Knowledge:

The Beginning and End of the Port Commodity Chain, 1703-1860[1]

Paul Duguid

Emphasizing the recent emergence of a "networked society," modern commentators have made networks seem very much the measure of the new.[2] Greif's account of early medieval Maghribi traders, Padgett and Ansell's of Medici trade and banking in the Renaissance, or Braudel's of the commercial society in early modern Europe all remind us, however, that business networks are in fact remarkably old. In Gaucci's words, this "modern obsession with 'networking' has a long heritage."[3] Another problem with this obsession is that almost any social arrangement beyond (and perhaps including) the nuclear family can be represented as a network. Discussions need to be clear about what kind of network is at issue.[4] This essay questions some widely accepted assumptions about networks by looking at the emergence of one particular kind of network, a "commodity chain." Hopkins and Wallerstein define such a chain as "a network of labor and production processes whose end result is a finished commodity," suggesting that the commodity chain is indeed a kind of network, but a highly specific one, reticulated around a particular

1 The research on which this paper is based was funded in part by grants from the National Endowment for the Humanities and the Fundação Luso-Americana para o Desinvolvimento. I'm grateful for very helpful comments from Regina Grafe, David Hancock, Teresa Silva Lopes, Gaspar Martins Pereira, and James Simpson.

2 See, for example, Manuel Castells, *The Information Society: Economy, Society, Culture*, 3 vols (Oxford, 1994-1998). For further discussion of the question of "networks," see the introduction to this issue.

3 Avner Greif, "Reputation and Coalitions in Medieval Trade: Evidence on the Maghribi Traders," *Journal of Economic History* 49 (1989) 857-882; John F. Padgett and Christopher K. Ansell, "Robust Action and the Rise of the Medici, 1400-1434", *American Journal of Sociology* 98 (1993): 1259-1219.; Fernand Braudel, *Civilization and Capitalism, 15th-18th Century*, 3 vols., trans. Sîan Reynolds (New York, 1981); Perry Gaucci, *The Politics of Trade: The Overseas Merchant in State and Society, 1660-1720* (Oxford, 2000), 63. For recent analysis of business networks in history, see David Hancock, *Citizens of the World: London Merchants and the Integration of the British Merchant Community* (Cambridge, MA:, 1995); Mary Rose, *Firms, Networks, and Business Values: The British and American Cotton Industries Since 1750* (Cambridge, 2000); Naomi R. Lamoreaux, Daniel M.G. Raff, and Peter Temin, "Beyond Markets and Hierarchies: Towards a New Synthesis of American Business History," *American Historical Review* 108 (April, 2003): 404-433.

4 Podolny and Page are among the few brave enough to try to define a network organization: "any collection of actors ($N \geq 2$) that pursue repeated, enduring exchange relations with one another and, at the same time, lack a legitimate organizational authority to arbitrate and resolve disputes that may arise during the exchange." The stipulation about authority might rule out the family. See Joel M. Podolny, & Karen L. Page. Network Forms of Organization. *Annual Reviews of Sociology* 24 (1998): 57-76, p. 59. Ezra W. Zucherman, "On *Networks and Markets* by Rauch and Castella," *Journal of Economic Literature* 41 (2003): 545-565.

commodity and often a particular market, towards which it will stretch in a linear fashion from production to consumption.[5] Such chains deserve attention for a couple of reasons. First, business history literature, while expansive on networks in general, is remarkably reticent about commodity chains--though these have certainly been important in the history of business. To address this reticence, the following article explores the formation of the port commodity chain in the course of 160 years, primarily by looking at the activities of three port wine exporters, Hunt & Co, Offley & Co, and Sandeman & Co, each of which dates back to the eighteenth century and survived well into the twentieth.[6]

A second reason for attending to this particular chain is that accounts of merchant capitalism and trading companies generally show that success came to those who expanded their networks and diversified their activities, their interests, and their outlets.[7] This article will attempt to show an

5 Terence K. Hopkins and Immanuel Wallerstein, "Commodity Chains in the World-Economy Prior to 1800," *Review* 10 (1986): 157-70, 159. A variety of concepts--supply chain, value chain, even *filière*--offer themselves for this discussion. The literature of the commodity chain seems most apt because Hopkins and Wallerstein developed it to analyse international trade and deployed it historically. Further, as developed by Gereffi, the concept focuses on issues of power, knowledge, and coordination over geographical distances--all issues of interest to the argument offered here. In supply- and value-chain literature, by comparison, such matters tend to be peripheral if considered at all. See Paul Duguid /Paul Duguid, Brands and Supply Chains: Governance before and after Chandler in *Gouverner les Organisations* ed. Hervé Dumez (Paris, 2004), pp: 329-369; Gary Gereffi, "International Trade and Industrial Upgrading in the Apparel Commodity Chain," *Journal of International Economics* 48 (1999, June): 37-70; Gary Gereffi and Miguel Korniewicz, eds., *Commodity Chains and Global Capitalism* (Westport, CN, 1994). See also Peter Dicken,et al., "Chains and Networks, Territories and Scales: Towards a Relational Framework for Analysing the Global Economy," *Global Networks* 1 (2001): 89-112; P. Raikes, M.F. Jensen, and S Ponte, "Global Commodity Chain Analysis and the French *Filière* Approach: Comparison and Critique," *Economy and Society* 3 (2000): 390-417. For an interesting discussion of the *filière* in the context of the wine trade, see J Barker & N. Lewis & W. Moran 'Reregulation and the Development of the New Zealand Wine Industry, ' *Journal of Wine Research* 12 (2001): 199-221. I am grateful to Regina Grafe for her helpful comments that pushed me towards the commodity chain. Neither Hopkins and Wallerstein, nor Gereffi., nor this paper restricts the use of *commodity* to raw materials. The restricted use, the OED suggests, is fairly recent. See "commodity[6a]" *Oxford English Dictionary,* 2nd ed. (Oxford, 1989). Historically, the wine trade has viewed wine as a raw foodstuff and a manufactured commodity to suit its convenience. See Edouard Calmels, *Des Noms et Marques de Fabrique et de Commerce de la Concurrence Déloyal* (Paris, 1858), especially pp. 80ff. Because of the fortification process by which it is made, port falls into the category of processed wines.

6 Over 200 or more years of existence, the names of these firms changed as their partners changed. For simplicity's sake, here they will be referred to by the first name of the most enduring partnership, Hunt, Offley, and Sandeman. The records of the first two firms are in the archives of A.A. Ferreira & Ca, Vila Nova de Gaia, Portugal (hereafter AAF), except for one Offley letterbook, which anomalously is, with the records of Sandeman & Co., in the archive of the House of Sandeman, Vila Nova de Gaia, Portugal (hereafter HoS). Since 2002, all three firms have been owned by Sogrape & Ca. I am grateful to Sogrape & Ca, George Sandeman, António Oliveira Bessa, Luisa Olazábel, and Paula Montes Leal for permission to use and help in using these records.

7 Chapman, for example, echoes Braudel in seeing "diversification" as a critical characteristic of merchant capitalists. Jones, likewise, sees the "tendency to diversify" as a "distinguishing feature of trading companies" until the mid twentieth century. Stanley Chapman, *Merchant Enterprise in Britain: From the Industrial Revolution to World War I* (Cambridge, 1992), 35; Geoffrey Jones, *Merchants to Multinationals: British Trading Companies in the Nineteenth and Twentieth Centuries*

alternative progression. In the port wine trade, those who rose to prominence over time were, to a significant degree, those who extracted themselves from "infinite networks of trade" and developed, instead, a more singular chain.[8] The most successful port firms of the period narrowed down their activities from extensive trading connections to focus more intensively on relatively linear set of links. By contrast, port firms that remained active in diverse networks lost competitive ground. The contrast is distinct enough to suggest that, in certain circumstances, widening networks are not the preferred structure for commercial success. The case presented here argues that one such circumstance may involve networks built around complex goods for which quality, while critical, is highly variable; price, as Rauch puts it, is "uninformative"; and the progress to market requires concatenating diverse participants from distinct geographical locations.[9] Such networks face the challenge of binding the disparate knowledge of these diverse participants into a coherent continuum--a difficult task that demands (and rewards) increasing commitment to the network and its specialized knowledge, and, for the same reason, extraction from other networks and their generalized capabilities. Port, as this paper attempts to show, was such a good and made such demands, in the period under discussion.

The paper begins by discussing how the port chain began and the developing peculiarities of the commodity. It goes on to explore the chain's critical links, some highly visible and some less so, and how these developed over time. It then examines the threat posed by competing products to port's hold on the British market. The paper concludes that the strategies adopted to respond to these threats redistributed power and in so doing changed the way knowledge was reticulated. In the process, cooperation, as Richardson describes it, came steadily closer to control, until increasingly integrated networks of the late nineteenth century emerged as vertically organized firms by the twentieth.[10]

Forging the chain

The port trade's chain stretched primarily from the north of Portugal to Britain. Its politics had more dimensions, however, involving Anglo-French relations as much as Anglo-Portuguese. Indeed, the port trade flourished between the Anglo-French tensions at the end of the seventeenth century and the Anglo-French rapprochement towards the end of the nineteenth. From the earlier date, repeated embargoes against French wines helped open the British market to other wines, and the Anglo-Portuguese Methuen Commercial Treaty of 1703 cemented Portugal's advantage by guaranteeing that Portuguese wines would

---

(New York, 2000), 1. In the context of this study, it is worth noting that Jones gives port firms as an example of firms that, historically, specialized rather than diversified (ibid, p. 25). This paper attempts to show why.

8 H.D. Traill, "The Ant's Nest," *Recaptured Rhymes (*London, 1882).

9 James E. Rauch, "Networks versus Markets in International Trade," *Journal of International Economics* 48 (1991): 7-35.

