Manias, Panics, and Rationality

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It is a great pleasure for me to offer this lecture to honor my friend and colleague, Paul Samuelson. I wish I could call him my mentor too, but that would be hubris, as I cannot understand half, nay two-thirds, of what he produces in economics—nor do I always agree with what I do understand. If I am an inadequate witness to his greatness as a scientist, however, I can testify to his greatness as a human being. As he has mockingly said on occasion, "ours may not be the best fraternity on the campus (read economics department in the area), but we have the most fun." His support, patience, and tolerance of some of the rest of us whose heads do not move as far, as deeply, or as fast as his have set the tone of the place I have worked in with so much satisfaction these last 29 years, and I am delighted to have a chance to put on the record my gratitude to him.

My subject this evening, derives from a larger project "Manias, Bubbles, Panics, Crashes, and the Role of the Lender of Last Resort." It is one that I approach historically, going back to the beginning of the 18th century, rather than with mathematical models or econometric testing. Models are possible, I am told, but for them one needs tools like differential topology and catastrophe mathematics, which, along with virtually all other mathematics, I lack. I have no econometrics either, but I am told that this is no drawback, as econometricians are obliged to deal with, say, panics with dummy variables. A little literary theory and history then will have to serve us.

Part of the interest in the topic stems from another New England occasion in 1969 when I gave a paper on flexible exchange rates, at Bald Peak in New Hampshire for the Federal Reserve Bank of Boston and had the harrowing experience of having as my commentator, a New Englander from Ely, Vermont, by name Milton Friedman. In the course of his incisive remarks (I deliberately choose that adjective as I think of his incisors), Professor Friedman said that there had never been a case of destabilizing speculation on record.[1] I questioned this the next morning at breakfast in a group in which Friedman was not present and William Poole offered the opinion that perhaps Friedman had in mind a particular definition of destabilizing speculation which he, Poole, thought tenable, i.e. that speculation was destabilizing when someone took a position which was evidently irrational in the light of the information available to him. (Parenthetically, Friedman with whom I corresponded at some length on the issue did not acknowledge this or any other of the five or ten possible definitions I offered him.)

More recently the MIT/Chicago tables were reversed and I had the honor to comment at a meeting of sociologists in Philadelphia on a paper of Harry Johnson's on "The Role of Networks of Economists in International Monetary Reform." In describing the differences between the Bellagio network that was older and the Chicago-Rochester-Manchester-Dauphine-Geneva network, he said:

"The difference can be encapsulated in the proposition that, whereas the older generation

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of economists is inclined to say 'the floating rate system does not work the way I expected, therefore the theory is wrong, the world is irrational and we can only retire (*sic.*, regain?) rationality by returning to some sort of fixed rate system to be achieved by cooperation in management among national governments,' the younger generation is inclined to say 'the floating rate system is a system that should be expected to operate rationally, like most markets; if it does not seem to work rationally by my standards, my understanding of how it ought to work is probably defective; and I must work harder at the theory of rational maximizing behavior and the empirical consequences of it in the behavior of a floating rate system if I am to achieve understanding.' This latter approach is the one that is being disseminated, and intellectually enforced, through the networks (*sic.*, network?)"[2]

My immediate reply was that no enforcer has successfully worked on me.

The *a priori* assumption of rationality is a difficult one to sustain with any serious reading of economic history, the pages of which are studded with language that is imprecise and possibly hyperbolic of manias, insane land speculation, blind passion, financial orgies, frenzies, feverish speculation, epidemic desire to become rich quick, wishful thinking, intoxicated investors turning a blind eye, investors living in a fool's paradise, people without ears to hear or eyes to see, easy credibility, overconfidence, overspeculation, overtrading. The firm of Overend, Gurney which crashed on Black Friday in May 1866 was said to consist of "sapient nincompoops." Bagehot said of it

> "their losses were made in a manner so reckless and foolish that one would think a child who loaned money in the City of London would have lent it better."[3]

Clapham's description of the Baring firm in 1890 is understated in characteristic British fashion:

> "They had not considered these enterprises or the expected investors in them coolly or wisely enough" but had . . . "gone far beyond the limits of prudence."[4]

Or perhaps you prefer rich language of Adam Smith on the South Sea bubble: It was naturally to be expected therefore that "folly, negligence and profusion should prevail in the whole management of their affairs. The knavery and extravagance in their stock-jobbing projects are sufficiently known . . . and the negligence, profusion and malversation of their servants."[5]

But let us approach rationality and irrationality more systematically. On the basis of the historical evidence, rationality cannot be regarded as a description of human behavior, good in all times and places, as the previous paragraph shows and what follows will reinforce. It is, however, a useful hypothesis for long-run analysis. In methodological terms, we should analyze economic affairs, in the long run, *als ob*, as if, they were undertaken by rational beings. Partly there is the Darwinian notion on which Milton Friedman's *a priori* "proof" of the non-existence of destabilizing speculation rests. In the long run, people go broke buying high and selling low; going broke, they fail to survive economically and hence do not exist.[6] Johnson has recently made clear that this proof makes him uneasy.[7] It should have done more.