10 G.B. Richardson, "The Organization of Industry," *The Economic Journal* 82 (1972): 883-896.

pay lower duties in Britain than French ones. Lisbon heavily favored Portuguese colonial trade, so northern Portuguese harbors (principally Porto) and northern vineyards (principally in the Douro River valley) met the British demand for Portuguese wine in the early eighteenth century. Port wine became familiar, cheap and, because anti-French, patriotic. Over the eighteenth century, port rose to dominate both the Portuguese economy and the British wine market. In 1798, port wine alone accounted for almost 26 percent of Portugal's trade; a couple of years later, Portuguese wine (which was mostly port) accounted for almost seventy-six percent of British wine imports.[11] The rise of port's fortunes across the eighteenth century turned, however, into a decline across much of the nineteenth as first Spanish and then French wines surpassed Portuguese wine imports. French dominance was guaranteed by the Cobden-Chevalier Treaty and Gladstone's budget of 1860. The latter effectively reversed the Methuen advantage by assessing higher taxes on wines fortified with brandy, such as port, than on unfortified ones, such as claret, burgundy, and champagne.

Two other factors heavily influenced--and were in turn influenced by--the shape of this chain: regulation and the nature of the commodity.

Regulation

A fall in port's reputation in Britain in the 1750s inevitably produced a crisis in heavily dependent northern Portugal, prompting the mercantilist Portuguese state to intervene. In the following decade, the government set up a monopoly company, the *Companhia Geral da Agricultura das Vinhas do Alto Douro*, to oversee production. The *Companhia* demarcated the region in which port could be grown. It judged each year's crop, deciding how much and whose wine could be exported. It set the price at which exporters could buy the wine, dictated the terms of payment, and supervised transportation downriver and warehousing in Porto. Though focused on viticulture, the *Companhia* also exerted significant control, with the help of the Porto customs house, over shipments, and through its sales activities, even over the British market.[12] Draconian and capricious, the *Companhia's* heavy and invasive hand profoundly shaped the trade until it's dissolution in the aftermath of the Portuguese Civil War (1828-34).[13] Nevertheless, from the overall view of the trade (though not of those who were executed or exiled for transgressing), it was successful. As already noted, exports rose fairly steadily up to Napoleon's "continental blockade," after which they began a long decline. Although these recovered somewhat in the second half of the

11 Conceição Andrade Martins, *A Memória do Vinho do Porto* (Lisbon, 1990), quadro 74; T.G Shaw, *Wine, the Vine, and the Cellar*. 2d edition (London, 1864), table X.

12 For the fall in reputation and the recriminations that followed see, English Factory*, Novas Instrucoens da Feitoria Ingleza a Respeito dos Vinhos do Douro, Setembro de 1754* (Lisbon, 1754). The *Companhia* was founded in 1756. See *Instituiçaõ da Companhia Geral da Agricultura das Vinhas do Alto Douro* (Lisbon, 1756). The port region was demarcated between 1758 and 1761. Through its control of exports, the *Companhia* also had a near monopoly over port sales in Brazil, but the Brazil market lies outside the scope of this paper.

13 The *Companhia* was resurrected in response to another crisis of the late 1830s but was never quite the force it had been in the late eighteenth century.

nineteenth century, in terms of export volume, the highpoint of the *Companhia*'s achievement, in the last decade of the eighteenth century, was not equalled until the twentieth.[14]

Peculiarities of port

Wine was subject not only to the stern hand of regulation, but as also to the capricious whims of consumer fashions which may, on the one hand, demand consistent quality while, on the other, inconsistently changing the notion of what constitutes quality. To a significant degree, then, producers faced a moving target. They faced, it moreover, with a highly unpredictable weapon. As Adam Smith noted, wine is an awkward commodity. The same grapes grown in different regions--or even different parts of the same vineyard--will produce quite distinct wines. Moreover, the same grapes in the same spot will produce quite different wines from year to year depending on such unfathomable variables as the weather. Equally, once made, wine continues to change. Consequently, filling repeat orders for the "same" wine or "similar quality" is a Heraclitan if not Herculean labour.[15]

Wines produced in extremely hot regions like the Douro can be particularly fussy. Grapes in such conditions develop a very high sugar content, making the wine unstable and ready, if provoked, to turn into vinegar. The addition of brandy--the process of "fortification"--helped stabilize the wine for transport it was claimed.[16] (It is not clear when the convention of fortifying port with significant amounts of brandy began, probably in the first quarter of the seventeenth century. Certainly, the practice was well established by the middle of the century.[17]) Brandy may have simplified transportation, but it added other complications. It takes time for the brandy to be absorbed in the wine. Until it is, the wine can be harsh and crude. Thus, the addition of brandy, on the one hand, made it harder to pass young wines along to

14 In 1801, 78,606 pipes of port were exported, a figure not surpassed until 1918, when in a post-war boom, 82,914 pipes were exported. (See Martins, *Memória*, quadro 66.) A pipe of wine contained 128 imperial gallons.

15 Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations* (New York, 1937, first published 1776), 156. Despite the variability, customers asked for "similar style," "same as last," and even "identically the same as before," stipulations, which," one letter writer protests, " we cannot after this length of time answer for." HoS: letterbook, Sandeman & Co to Sandeman (London), August 10, 1824. For the challenge of quality in wine see Alessandro Stanziani, "La Construction de la Qualité du Vin, 1880-1914," in *La Qualité des Produits en France (XVIIIe-XXe Siècles,* ed. Alessandro Stanziani (Paris, 2003).

16 Nineteenth-century oenologists made the claim that brandy stabilized the wine; nineteenth-century port traders contested it. See, for example, J.L.W. Thudichum and August Dupré, *A Treatise on the Origin, Nature, and Varieties of Wine: Being a Complete Manual of Viticulture and Oenology* (London, 1872); Joseph James Forrester, *Observations on the Attempts Lately Made to Reform the Abuses Practised in Portugal, in the Making and Treatment of Port Wine* (Edinburgh, 1845).

17 Small amounts of brandy had been added to the wine since the sixteenth century. See Silvestre Gomes de Morais, *Agicultura das Vinhas* (Lisbon, 1818, first published 1723), 149. (I am grateful to Gaspar Martins Pereira for this reference.) In a note to the Duke of Newcastle in 1725, an agent in Lisbon reported the addition of significant amounts of brandy to white port, as if the practice was new enough to be unfamiliar to the English. National Archives, Kew, England, SP 389/31 105. By 1754, however, the practice of adding wine during vinification was well established. In a celebrated exchange of letters, exporters and their agents in the Douro argued over how much brandy to add. That brandy would be added was taken as given. See English Factory, *Novas Instrucoens*.

consumers, raising inventories and with them the overall cost of doing business. On the other hand, by enabling transportation, brandy allowed links up the chain to pass the wine, and so the cost of holding the wine, down the chain. Fortification further complicated the negotiations between links because it took quite skilled palates to assess the potential of young wines. The following note from a representative of Offley & Co. in the late eighteenth century, in response to a retailer's complaint about wine, captures the problem for both distributors and retailers:

> It almost needless for us to observe to you that port wines owing to the increase demand for these two or three years past have come over newer than formerly and of course it required longer keeping. The wines you mentioned could only at present be fit to put in the bottle not to use. We therefore persuade ourselves that the judgement found was premature ... We therefore request of you to suspend your opinion until they have had more time to mature.[18]

The changing character of the wine and the knowledge required to assess future quality and set current prices made it hard for honest merchants to deal with inexperienced clients. Equally, it made it easy for unscrupulous merchants to cheat unsuspecting clients. In both cases, the nature of the wine put a premium on experience and knowledge in the chain.[19]

Looking at links

The port commodity chain developed in response to the politics of the eighteenth century; the complexity of the product; the geographical, social, and cultural distance between producers and consumers; and the transformation that skill and time effected on the wine as it crossed that distance. As the journey from grape to glass became increasingly regulated and standardized, the chain it travelled also standardized taking, more or less, the following form. The wine was made in the upper Douro River valley by predominantly Portuguese farmers or *lavradores*. In spring, it changed hands at an annual wine fair and passed downriver to exporters in the entrepôts of Porto (which gave its name to the wine) and Vila Nova de Gaia, on the north and south banks of the Douro's Atlantic estuary. Here the exporters (predominantly British) stored and aged the wine for a couple of years before preparing it for export (by adding brandy and blending different lots) to their wholesale clients (predominantly in Britain). British importers--wine merchants, innkeepers, and hoteliers--would then sell port in barrels, bottles, or glasses to consumers, often after a little blending of their own. Each of these groups--*lavradores*, exporters, importers and retailers--came to represent enduring links, chained to one another and to specific places--the Douro,

18 HoS: letterbook of Offley & Co., Offley & Co. to Thomas Harridge, May 6, 1793. The question of how long to wait could lead to complex legal cases about implied warrants. See the case of Rumens v. Offley reported in the *Times,* April 2, 1850, 8e.

19 In noting that the commodity played a significant part in shaping the chain, the paper might seem on themes made prominent by Actor Network Theory. There is little more than coincidence in this. Indeed, by pointing to the role of international diplomacy and state fiscal regulation in the chain's development, the argument, *pace* some of that school, suggests that such networks cannot usefully be in terms of the micro-actors in the chain alone.

Porto, and Britain--in the port commodity chain. To understand the chain as a whole, we need to look at each in turn. (While we can examine links separately, as this section attempts to do, we need to remember that the challenge for the chain as a whole was to articulate knowledge and skills so widely separated into a workable continuum and a viable product, making disparate links work as a unit.) As we do we shall see, besides these canonical points and the tensions they exerted on one another to straighten the chain, some less visible intermediaries who played important stabilizing roles, bridging gaps in social, human, and financial capital between the canonical links.

The Douro

The Douro wines that shipped from Porto were initially the product of monasteries and absentee aristocratic landowners, whose vineyards clustered close to the cities in what was an otherwise the rugged, roadless region of the upper Douro valley.[20] As the market for port developed in Britain, viticulture spread, both geographically and demographically. Simultaneously the region, whose rocky land was inhospitable to most crops other than vines, became increasingly monocultural in every way: the wine and the knowledge that came from making it developed around a single, highly distinct market. The effect was self-reinforcing: participants grasped the port commodity chain ever more tightly; strong ties became stronger; weak ones, only weaker.

To meet growing demand in the eighteenth century, *lavradores* were drawn to the Douro and more land put under vines and brought within the demarcation. Between 1770 and 1821, the number of *lavradores* grew from just under 2,000 to almost 4,000.[21] Few of these exported, however, and the *Companhia,* constantly suspicious of engrossing, forestalling, and futures contracting by exporters, worked hard to inhibit any kind of enduring relationships between *lavradores* and the exporters. To this end, it created a spot market in the Douro, an annual fair in early spring before which no one could buy or sell and during which *lavradores* had to accept the first offer made at the set price or *taxa*. Both buyers and sellers regularly outmaneuvered these restrictions. In particular, powerful *lavradores* and those with high-quality wines (the two classes did not necessarily overlap) built long-term relations with particular exporters, made contracts in advance of the harvest, and received payments under the table but

20 Conceição Andrade Martins, "Vinha, Vinho e Política Vinícola em Portugal: Do Pombalismo à Regeneração," Dissertação de Doutoramento*,* University of Évora, 1998.

21 For 1770, Gaspar Martins Pereira gives the figure 1,977, Norman Bennet the similar but slightly lower figure of 1,970. See Gaspar Martins Pereira, "Aspectos Sociais da Viticultura Duriense nos Fins do Século XVIII" *Actas das Primeiras Journadas do CENPA* (Porot, 1986); Norman R. Bennett, "The Golden Age of the Port Wine System, 1781-1807," *International History Review* 12(1990): 221-248. The 1821 figure from the "Arrolomento Mestre do Distrito do Embarque" for 1821, from the archives of the *Companhia* in possession of the Real Companhia Velha [hereafter RCV], Vila Nova de Gaia. The demarcated area, initially fixed in 1761, was extended in 1791, hence the larger figure reflects in part a larger cachment. Both figures exclude the more numerous wine growers who did not formally fall within the export region but whose wine often seeped in.

over the *taxa*.[22] Consequently, the chain developed enduring links to an elite and relatively small "port wine aristocracy," who sold all their wine annually on terms they could more or less dictate and who remained relatively free from *Companhia* interference but tightly linked to exporters.[23] The composition of this aristocracy was, however, not static. One of the most enduring relations of this period formed between Hunt & Co. and the *Oratório* of Porto, a religious order with extensive, high-quality vineyards. The *Oratório*, which could hardly describe wine as its central concern, sold almost exclusively to Hunt & Co, from the 1780s to the 1830s. The most enduring connection of Sandeman & Co. after it set up in 1814, by contrast, was a secular and dedicated viticulturalist, Braz Gonçalves Pereira, whose reputation was built neither on his extensive landholding, his political influence, nor his social status, but on the quality of his wine and his commitment to the port trade. As this suggests and as we shall see in a moment, between 1770 and 1814 the trade became increasingly the domain of such dedicated practitioners.

Table 1: Exporters and their suppliers in the Douro and the number of years the latter supplied the former

Exporter	Offley		Hunt	Sandeman
Period	1779-1795[24]	1813-32	1808-32	1814-32
Total suppliers	444	292	268	313
Number supplying for:				
one year only	350	183	228	207
two years	68	50	25	54
three years	13	20	7	21
four years	10	8	4	8
five years	3	8	2	4
more than five	n.a.	23	2	19

Source: AAF: wine accounts of Hunt & Co. and Offley & Co. for the years indicated; HoS: wine accounts of Sandeman & Co. "n.a." = not applicable.

22 See Gaspar Martins Pereira, "As Quintas do Oratório do Porto no Alto Douro," *Revista de História Económica e Social* 13 (1984): 13-50; AAF: Hunt & Co., wine accounts; Arquivo Distrital do Porto: Livro de Mosterios 2116, Livro da Receita e Despeza desta Casa da Congregação do Oratório do Porto"; HoS: wine accounts and Livros de Lavradores.

23 Susan Cora Schneider, "The General Company of the Cultivation of the Vine of the Upper Douro, 1756-1777: A Case Study of the Marquis of Pombal's Economic Reform," Ph.D. Dissertation, University of Texas, 1970, quotation at p. 53.

24 For Offley & Co., it was not possible to get data for every year in the period 1779 to 1795. Consequently, the figures may underestimate the number of suppliers and the number of long-term relations between Offley and its suppliers in this period.

Outside this elite, whether sacred or secular, life for most *lavradores* was significantly tougher. As the region increasingly specialized, the dependence of the majority on the port wine system was profound, but their grasp on the chain itself was tenuous. Table 1 indicates that the relationships that obtained between *lavradores* and major exporters in different periods under the *Companhia* were predominantly transient. So, for example, of the 313 *lavradores* who supplied Sandeman with wine from 1814 to 1832, 207, or sixty-six percent supplied in one year only. Only six percent, supplied for more than five years.[25] In Hunt's case, of 268 *lavradores,* only two supplied for more than five years. In the year 1821, the *Livros do Arrolomento* of the *Companhia,* which record what was produced and what was sold vineyard by vineyard, show that of the 148 *lavradores* of the parish of Covas, one of the best wine-growing areas in the Douro, seventy-four of 148 *lavradores* were left with surplus wine, fifteen were forced to sell to the *Companhia* (and so received no premium over the set *taxa*), five sold no wine at all, and twenty-two percent of the wine produced found no buyer. The year 1821 was exceptional. Stocks were low and the wine was particularly good. In 1816, when market conditions were poor, 138 *lavradores* offered wine, 108 were left with surplus, thirty-four had to sell to the *Companhia*, twenty-nine sold no wine at all, and twenty-nine percent of the wine found no buyer.[26]

For the unattached suppliers, there were few alternative legal markets--or even illegal ones, as roads in Portugal developed very late and the river was closely controlled by the *Companhia.* Moreover, even could they be reached, the wine priced itself out of most table-wine markets. So the predominantly small growers, whose numbers grew in good times and whose immiseration grew in bad, formed a "reserve army" whose members might or might not be called up in any particular year (and whose overproduction could, from the exporters' perspective, usefully encumber the *Companhia*).[27] The strengthening chain demanded commitment, but did not necessarily reward it. Many of the *lavradores* were more involuntarily welded than willingly wedded to the system.

Broker links

A reliably large pool of surplus wine provided little incentive for backward integration, consequently very few exporters were involved in production.[28] As a result, there was not only a division of labor but also a division of knowledge between the Douro and Porto. The British exporters--expatriates, few of whom were ever wholly easy in Portugal--seldom went to the Upper Douro except at the time of the wine

25 Only one supplied in every year; that was Braz Gonçalves Pereira, mentioned above.
26 RCV: *Livros do Arrolomento*, 1816 and 1821.
27 As James Simpson (personal communication), points out, the very smallest growers can be thought of as the very first link in the chain. They supplied either baskets of grapes ("cestos de uvas") or small amounts of wine ("vinhos à bica") and their access to the chain was controlled by the *lavradores* and *comissários* (see below).
28 For a similar situation, see Field's account of the beef supply chain in the United States, in which meatpackers, forming something of a monopsony, had little incentive to integrate back into production. Gary Fields, *Territories of Profit: Communications, Capitalist Development, and the Innovative Enterprises of G.W. Swift and Dell Computer* (Stanford, CA, 2004), 241 n 16.

fair. That was too short and too hectic to allow serious assessment of the wines on offer and of the *lavradores* offering. For the chain to work, buyers at the wine fair needed access to local knowledge to assess availability and reliability before making irrevocable purchases.[29] Consequently, there was a place in the chain for intermediaries, a role filled by the "*comissários"* or "brokers." These Douro-based Portuguese moved agilely between town and country, supervising the flow of wine down the Douro, cash back up, and a copious flow of communications in both directions. They helped circumvent the strict spot market that the *Companhia* sought, but in so doing, they helped sustain the same interest that the *Companhia* pursued, the long-term survival of the port chain.

Brokers are fairly commonplace in wine regions, yet the Douro brokers are interestingly distinct in ways that reflect the linear chain in which they participated, the social relations of the Douro, and the competitive knowledge of a complex system of production that they represented.[30] Where brokers usually work in networks of multiple suppliers and clients, often buying on speculation and selling when a suitable buyer can be found, Douro *comissários* tied themselves to the fortunes of one exporter and had to be pushed to look for new suppliers. Further, rather than buying on their own account, they bought on behalf of their particular exporter. For this, they received a commission on each pipe of wine, but as far as the firms' accounts reveal no salary. Annual purchases (and hence commissions) could fluctuate dramatically, so rewards for loyalty were uncertain.[31] Nonetheless, *comissários* seem to have been remarkably loyal. While there was a high turnover of suppliers for any particular firm, *comissários,* who possessed important proprietary knowledge but remarkably little security, worked with particular exporters for long periods. Some died in office and the job often passed between siblings or from father to son.[32]

---

29 As Jones, *Merchants,* suggests, international trading companies survived as much on their access to local knowledge as their access to local commodities.