A working hypothesis for long-run behavior is not, however, necessarily useful for describing events or prescribing policy in the short run. Our task this evening is not to discuss policy—the role of the lender of last resort—itself fraught with dilemmas and ambiguities, but the relationship of rationality to manias and panics, in a word to destabilizing speculation.

Let us, as the lawyers say, stipulate manias and panics, and long-run rationality, and see how to connect rationality to the short-run. I can detect in history and in the literature a number of elements which can be combined in different ways at different times, including 1) mob psychology; 2) different stages of a continuing process, that starts rationally and gradually at first, and then more quickly, loses contact with reality; 3) different groups of traders, investors or speculators, including those at the earlier stages and those at the later; 4) the fallacy of composition; 5) failure of markets with rational expectations as to the quality of the reaction to a given event always to estimate the right quantity, especially where there are lags; 6) irrationality insofar as economic actors choose the wrong model, or subconsciously suppress information that does not conform to the model implicitly adopted; 7) dishonesty, i.e. misfeasance, malfeasance, malversation, swindles, or, as Daniel Defoe says of stock-jobbing:

> "a completat System of Knavery . . . a Trade, founded in Fraud, born of Deceit, and nourished by Trick, Cheat, Wheedle, Forgeries, Falsehoods, and all sorts of Delusions."[8]

An unimportant question is whether those cheated are rational but stupid or irrational and smart.

Mob psychology is something I ask you to take more or less on faith as an occasional deviation from rational behavior. We have its elements in many economic models: demonstration effect, keeping up with the Joneses, getting on the bandwagon. It is discussed by the French historian Gustave LeBon in *The Crowd*,[9] and has been applied to the South Sea bubble by Charles MacKay in his *Memoirs of Extraordinary Delusions and the Madness of Crowds*[10] as we are reminded in his recent *Money* by Galbraith, who applies it with his usual fund of irony to the 1929 boom and crash, and to much else.[11] For a neat example of demonstration effect, take the case of Martin, the banker, who subscribed £500 to the South Sea bubble, in the third subscription list in August 1720, saying "When the rest of the world are mad we must imitate them in some measure."[12] Or perhaps I may quote William Huskisson's pamphlet on Depreciation that puts a challenge to the econometricians among you: "The consequences of sudden Alarm cannot be measured; they baffle all ordinary Calculation."[13]

The modern proponent of irrationality in this sense but emphasizing a mild form, is Hyman Minsky who talks of "euphoria" in markets. In an earlier day such waves of excessive optimism (followed by pessimism) might have been tied to sunspots or the path through the sky of planets such as Venus. In Minsky's formulation, they start with a displacement, some structural characteristics of the system, and human error. We come to displacement later. Assume the upside. Optimism sets in. Confident expectations of a steady stream of prosperity, and of prosperity gross profits, make portfolio plunging more appealing. Financial institutions accept liability structures that decrease liquidity that, in a sober expectational climate, they would have rejected.[14] The rise is under way, and the seeds of the panic are well planted for ultimate "revulsion" or "discredit," to use the language of the mid-19th century.

The alternative explanation of the unsober upswing goes back to Irving Fisher, his colleague Harry Gunnison Brown, and, ultimately, to Wicksell and emphasizes that the real rate of interest was too low.[15] Prices rise on the upswing, while interest rates lag, implying a fall in the real rate of interest. Lenders have money illusion, borrowers do not. With real interest rates falling, and profits prospects either rising or steady, rational investors expand. Euphoria develops, spreads, and unless it is halted early by some action or other, may develop into a mania. I do not say this inevitably occurs, merely that it happened in the canal mania of the 1790s, the South American securities mania of the 1820s, the railroad and cotton mania of the 1830s, the railroad mania of the 1850s, the building site mania in Vienna and Berlin in the early 1870s, the Argentine land-mortgage bond mania of the late 1880s, and the stock-foreign-bond and market manias of the 1920s. In due course come along the panic of 1745, of 1819, of 1866, 1893, 1907, or in some cases merely a commercial and financial crisis.