30 For brokers in other regions, see, for example, Thomas Brennan, *Burgundy to Champagne: The Wine Trade in Early Modern France* (Baltimore, 1997).

31 In the period 1808-1832, purchases by Hunt & Co. reached a high of 1,033 pipes (in 1814) and sank to a low of 78 (1817). Their broker's income would have fluctuated accordingly. AAF: Hunt & Co. wine accounts. A pipe of wine contained 128 imperial gallons.

32 For example, Hunt & Co. worked with João Manoel Martins Teixeira from around 1780 until his death in 1835, at which point his son petitioned to take his place. Offley & Co. worked with José Jacinto Henriques da Silva Pereira from before 1780 to 1830. In 1819 he was joined by Lourenço Henrique da Silva Pereira, who may have been his son or grandson. When Sandeman & Co. set up in Porto after the Napoleonic wars, they acquired the services and knowledge of Carlos António Pereira da Silva, whose brother, another José Jacinto, had previously worked with the recently defunct firm of Bartholomew Casey (and was probably preceded by his father in that position). The two brothers worked for Sandeman & Co. until Carlos António's death in the 1830s. Finally, Quarles Harris & Co., another old port firm, worked with what were probably three generations of a family called Borges from before 1790 to after 1825. Data from AAF: Hunt & Co. and Offley & Co. wine accounts and letterbooks; HoS: Sandeman & Co., wine accounts and letterbooks; Arquivo Distrital do Porto: Administração Central: Governo Civil PRT, Registo de Privilégios, especially vols 9, 10, 11, 18, and 21.

The *comissários'* loyalty was important to the exporters on account not only of their knowledge of the Douro but also of their knowledge of the workings of the firms. Firms carefully guarded what they bought, when, where, and on what terms. Some of this information firms needed to keep from their rivals and some--particularly illicit dealing--from the *Companhia*'s prying eyes and aggressive punishments. After the harvest of 1787, for example, the *Companhia* conducted a major investigation into contracting and payments above the *taxa*. Hunt & Co was clearly unsure where its *comissários'* loyalties lay and worried whether they would reveal its excess payments. Having piously cautioned the *comissários* to have care for their souls when they gave testimony, the exporter was clearly relieved when the *comissários* inculpated the *lavradores* but not the firm.[33]

It was probably not only the ability to broker wine alone that tied *Comissários* to exporters, but also the ability to broker power in the Douro. *Comissários* determined whose samples were tasted, who found a buyer for their wine, who was paid beyond the *taxa,* whose wine received preferential treatment on the voyage down the Douro, and who might be pursued by the *Companhia.* They were able to favor their neighbors (and thus assure the prosperity of their district) and to impoverish those they disliked. In a region of endemic surpluses, few contracts, and quick and steep drops from plenty to want, such a position, bridging quite diverse geographical and social locations, was undoubtedly powerful. This power was supported by the exporters, who had much more financial but far less social capital than the *comissários*. By delegating power to the brokers, the exporters got access to essential local knowledge and connections while simultaneously keeping these from rivals firms. These reciprocal interests and complementary assets helped forge less visible links that connected the chain from Douro to Porto while limiting the appetite of these key participants, the *comissários,* to develop alternative networks.[34]

In all, the supply end of the port commodity chain can, from a distance assume the pastoral hue of market-driven relations between town and country, negotiated in an archetypal fair as buyers and sellers higgle over price. In fact, relations were far more complex. In some cases, quite strong bonds developed between town and country, giving exporters confident access to good wines and some *lavradores* enduring access to the lucrative British market. In many other cases, suppliers had to depend on luck and local patronage. In both cases, *comissários* played an easily overlooked yet critical part, undermining the purity of the market while increasing the viability of the chain. If the *Companhia*, with its abstract regulatory powers, helped forge the formal links in the chain around the spot market, the *comissários*,

33 See AFF: Hunt & Co. letter book, Hunt & Co. to the *comissários* Manuel Ferreira Romano and José Manuel Martins Teixeira from November, 1787 to May 1788. The specific injunction is from a letter to Romano, November 4, 1787. Following the testimony, the firm's correspondence soon swelled with angry letters from the *lavradores* who had been turned in for seeking excess payments, but as we have seen, the loyalty of most *lavradores* was relatively unimportant to the exporters.

34 The two *lavradores* who last beyond five years with Hunt & Co. are the powerful *Oratório* (see n. 20 above) and Hunt's *comissário,* José Manuel Martins Teixeira.

working their local knowledge outside and for the most part in despite of the formal regulation, provided stability.[35]

Porto

At the time of the Methuen Treaty exports were primarily in the hands of supercargoes and factors, who traded in wine sporadically. As the trade became more lucrative, it inevitably became more organized. Firms began to trade regularly in wine.[36] Formal organization appeared in Porto, as in the Douro, with the creation of the *Companhia.* It divided Porto's exporters into three groups, *portugueses* (Portuguese), *estrangeiros (*foreigners, but in this case all foreigners except the British), and *ingleses* (English--though many in this category were actually Scottish or Irish). During the reign of the *Companhia*, even though *portugueses* predominated numerically and there were several *estrangeiros*, the *ingleses* effectively controlled the trade to Britain, drawing serious competition only from the *Companhia* itself.[37]

As table 2 shows, in 1777, forty-two *ingleses* out of a total of seventy-three exporters controlled seventy-seven percent of the exports (by volume). In 1786, a smaller group of twenty-three *ingleses* out of a larger total of eighty-nine exporters managed still to command sixty-seven percent of exports. More significant, however, is that in both years, the *ingleses* held about eighty-five percent of the high-value British market, while the *Companhia* dominated the remaining fifteen percent. From the first to the second period, the cohort of *ingleses* might have been shrinking in size, but its members were growing in power and a small oligarchy forming. In 1796, twenty-one British still controlled sixty-four percent of exports. Their share of the British market had fallen to sixty-five percent, however, for Portuguese exporters had made remarkable inroads into Ireland and accounted for more than fifty-three percent of port sold there.[38]

Table 2. Number of exporters by nationality and share of port exports to all markets and to Britain, selected years, 18th century

	1777			1786			1796		
	no.	%		no.	%		no.	%	
		all markets	Britain		all markets	Britain		all markets	Britain

35 The *comissários* were subject to formal regulation.

36 H.E.S. Fisher, *The Portugal Trade:A Study of Anglo-Portuguese Commerce,1700-1770* (London, 1971): 77-86. Among these would have been Daniel Defoe, who claimed to have taken 700 pipes to England in one year. See Daniel Defoe, *Review of the State of the British Nation* iv (1708), 256.

37 Export lists published by the Alfândega do Porto (customs house) for 1809-1840 offer totals of 341 *portugueses,* 44 *estrangeiros*, and 96 *ingleses*. Deciding nationality is, inevitably, a highly subjective practice. Assumptions made here differ in some details from those used by the *Companhia* elsewhere.

38 How the Portuguese managed to capture this large share of a growing market is not clear and needs further investigation. They did not succeed in holding on to it.

Portugueses	24	22.45	13.05	57	31.47	13.28	34	29.63	29.52
Estrangeiros	7	0.64	0.67	9	1.07	1.34	8	6.26	2.82
Ingleses	42	76.91	86.28	23	67.44	85.38	21	64.11	65.09

Source: Arquivos de Torre de Tombo, Lisbon: Mesa do Consulado e Fragatas, Alfândega do Porto, Sahidas for the years indicated.

For the following fifteen years, Anglo-French wars and the Continental Blockade disrupted the steady trade.[39] During that time, Portuguese exporters increased their share. But when normal trading resumed and the British firms returned to Porto from 1811 on, the *ingleses* slowly reasserted their power. As table 3 reveals, with the return of the British, the Portuguese share of the market steadily shrank and the British share rose until by 1840 *ingleses* had once again achieved the level of domination they held at the end of the previous century. Together tables 2 and 3 suggest that, during its reign, the *Companhia* acquiesced in, if not sought, an international division of labor that reticulated Portuguese knowledge of production with British knowledge of distribution and consumption and the relationship held after the *Companhia* was abolished in 1834.

Table 3: Number of exporters by nationality and share of premium wine exported to all markets, selected years, 19th century[40]

	1811		1820		1830		1840	
	no.	% expts	no.	% expts	no.	% expts	no	% expts
Portugueses	23	74.42	54	41.54	58	32.61	22	23.01
Estrangeiros	6	18.12	9	11.97	10	14.65	9	11.1
Ingleses	6	7.46	24	46.49	34	59.07	31	65.89

Source: Alfândega do Porto, "Vinho d'Embarque despachado na Alfandaga do Porto,"1811, 1820, & 1830; *Folha Mercantil da Cidade do Porto, (Jan 1840), p. 191.*

39 Jorges Borges de Macedo, *O Bloqueio Continental: Economia e Guerra Peninsular* (Lisbon, 1990).

40 Tables 2 and 3 differ slightly. Detailed data on who sent to what markets, used for table 2, has not been compiled from export manifests for the nineteenth century. In this period, however, the annual figures published by the Alfândega separate premium export wine (*embarque*), which went primarily to Britain, from secondary wine, which went to other markets. The figures given in table 3 indicate the share of the *embarque* exports that the British held. As almost all of this went to Britain, the figures for "Britain" in table 2 and "all exports" in table 3 can be compared with reasonable confidence.

Changing generations, changing strategies

In the years after the final retreat of the French from Portugal in 1811, British firms reappeared in Porto, some old and some new. The strategies they adopted and the success they had show the more successful moving away from general, diversified trading networks and committing themselves to the port commodity chain. Four companies, three old and one new, illustrate this point. The three old--Hunt & Co., Offley & Co., and another long-established trader, Warre & Co.--had all stood high in the export lists before the war. In 1796, for example, in the list of sixty-three exporters, Offley & Co. was first, Hunt & Co. fourth, and Warre & Co. eighth overall. The new company, Sandeman & Co., began trading from the city in 1814. Table 4, showing the average number of pipes exported each year over ten-year periods by each of these firms, indicates the relative strengths of each before the blockade and afterwards.

Table 4: Average annual exports (in pipes of wine) over ten-year intervals, 1792-1840, Warre, Hunt, Offley, Sandeman

Firm	Annual Average exports				
	1792-1801	1802-1811	1812-1821	1822-1831	1832-1840
Warre	2423	638	0	89	370
Hunt	2160	578	341	221	595
Offley	3800	1543	844	1512	1377
Sandeman	n.a.	n.a.	660	1082	2881

Source: Shaw, *Wine, the Vine*, table XIII; Annual lists of exports published by the Alfândega do Porto. "n.a." = not applicable.

Within this group there are three different types of wine exporter. Warre & Co. represents the first. The firm's roots in Porto extend back to the seventeenth century, but in 1823, a partner aptly described the firm as still a "general Merchant" principally involved in "the Portugal and Brazil Trade."[41] Nonetheless, it had played a dominant role in the port wine trade in the eighteenth century, as table 4 indicates. Indeed, one of Hunt's letters describes Warre & Co. as "one of the principal houses" of the trade.[42] Nevertheless, its business was sufficiently general that in the difficult years between 1814 and 1832, Warre only appears in the export lists for port twice with paltry amounts, as table 4 shows. Clearly, its networks were extensive and malleable enough that it could get along happily without the wine business. As a general merchant, it appears to have felt no great commitment to wine. When it tried to return to the trade, however, it was unable to assert itself as it had before the war.

The second type of trader both imported and exported, dealing in certain incoming goods on commission while exporting wine on its own account. Hunt & Co received consignments of salted cod, a

41 James Warre, *The Past, Present & Probably the Future State of the Wine Trade: Proving that an Increase of Duty Caused a Decrease of Revenue* (London, 1823), 1-2.

42 AFF: Hunt & Co. letterbook, Hunt & Co. to J. Cutler, January 26, 1788.

Portuguese staple, and exported wine. The relationship was fairly evenly balanced. In 1777, wine provided 2,829 mil reis to Hunt's profit and loss account, while commission on fish provided 3,564 mil reis.[43] A couple of years later, these proportions more or less reversed. Despite extensive dealings in wine, Hunt & Co.'s partners appear not have seen the firm as a wine house. Letters refer to "regular traders" and "wine exporters" as groups in which the writer did not include his own firm. It is consequently unsurprising to see Hunt & Co., like Warre & Co., was able to draw down its wine exports and concentrate on its other business when it chose, which as table 4 suggests it did in the uncertain 1820s. In so doing, it was not, perhaps, entirely its own master. Indeed, Hunt & Co. was tied into an extensive network of interlocking firms in England, Newfoundland, and Latin America that dealt in fishing, shipping, salt, and other good besides wine. On behalf of this network, it had to deal with ruffled wine customers who felt that Hunt & Co. was favoring its partners' interests over their orders. Further, it had to fight to uphold its own interest in wine against the inclinations of the network. In 1821, in a notable departure from business decorum, a junior partner in the London house dismissed the profits the house made from the wine business (which it handled on commission) as "piddling" and barely able to cover an "extra clerk's salary."[44] The small rewards that the network got from the wine were then compared to the major value that the fish business contributed. Following this exchange, Hunt & Co. more or less put the wine business on hold for a few years, living off what the network deemed profitable and barely exporting 100 pipes a year where once it had regularly shipped 2,000. Like Warre, when it tried to return it found the market less favorable to its networked strategy.

Offley & Co, the dominant British exporter in the late eighteenth century, also dealt in imports as well as wine exports. Holding close to the Methuen treaty, it had long accepted consignments of wool and exported wine. As the wool market declined, it turned to cotton goods. Though these imports came on commission, the obligations incurred could be cumbersome. Not only did Offley & Co. have to deal with innumerable Portuguese complaints about shoddy goods and to pursue bad debts, but it also had to wrestle with the customs house over goods held on bond. At the end of the siege of Porto during the Civil War, when all its attention was needed to deal with the newly reopened wine supply line to England, it found its limited personnel dealing with protracted and distracting claims for cotton goods damaged in a bombardment. Furthermore, like Hunt & Co., Offley & Co. also owned shares in ships, which again prejudiced its wine business on occasion as customers complained that their wine was traveling on slower or more expensive ships to favor Offley's shipping interests. Nevertheless, Offley & Co. was much closer than Hunt & Co. to being a dedicated wine trader. In 1779, for example, the wine

43 The exchange rate fluctuated around 5s 6d or 66 pence to the mil reis, so four mil reis came to a little more than one pound. See Fisher, *The Portugal Trade*, appendix VI. All the Porto houses dealt in bills of exchange to some degree, but as this was necessary to deal with fluctuations in exchange rates and shortages in coin and gold as well as the demands of long-term credit, it can hardly be thought of as diversification.

44 AFF: Hunt & Co., incoming letters, letter from Newman & Co., March 13, 1821.

account delivered 55,246 mil reis to profit and loss; the commission account merely 2,555 mil reis, and for the period 1779-1807 commission contributed only 2.5 percent of wine's payments to P&L.[45]

There are undoubtedly several reasons for the success of Offley & Co. in the port trade, but its relative specialization, compared to competitors like Warre, is certainly one. Indeed, it dominated the trade until, on the one hand, its commitment to the trade wavered and it diversified more, and on the other, it was challenged by a firm more committed to the wine commodity chain than itself. Its wavering can be seen in the changing proportions of commission to wine in the post-Napoleonic War period. Between 1812 and 1840, the proportion rose from the prewar 2.5 percent to almost 9.5 percent, indicating that Offley & Co. was more involved in importing than at the height of its power. By 1832, Offley had lost its position as the largest private exporter, to be replaced by one of the third kind of trader, who had little interest in extended networks and no distractions from imports.

Sandeman & Co provides a good example not only of this type of dedicated trader, but also of the new generation of firms that came to Porto in the nineteenth century, when the chain was changing in the wake of the Napoleonic Wars. Opening for business in Porto in 1814 and dealing almost exclusively in wine, Sandeman & Co. stayed away from imports and focused almost exclusively on wine. This commitment seems to have been significant. Within twenty years of arriving in Porto, Sandeman & Co. had passed Offley & Co. to become the largest private exporter, a position it held through most of the century. By the second half of the century, Sandeman & Co. was joined at the top of the export table by another dedicated firms, Cockburn & Co., who had opened operations in Porto a year after Sandeman, in 1815. By 1851, Cockburn & Co. was second in the export lists to Sandeman's first, and for the rest of the century, these two generally held first and second position and, were responsible for between 15 and 20 percent of exports.

Quite distinct from the exporters that dominated in the eighteenth century, these firms devoted themselves to the specificities of the port trade rather than to the generalities of unspecified or diversified trade. They mostly refused to be distracted by larger networks that could be spun out from Porto or even by the relatively light demands of import trade. As will become clear, they were instead linked to dedicated agents in Britain who were able to order extensive amounts of wine and to dedicated suppliers in Porto and the Douro who were capable of providing the volume to meet these orders.[46] Such development along the chain suggest that increasing commitment to the chain was rewarded by increasing success while the diversified network practices, that had dominated in the past, were not.

45 AAF: Hunt & Co., ledger, 1777, profit and loss account; Offley & Co., ledger, 1779, profit and loss account.

46 Whereas in the late eighteenth century, suppliers of Hunt & Co. provided 16 pipes of wine on average--and the median amount was probably much smaller--in 1834, Sandeman & Co. bought 5,000 pipes from a single supplier, Ferreira & Co. (see below). AAF: Hunt & Co., wine accounts; HoS: Sandeman & Co., wine accounts.

City Brokers

Apart from the *Companhia* and outside the period of the continental blockade, there are notably few Portuguese among the lead exporters. Ferreira & Co, one of the best-funded Portuguese houses and a major producer tried to set up its own agent in England after the Napoleonic War to boost its exports but withdrew from London within five years and concentrated on other points in the chain.[47] During its reign, the *Companhia* itself and the provided one central obstacle to *portugueses*.[48]

Fisher, the historian of Anglo-Portuguese trade in the eighteenth century, gives another explanation, suggesting that the Portuguese simply lacked capital.[49] This claim might be true of the period of Fisher's study (1700-1770), but it is a less satisfactory explanation for the early nineteenth century. Even the *ingleses,* who had used capital to shore up their oligarchy in the earlier period, got by on much less in the latter. In 1790, Offley & Co. was working on capital of about 424,000 mil reis (c. £113,000) provided by its partners. In 1815, it had only 50,000 mil reis. Moreover, while it may only be gauged indirectly, several Portuguese merchants seem to have had capital. In 1827 and 1828, Offley & Co. surveyed the stocks of premium wine held in the entrepôt.[50] In these lists, only half of the top dozen are *ingleses*. Moreover, four of the *portugêses* in the list in 1827 were replaced by four others in 1828. One year alone suggests that some Portuguese had sufficient capital for stock holding, the capital-intensive part of the trade, while the two together suggests there were several *portugûeses* holding stocks more or less at this level. This assumption gets support from testimony before a parliamentary committee in the 1850s in which a partner in a British firm reported that individual Portuguese stockholders had between 10,000 and 15,000 pipes of wine on hand for ready supply.[51] Indeed, British firms entering the trade relied both on these stocks and the long-term credit that often went with them to overcome the limits of their own meager capital. In all, it seems to have been less capital than outlets for capital--links in an established chain--that the Portuguese lacked in comparison to their British counterparts.

Principally, *portugueses* faced significant difficulties at the consumption end of the trade, in Britain. Navigation Acts and a significant extra duty put foreign importers at a financial disadvantage. Moreover, unlike the British in Portugal, the Portuguese in England had no special privileges so were prey if not to the Inquisition (as the British had been in Portugal) then at least to suspicion, anti-Catholicism, and outright xenophobia, without much protection.[52] Furthermore, supplementary duties

47 Gonçalves Guimarães, *Um Português em Londres* (Vila Nova de Gaia, 1988).

48 See Paul Duguid and Teresa da Silva Lopes, "Divide and Rule: Regulation and Response in the Port Wine Trade 1812-1840" in *European Yearbook of Business History*, ed, T. Gourvish (Aldershot, UK, 2000). *Portugueses* suffered under other government regulations. In particular, it was difficult for them to find shipping insurance in the controlled Portuguese market. British companies insured themselves in London, and some even sold insurance in Portugal, often at cost.

49 Fisher, *The Portugal Trade,* p. 79.

50 AFF: Offley & Co., letterbooks, Offley & Co. to Offley Brothers, Forrester, February 7, 1827 and January 22, 1828.

51 Shaw, *Wine, the Vine*, p. 174, reporting the testimony of a partner of Martinez, Gassiot & Co.

52 The English had been granted privileges since Cromwell's time. H.V. Livermore, "The Privileges of an Englishman in the Kingdoms of Portugal,"*Atlante* 2(1954): 55-77. For the difficulties of

and fierce competition in London and expanding regional markets drew increasing amounts of wine towards provincial outports in the nineteenth century. There, the disadvantages of foreignness can only have intensified the difficulties of competing in open markets or forging new chains. At the local level, "free trade Britain" was not quite such an open market. Consequently, it is not surprising that, as we shall see, Portuguese merchants formed several explicit or implicit joint ventures with *ingleses* in order to reach the English market along established chains.

This overall lock on the British part of the chain led also to a body of Portuguese brokers in Porto. Unlike the Douro brokers, these traded on their financial capital as much as their local knowledge: it is they who are represented in the lists of stock holding mentioned above. Again, unlike the Douro brokers, the city brokers traded on their own account. They bought, however, not to export but to sell to exporters when the latter's stocks ran low. Providing a reserve supply of wine to cushion the trade, such brokering overcame the limitations for the British of the *Companhia*'s spot market, the limitations of British capital, and the limited outlets available for the Portuguese.[53] By selling wine that had been aged and was ready for drinking, they also overcame limited abilities among the exporters to judge the potential of young wines. These brokers also provided another means to discipline both the *lavradores* and the *comissários* of the Douro. In 1825, for example, when the wine on offer at the fair proved unsuitable, the exporters bought little in the Douro but returned to Porto, where, one merchant reported, 8,000 pipes changed hands.[54] For many Portuguese merchants, then, it was no doubt wiser to work in the lucrative secondary market in Porto than to set up as a primary exporter. They took on themselves much of the risk and skill of aging wine--and they charged for it. These broker firms were owned by some of the principal Portuguese merchants of the day, who grew immensely wealthy from this business.

As with the brokers in the Douro, we have a group of people not visible in canonical views of the chain that leads from production to consumption, but whose participation is critical to maintaining both the strength and suppleness of that chain.[55] Again, as with the Douro brokers, the city brokers challenged the *Companhia*'s regulations and undermined its power. Nonetheless they too played an essential part in holding the chain together. Like the *Companhia,* the *ingleses* looked on these brokers, who could drive

---

Portuguese agents, see Alfredo Ayres de Gouvea, "Apontamentos sobre a Famila de João Allen (1698-1948), *Boletim Cultural, Camara Municipal do Porto*, 21 (1958), 390-532 & 22 (1959), 235-320. (I am grateful to an anonymous reviewer for this reference.)

53 Several of these brokers registered as exporters to gain the preferential access granted to exporters at the wine fair, but then only exported nominal amounts of wine--enough to satisfy the registration requirement.

54 AAF: Offley & Co. letterbook, Offley & Co. to Offley Brothers Forrester, London, March 29, 1825.

55 To some extent, these city brokers--more than their Douro counterparts--resemble Burt's entrepreneurs who exploit "structural holes" in the network. Burt's work suggests that brokers are relatively independent of the network and by metaphorically rising above the chain, see and enact opportunities to transform it. Circumscribed by they were by regulation in Portugal and informal (xenophobic) institutions in Britain, the city brokers were not so free and acted more to maintain than to transcend the chain. If, however, the brokers were not as free, the chain was not as rigid as Burt's work might suggest. See Ronald L. Burt, *Structural Holes* (Cambridge, MA, 1992).

up prices in the Douro, with ambivalence. They disdained them as "speculators," perhaps the ultimate insult from a steady trader.[56] And yet the *ingleses* depended heavily on these brokers, as they did on the *comissários,* to overcome their own limitations.[57]

Britain

As with the Douro, the part of the port supply line in Britain can look a little more like the frayed end of a cord than the final link in a chain. To transfer liability for the heavy import duties directly to the buyers, exporters in Porto sent most British-bound wine directly to innumerable wine merchants and retail outlets spread throughout the country rather than to corresponding houses. Offley & Co. sent its annual circulars to about 250 names towards the end of the eighteenth century, which is probably a reasonable approximation to its number of outlets.[58] Though these last links were diffuse, they were not formless. Both internal and external forces were at work to shape them. From the beginning of port's reign, outlets were increasingly tied to the port commodity chain by its growing popularity among consumers. Towards the end, by contrast, the chain had to fight to tie in outlets that were starting to stray.

As the wine passed most of them by, the corresponding houses may hardly seem to be critical to the commodity chain. Yet, like the Douro brokers, they were essential, principally as communication gateways. Working as commission agents, these gathered orders from the retail outlets, which they relayed on to Portugal. Through these correspondents and their agents around the country, the exporters received a constant flow of communication about both the needs of particular clients and the state of the market as a whole, as well as insights into new taxes and other legislative actions that could affect the chain. (They also formed an occasionally formidable political lobby.) Some of these corresponding houses also worked as wholesale and retail wine merchants themselves, taking wine from Porto for their own accounts as well as ordering it for their clients. Here again we see a significant difference between the firms that rose and fell in the trade in the early nineteenth century. The principal corresponding partners of Hunt & Co. were not themselves in the wine business and so were less committed to the chain. Hence, as already noted, Hunt, Newman, & Christopher, the London correspondent of Hunt & Co., could drop the wine business with indifference. It seems reasonable to assume, furthermore, that the

56 If we recall Smith's account of the "speculative trader" as one who:

> exercises no one regular established or well-known branch of business. He is a corn merchant this year, a wine merchant the next.

(Smith*, Wealth of Nations,* 114), most Porto brokers were not "speculators" in this sense. They were, indeed, wine merchants from one year to the next. It would seem that the *ingleses* were evidently using the term primarily as an insult.

57 The *Companhia* discouraged the Porto brokers, probably because it too sold wine to understocked *ingleses*.

58 Records of these scattered outlets have been hard to find and what follows comes primarily from the records of those who shipped wine to them or from alternative sources such as newspapers, advertisements, and novels.

knowledge of the trade that these correspondents conveyed to Porto was limited by the extent of their engagement in the trade. By contrast, the correspondents of both Sandeman & Co and Cockburn & Co did work in wine. Indeed, both these Porto houses had been set up by firms that were already established in the wine business in Britain and sought a connection in Portugal that would be tied closely to them.

The London house of Sandeman & Co, whose senior partner established the Porto house on his own, provides a useful example of these tightly tied corresponding houses.[59] Established in 1790, Sandeman (London) at first looks rather like a general trader, albeit with a strong interest in wine. It also dealt in cotton from the Brazils and it wrote shipping insurance. Its income for wine came in two ways. Initially, it solicited orders for wine around the country. Here it worked at first on behalf of Offley & Co. and Warre & Co. For this work it charged commission. Over time, the firm also began to order wine for its own account and to establish itself as a London wine merchant.[60]

In 1805, Sandeman (London) entered a corresponding relationship with a Portuguese merchant, Thomas da Rocha Pinto. The alliance proved a fortunate one as, within a year, all the *ingleses* had left Porto and Portuguese alliances proved invaluable. Like Sandeman (London), Rocha Pinto offers another example of a firm increasingly aligning its interests with the port commodity chain--hence it is perhaps not surprising that the two firms aligned their mutual interests. Rocha Pinto had been a general trader from Porto since at least 1777. The firm exported linen, cotton, hams, sumac and other miscellaneous items to the Brazils. In the 1790s, perhaps to take advantage as a neutral of the disruption that war with France brought to British shipping, Rocha Pinto turned to the English trade and started dealing in wines. In 1805, it was seventh-ranking Portuguese exporter by volume, with modest exports of 354 pipes of wine. (Offley & Co., in the same year exported 4,280). In alliance with Sandeman (London), however, its fortunes significantly changed, and by 1809 it was third overall in the list of all exporters.[61]

By 1809, Sandeman (London) was evidently doing sufficiently well out of its wine alliances, of which the Port trade was the largest part, that it abandoned the network of Brazilian cotton dealers and the insurance business and started dealing almost exclusively in alcoholic beverages. It now worked with houses in Bordeaux (for claret and cognac), Jerez (for sherry), Lisbon (for lighter Portuguese wines), and Madeira and Porto for their eponymous wines. As part of its commitment to these particular

59 Surviving records of Sandeman (London) are in the Guildhall Library, mss 8642-8652. These, along with HoS records in Vila Nova de Gaia provide evidence for the claims made above. The London house was, for most of the period under discussion, a partnership, Sandeman, Gooden, and Forster. George Sandeman, the founder and senior partner, was initially sole owner of the Porto house, though he divided the ownership between himself and his nephews in 1835. See Norman R. Bennett, "Port Wine Merchants: Sandeman in Porto, 1813-1831," *Journal of European Economic History* 24 (Fall 1995): 239-269.

60 HoS: Offley & Co. letterbook, Offley & Co. (London) to George Sandeman & Co., February 22, 1793; Offley & Co. (London) to Sandeman & Archer, October 10, 1793.

61 Details of Thomas da Rocha Pinto come primarily from Sandeman's books and from the Arquivo Torre de Tombo, Lisbon, Mesa do Consulado e Fragatas, Alfândaga do Porto, which lists the consigner, contents, and destination of exports. Other details come from the records of Sandeman (London) noted above.

commodities, it made several attempts to set up its own corresponding houses, with varying degrees of success. It established a house in Jerez, but within a couple of years had to withdraw. It also established a partnership with the Cognac firm Hennessey, but that too did not endure.[62] In 1814, however, George Sandeman, founder of what was now the partnership Sandeman, Gooden, & Forster in London, cut out Rocha Pinto, who had struggled once the British firms returned to Porto. George Sandeman instead established the firm whose activities in Porto have been described above. It was run by his nephew, who had been working for the London house for several years and had detailed knowledge of the British market. In alliance with Sandeman (London), the house in Porto, as already noted, rose to dominate its part of the chain.

Illustrating how commitment to the port commodity chain had dangers as well as rewards, Rocha Pinto, after almost fifty years of trading, was bankrupt by 1817. It was clearly important not only to be in the trade, but also to have a position and good connections in a particular chain. The Sandeman houses, by contrast, exemplify the virtues of interdependence within the chain. By 1832, Sandeman (London) had transformed itself from a general trader and agency house into well-established, dedicated merchant at the end of not one, but several wine chains, each linking major producing regions to the major international market of consumption. With port, it had eschewed the conventional networks of its rivals and forged close links to the Douro, close links between London and Porto, and close links to the retail trade. In the process, it had risen with dramatic speed to overtake much longer established but more network-diversified rivals.

Controlling the Chain

By the end of the first third of the nineteenth century, then, port wine came to Britain along an established and relatively stable chain, increasingly dominated by dedicated traders of the sort described above.[63] Part of the chain's stability came from treaties and fiscal and regulatory arrangements stretching back over a century and external to the chain itself. And part came from the commitments to the chain by participants, for whom the more they committed the greater their returns, but equally the greater their dependence on the chain. For the "general traders," loss of the chain would be the loss only of a part of their business and their expertise. For the dedicated port traders, loss of the chain would threaten their financial capital but more significantly perhaps the loss of their less-liquid, long-term investments in

62 Paul Butel and Alain Huetz de Lemps, *Histoire de la Société ed de la Famille Hennessy (1765-1990)* (Cognac, 1999).

63 While valuably historicizing the commodity chain, Hopkins and Wallerstein suggest that the level of vertical integration reflects a pattern of long economic waves during which, during phases of expansion, chains become more integrated and during contraction less so. As the period under discussion here is longer than the phases of the Kondratieff cycle that they have in mind, this does not seem a particularly apposite explanation.

social and human capital--in the hard-won social relations and painfully acquired specialist knowledge that were embedded in the practices of this particular trade, rather than trading in general. Consequently, if the external supports were to slip away, there would be significant incentive among the committed to maintain the chain by other means. As has already been noted, the favorable external arrangements did fall away in the nineteenth century. The Anglo-Portuguese Treaty of 1810 and the independence of Brazil in 1825 made Portugal commercially less important to Britain. Cessation of Anglo-French hostilities after 1815 made it strategically less important. The triumph of liberalism in the Portuguese civil war led to the dissolution of the *Companhia* in 1834.[64] Finally, with the Cobden-Chevalier Treaty and Gladstone's budget of 1860, the long-cosseted trade suffered what one perceptive journalist called its ultimate "disestablishment."[65]

A crisis of quality

Traders working along this chain also faced a significant consumer crisis. As port lost its political and patriotic significance and came to represent unimaginative tradition, a new generation of sophisticated consumers grew familiar with the premium wines of France.[66] At the same time, the expanding wine market resulted in naive drinkers being led astray by aptly named "sophisticated wines"--wines adulterated and falsified in one way or another. Falsification and fabrication are inherent to the wine trade. Indeed, the *Oxford English Dictionary*'s first citation for *port* discusses wine from Bordeaux that was taken to England via Porto in 1692 in order that it might be entered on the ship's manifest as port.[67] The *Companhia* had to a certain extent helped ensure that only wine grown in the Douro (or wines close enough in character that they could masquerade as such) could leave Portugal as port, while, given the wine's preferential duties, customs officers in England tried to control what could enter under that name. As controls fell away and duties equalized, it was much easier to falsify and fabricate this premium wine. From the south coast of France to back alleys around the London Docks, all sorts of concoctions were labeled "port" not only by people outside, but also by people within the chain. Its reputation inevitably fell. For the trade to survive, it was important that some means were found to discipline the attenuated chain stretching from the Douro to Britain, and given the loss of external supports, those means came, as they had to, from within. As they emerged, they revealed previously submerged tensions in the chain. Participants at the different canonical points struggled over who could provide consumers with the best

64 As note 13 indicates, the Portuguese government tried to revive the *Companhia*, but the old regulatory powers that had been so effective were never fully restored.

65 Matthew Freke Turner, "Wine and Wine Merchants," *New Quarterly Magazine* (1874): 595-620, quotation at p. 598.

66 For the attitudes of young men to port wine, see the distaste of Disraeli's Vivan Gray and Trollope's George Vavaseur. Benjamin Disraeli, *Vivian Gray* (London, 1827); Anthony Trollope, *Can You Forgive Her?* (Oxford, 1991; first published 1864). See also the fierce animosity of Cyrus Redding, *A History and Description of Modern Wines, with Considerable Additions and a New Preface Developing the System of the Port Wine Trade* (London, 1836).

67 *Oxford English Dictionary*, "port" n.[7a].

guarantee of quality for the particular chain in which they were involved. As quality was signaled principally through names and the reputation that accrued to them, the struggle was very much a struggle about trade names.

Traditionally wine had been identified in the English market by its country or region of origin--Shakespeare's "Canary" or (more indirectly) "champaign," "claret," and "sack.".[68] If it carried another name, it was the name of the wine merchant or retailer who provided it.[69] Wine merchants were thus theoretically in a very good position to stamp their name on the faltering port trade. Only theoretically, for wine merchants were aptly described by in a letter to Hunt & Co in1815 as "the most rotten set in London." This was not a particularly new aspect of the trade. Half a century before, wine merchants were, Fielding's *Joseph Andrews* suggests, a byword for corrupt practice.[70] The letter also noted that "nearly one fifth of the Bankrupts are either wine merchants or ventures."[71] Again, this was not entirely new. Brooke and Hellier, celebrated by Steele in *The Spectator* in 1711 for its probity as a wine merchant, was Gazetted in 1712 as a bankrupt.[72]

Changes in advertising practices for alcohol across the nineteenth century suggest that wine merchants, no doubt aware of their own fallibility, tried to find proxies to bolster their probity. After testimony from customers and scientists, they turned to their suppliers. Again, there is precedent for this. Since the early eighteenth century, wine had been advertised as "neat as imported" to indicate that the importer had not blended the wine received. Of course, blending could be legitimate, but the distinction between blending and adulteration was often a fine one.[73] And the claim "neat as imported" suggests that customers preferred wine merchants to leave what they received alone, suggesting in turn that the consumer had more faith in the honesty of the exporter than the importer. Understandably, suspect wine merchants of the nineteenth century turned to these reputable suppliers further down the chain for

68 In 1653, for example, Izaak Walton talks generically of drinking "French-wine." Izaak Walton and Charles Cotton, *The Compleat Angler* (Oxford, 1983), 249. A decade later, however, Samuel Pepys names the wine of a particular dinner as "Ho Bryon" [Haut Brion]. Samuel Pepys, *The Diary of Samuel Pepys* (London, 1925), April 10, 1663.

69 For example, in Smollett's Humphrey *Clinker*, in a rare breach of his domestic self-sufficiency, Matthew Bramble gets his wine from "a correspondent on whose integrity I can depend." Thackeray shows his historical accuracy in *Vanity Fair* when George Osborne asks whether the claret is "Adamson's or Carbonell's," using in this scene set before Waterloo, the retailer's name alone, as would have been typical at the time. By contrast, in Trollope's *Prime-Minister*, set some 60 years later, a character says of his champagne, "It came out of Madame Cliquot's cellars before the war, and I gave Sprott and Burlinghammer 110s for it." The French *négociant* as well as the English wine merchant (and the price) are called to endorse the quality of the wine. See Tobias Smollett, *The Expedition of Humphry Clinker* (London, 1985; first published, 1771), 152; William Thackeray, *Vanity Fair* (Harmondsworth, Middlesex, 1968; first published, 1848), 62; Anthony Trollope, *The Prime-Minister* (Oxford, 1975; first published 1876), 103.

70 Henry Fielding, *Joseph Andrews* (London, 1962; first published 1742).

71 AAF: Incoming Letters, T.H. Hunt, Maisonette to Hunt & Co., October 25, 1815.

72 For the celebration see *Spectator* 362, Friday, April 25, 1712, 2; for the bankruptcy, see *London Gazette* 5054, Tuesday, September 23 to Saturday, September 27, 1712, 4.

73 Adding brandy to French wine was generally denounced as falsification; adding it to Portuguese wine, acclaimed as fortification.

validation. As one London wine merchant put it rather abjectly in testimony about the genuineness of his wine before a parliamentary committee, "We rely upon the respectability of the house that ships them [i.e. the firm's port wine consignments]; we have no right to argue anything else."[74] As their own reputation fell, merchants increasingly invoked these more reliable names in their advertisements. Before too long, even reputable merchants--those that served the carriage trade and were reluctant at first to advertise at all--started using the name of their suppliers. Hedges & Butler, a venerable merchant, began to note, for example, that the port it sold was "Sandeman's shipping."[75]

Names from Porto and the Douro, previously known only to connoisseurs, began to reach into the British market. Not only Sandeman, Offley, and Hunt, but also *Seixas, Roriz,* and *Bom Retiro*, famous *quintas* [vineyards] in the Douro, emerge in advertisements as signals of quality. If the strategy bolstered sales (and the trend in advertising suggests it did), it also ceded authority to earlier points in the chain. Highlighting their suppliers' names, the wine merchants were subordinating their own. With Sandeman's name as a warranty, consumers, rather than shopping at Hedges & Butler's, might now shop for Sandeman's, wherever it could be found. Rising from obscurity to prominence, these new names disturbed the established balance of power of the old chain and set link against link.

As they saw their names subordinate the formerly dominant British retailers downstream, the exporters also discovered that the way port was made helped resist subordination by all but the most powerful producers upstream. Most port that reached Britain was a blend of the output from several *lavradores*. The process of blending dissolved the name of the supplier while giving authority and distinction to the name of the exporter who did the blending.[76] Sandeman's 1834 was distinct from Offley's 1834 because Sandeman had blended it. Those who liked Sandeman's blend could not get it from other houses or *lavradores*. Whose wine went into Sandeman's blend was generally unknown. Occasionally, however, Sandeman would find it expedient to acknowledge who its supplier was and to ship their wine without blending. In so doing, Sandeman was ceding power to those named *lavradores*.[77] But Sandeman rarely ceded such power. Rather, it used the power ceded to it by wine merchants to become one of the most aggressive branders in the wine trade, fighting publicly and aggressively against anyone who it believed was challenging not only the Sandeman brand, but also the integrity of the Porto "marque." Against such power, only very well-established wine producers in the Douro or wine merchants in Britain could hold up their own name.[78]

---

74 Testimony of D. Hart, House of Commons, *Minutes of Evidence Taken Before the Select Committee on Import Duties in Wine* (London, 1852), 440.

75 *Times*, November 5, 1856, 14e.

76 *Négociants* in the champagne trade similarly overpowered individual *vignerons*, see Kolleen Guy, *When Champagne Became French: Wine and the Making of a National Identity* (Baltimore, 2003), 27.

77 For example, in 1821, when some pipes of wine were rejected, Sandeman & Co. defended itself by noting that these were "the genuine wines of Braz Gl'z." The reference is to Braz Gonçalvez Pereira, Sandeman's long-term supplier mentioned above. HoS: Sandeman & Co. letterbook, Sandeman & Co. to Sandeman, Gooden, and Foster, January 2, 1821.

78 See Paul Duguid, "Developing the Brand; The Case of Alcohol, 1800-1880" *Enterprise & Society* 4

In sum, as the institutions that helped construct the port wine supply chain crumbled, actors in the chain itself--faced not only with their "disestablishment" but with aggressive competition from, principally, champagne, burgundy, bordeaux, and sherry--struggled for their own collective survival. Collective danger did not produce a cooperative response, however. Rather it revealed internal tensions around names and trademarks, which the courts in Britain and eventually Parliament were increasingly willing to protect.[79] Brands became a means for one firm in the chain to subordinate, in a quasi-hierarchical fashion, others that they did not own. The rise to prominence of the Porto houses represents a significant shift in signifying power. This had previously rested almost entirely with wine merchants. Gradually, it shifted down the chain to their historically more reliable suppliers, the exporters, who in turn subordinated their suppliers, the wine makers in the Douro. The geographical distribution here helps indicate how the power inherent in a trademark extended over geographical distances along commodity chains, allowing some to dictate what others did, even though those others might be separate in both governance and geography. If you wanted to sell *Bom Retiro* or Sandeman port, the owner of *Quinta Bom Retiro* or Sandeman could to a significant degree tell you what you could do to it, how you should bottle it, how you should label it, and what you would pay for it.[80] By the last quarter of the century, it was these increasingly powerful names and the names of the new branding outlets such as Victoria Wines, with which the retail trade finally struck back, that came to dominate new wine chains and extract most of the profit from them.

Conclusion: The End of the Port Commodity Chain

For major port traders, their old, extended commodity chain came to an end about the same time, following the profound shift of power to those who had managed to project their trade name into the British market in the period under discussion. The effects of this relocation of power were far reaching. In the eighteenth and early nineteenth century, the *lavradores* made small batches of wine which port exporters had blended wine for individual retailers. As they gained skill as much at branding as at blending, exporters abandoned the latter practice. Rather than divide the wine finely according to individual client's tastes, they divided it into broad classificatory tranches to suit the volume of their business. In the process, the wine inevitably became something closer to a generic commodity than the craft-like, individualized product it had been.[81]

(September, 2003): 405-441.

79 The Merchandize Marks Act was passed in 1862, equity and common law courts had shown increasing willingness to acknowledge a right from some forty years before.

80 The development over the century of bottles and labels, of advertisements and marketing campaigns, of *crus* and vintages and other rituals of classification were all parts of this struggle to accumulate--or to resist--power in wine commodity chains.

81 Because it was individually blended, port was not divided into types of wine as late as the 1850s See testimony of Joseph James Forrester in House of Commons, *Minutes of Evidence*. Only by the 1870s

A second effect followed from the first. The chain had to some extent been saved by the deployment of brands. But as these also led to more standardized processes and products, the specific, highly local and divided knowledge, which the chain had served to link, became less essential to the trade. To produce a standardised product in high volume, exporters integrated back into production, replacing local, specialized knowledge with more generic, manageable skills. The effects of this change were felt along the chain. In the aftermath of the Portuguese Civil War, exporters began to lease properties in the Douro, in part to grow grapes, but more significantly to make wine to their own specifications. Douro *lavradores*, once wine makers of distinction, were reduced to grape growers. Small farmers were increasingly marginalized and, in the hard times of the 1850s and 1860s, many of their properties were absorbed into larger estates producing grapes under contract for exporters and Porto wine brokers. In the process, *comissários* lost both their power and their independence. Their role was replaced by salaried managers of Douro operations, who were in turn managed from Porto.[82] Soon after, houses in Porto began to suffer a similar loss of independence. Once relatively autonomous, they were integrated into London houses, which were able to centralize operations with the aid of the telegraph while they clung on to and strategically wielded the Porto brand.[83] In all, the means that had been found to stabilize the threatened commodity chains of major export houses were ultimately the means that ended them. Concentrating in London power that was once distributed along the chain and simultaneously devaluing locally specific knowledge that the chain had articulated, brands helped bring about the vertical integration of the commodity chain in a period of intensifying competition.

Socially embedded, enduring trade networks provide an important alternative analytical tool to the neoclassicists' idealised, atomistic markets. But in their turn, networks too have perhaps become over idealized. This essay has tried to show how the trade in port wine to Britain, once dominated by general traders who worked in broad networks, was transformed by dedicated specialists, whose success in the port business can almost be measured by the degree to which they extracted themselves from diverse trading networks.[84] They focussed, instead, on a set of activities "clustered around one commodity or product, linking households, enterprises, and states to one another," which is how Gereffi defines a

do the modern classifications of "vintage" and "tawny" port appear.

82 In the 1830s, Offley & Co. took a lease on the *Quinta da Boa Vista*, one of the most famous vineyards in the Douro and managed its operations from Porto. AAF: Offley & Co., Rental accounts. About the same time, Sandeman & Co. took over the lease of the *Quinta das Figueiras*.

83 This contribution by the telegraph was well documented by Harold Innis, *The Bias of Communication* (Toronto, 1951). One of the early symptoms is the port trade is probably the disappearance of family members as the heads of Porto houses.

84 As this argument suggests, commodity chains may be more capable of transformation than some discussions of network "reproduction" indicate and that participants may be more committed to the survival of the networks than to stability. See Gordon Walker, Bruce Kogut, & Weijian Shan, "Social Capital, Structural Holes, and the Formation of an Industry Network," *Organization Science* 8 (1997): 109-125.

"commodity chain," a highly specialized kind of network.[85] The essay has tried to explore why this more linear focus rose to prominence. It suggests that the critical factors involved questions of quality--a central and centrally contentious issue for the wine business--and the specialized knowledge required to produce quality in unstable yet highly regulated circumstances.[86] The development of the port trade also highlights the question of power in commodity chains. Overtime, different links in the chain sought either to dominate the chain or, at least, to prevent themselves from becoming dominated. Even the nature of the commodity--a fortified wine--reflects this struggle, but the struggle is clearest in the brand war that broke out along chains as much as between them in the nineteenth century and which, by concentrating power, marked the final stage in the progress through network then chains to vertical integration.

85 Quoted in Dicken, et al., "Chains and Networks," 98.

86 Neoclassical economics, as Stigler pointed out, has difficulties with questions of quality. George J. Stigler, "The Economics of Information." *Journal of Political Economy* 69 (1961): 213-225. It also has trouble with questions of knowledge. See Patrick Cohendet, Francis Kern, Babak Mehmanpazir & Francis Munier, "Knowledge Coordination, Competence Creation, and Integrated Networks in Globalized Firms," *Cambridge Journal of Economics* 23 (March 1999): 225-241. For more on this, see the introduction to this issue.