Euphoric mania often develops in two stages, a first sober stage, in which investors are interested primarily in the returns on a particular project, the second in which capital gains play a role. Matthews observes that land was initially bought in the 1830 land sales of the United States for cultivation, thereafter for resale; and that the 1830s railway boom in Britain had two phases, one before 1835 when the projects were not bubbles, and the second phase after that date when they were. In the first phase shares were sold by the promotors to local chambers of commerce, Quaker capitalists, hard-headed Lancashire businessmen, both merchants and industrialists, that is, to men of substance, known to be in a position to pay not only the first 5 or 10 percent payment, but also subsequent calls; in the second, professional company promoters–many of them rogues interested only in quick profits–tempted a different class of investors, including ladies and clergymen.[16] The same is observed of building sites in Vienna, initially bought for construction, later as speculative poker chips for resale.[17] Or follow Isle Mintz's two-stage process in foreign bonds marketed in New York, sound prior to 1924, and the Dawes loan which touched off the boom, inferior thereafter.[18] I have commented on more than one occasion on the fact that successful flotations like the Baring loan to France in 1819 which recycled the indemnity after the Napoleonic wars, the Thiers rente recycling the Franco-Prussian indemnity of 1871, and the Dawes loan, acted as "displacements" in touching off euphoric, second-stage foreign-lending booms.

Two stages raise the question of two groups of speculators, the insiders and the outsiders, who have served as Baumol's and Telser's answer to the Friedman *a priori* demonstration of the impossibility of destabilizing speculation. In one of the papers of Harry Johnson referred to earlier, he demonstrates in general equilibrium that for every destabilizing speculator who loses money there is a stabilizing speculator who makes it, and that speculation in the model has deadweight losses and redistributes wealth. The analysis is improved but has some distance to go as it lacks money, expectations, and dynamics. Prices change only after transactions, and not by simultaneous shifts of demand and supply curves intersecting close to or on the vertical axis, i.e. with few or even no transactions, and price changes never have consequences for macro-economic behavior since one party's gain or loss is exactly offset by the other party's loss or gain. This implies no bankruptcies, bank failures, changes in liquidity preference, or monetary effects. If there were a monetary effect inserted you can bet it would be of the stabilizing Pigou variety. As I read history, the world frequently divides itself into these inside and outside speculators, with those inside destabilizing initially and then stabilizing, defining stabilizing to mean buying when prices fall and selling when prices rise, and destabilizing the contrary. Some of you may know a recent paper by Larry Wimmer, on the Gold Panic of 1869 in the United States, which purports to demonstrate that there was no destabilizing speculation. Wimmer's paper is helpful in correcting a host of misconceptions about the episode, but he and I have agreed that the evidence is consistent with a hypothesis that Gould and Fisk destabilized net by first driving the price up, and after converting the outside speculators from stabilizers to destabilizers, selling out (at least Gould did), at the top.[19] It is important to observe in all this that the information available to the two sides differed. In the early stage Gould was trying to persuade the government of the desirability of depreciating the dollar by driving up the agio on gold in order to raise grain prices, while the outside speculators were still operating on the expectation derived from past performance that the Government's policy was to drive the agio down and resume gold convertibility. On September 16, the outsiders abandoned this expectation, and adopted Gould's, whereas he on September 22 learned from his associate, President Grant's brother-in-law, that the outsiders had originally been right and that his plan was not going to be adopted. Hence Black Friday, September 24, 1869, one of three Black Fridays I have collected

so far, along with Black Tuesday and Black Thursday, both of which belong to 1929.

For two sets of speculators, insiders and outsiders, see the bucket shop. The young among you will require the explanation that a bucket shop is an ostensible brokerage house where the broker does not execute the customer's order but merely bets the other way, assuming that the customer is always wrong. The only literature on the bucket shop I know is in a novel on a Paris bank in 1931, Christina Stead's excellent *House of All Nations*.[20] But note that if the outsiders turn out to be stabilizing speculators, and make money, their hopes are frustrated by would-be insiders turning swindlers and decamping.

If one needs a further historical example of insiders and outsiders I can offer you the edifying tale of a great Master of the Mint, Isaac Newton, a man with a reputation for rationality in other fields. In the spring of 1719 he stated

> "I can calculate the motions of the heavenly bodies, but not the madness of people,"

and on April 20 he sold out his shares in South Sea Company at a solid 100 percent profit of £7,000. Unhappily, he was persuaded to re-enter, and ended up losing £20,000. In the habit of many of us who experience disaster, he puts it out of his mind in an irrational way, and never for the rest of his life could bear to hear the name South Sea.[21]

Euphoric speculation, with stages, or with insiders and outsiders, leads to manias and panics based on rational behavior on the part of each participant that is irrational overall. This is the fallacy of composition, from aggregation. On the South Sea Bubble Carswell quotes a rational participant:

> "The additional rise above the true capital will only be imaginary; one added to one, by any rules of vulgar arithmetic will never make three and a half, consequently all fictitious value must be a loss to some persons or other, first or last. The only way to prevent it to oneself must be to sell out betimes, and so let the Devil take the hindmost."[22]

Devil take the hindmost, *sauve qui peut*, and the like are recipes for a panic. The analogy of fire in a theatre comes to mind. In the literature the only reference to theatres I find is Clapham on the money market panic of December 1, 1825, when there was a rush "like that for the pit of a theatre on the night of a popular performance" a positive instead of a negative simile.[23] Or try the chain letter: not everyone can get out in time unless the chain expands infinitely. For an example of an up-to-date panic, let me refer to the grain market of 1973,

> "Anticipating stable prices, importers (i.e. countries) did not hold any carryovers in excess of working stocks. Came the 1972-73 crop year, the Soviet grain deal, and much else, and the knowledge that the United States was no longer a reliable supplier spread fast. The result was panic buying by almost every importer, often much in excess of requirements. The fallacy of composition worked at full speed with buyers *trying* (their emphasis) to acquire more and more grain at higher prices than ever before . . ."[24]

Closely akin to the fallacy of composition is the standard cobweb in which demand and supply are linked not simultaneously as in the Walrasian model, but with a lag. "Displacement" occurs–some event that changes the situation and alters expectations. Expectations are normal as to sign, but fail to take adequate account of the strength of similar response by others. I hardly have to explain the cobweb to the young people among you who decided to become economists at the peak of demand for our profession, and have emerged on the market at a time when the demand is less brisk. But historical example may be helpful:

When Brazil opened up as a market in 1807 after the Portuguese royal family fled there during Wellington's campaign in the Peninsula, more Manchester goods were sent to that market in weeks than had been consumed there in 20 years, including ice-skates and warming pans that Clapham notes proved to be the accepted illustration of commercial madness among 19th century economists.[25]

In the 1820s, independence to the Spanish colonies of Latin American governments marked a boom in lending, investing in mining shares there, and shipping exports to the area that overshot the mark. "The demand is sudden, and as suddenly stops. But too many have acted as if it were likely to continue."[26]

In the 1830s, says Matthews, there was a cobweb fluctuation of two-year periodicity. "Each merchant would be ignorant of the amount other merchants would be bringing forward by the time his own merchandise was on the market."[27]

"The extraordinary and undue expectations entertained not only in the United States but in this country as to the capability of California—after the 1849 gold discovery—unquestionably aided in multiplying and extending the disaster consequent on the American crisis. When it was again and again stated, both in London and in Boston, in regard to all shipments to San Francisco, that six, or at most eight, moderately-sized or assorted cargos per month were all that were required or could be consumed; instead of that eastern shippers dispatched twelve to fifteen first-class ships a month, fully laden."[28]

A rather far-fetched line of reasoning led from the hint of phylloxera that ruined many vineyards and set back wine production in Europe and the United States to the 1880s boom in brewery shares in Britain, as one after another private brewery went public in the public-companies mania. Among them Arthur Guinness and Co bought for £1.7 million, sold for £3.2 million.[29]

Nearer to the present, but not near at that, is the boom in Britain when businessmen as the end of the war in 1918 thought that they would benefit from the elimination of German competition in coal, steel, shipping, and even textiles. There was an increase in the prices of capital assets, ships, and equities, that spread to houses. In the spring of 1921 sober realization set in.[30]

There are three more cases on the borderline of rationality that we must discuss before getting to more clearly irrational ones. The first deals with target workers, so to speak, people who get used to a certain income and find it difficult to adjust downward when rational expectations would call for it. We used to call this the Duesenberry effect. In economic history books it is known as "John Bull can stand many things but he cannot stand 2 percent." John Stuart Mill puts it:

"Such vicissitudes, beginning with irrational speculation and ending with a commercial crisis, have not hitherto become less frequent or less violent with the growth of capital and the extension of industry. Rather they may be said to have become more so: in consequence, it is often said, of increased competition; but, as I prefer to say, of a low rate of profit and interest, which makes capitalists dissatisfied with the ordinary course of safe mercantile gains."[31]

Earlier, Charles Wilson notes that the Dutch were converted from merchants into bankers and accused of idleness, and developed habits of speculation from the decline in the rate of interest in Amsterdam to 2½ and 3 percent.[32] Later successful conversion of British debt in 1888 produced a considerable decline of the rate of interest and stimulated appetites of investors for foreign securities and conversions of private into public companies. Combined with the prospective revision of the Companies Act of 1862, it spurred promotors to depart from their usual standards and contributed to the speculative movement in issues of a questionable character.[33]

"When interest goes down, the English commerical world, unable to reduce its mode of life deserts its usual business in favour of the more profitable, but on that very account more risky undertakings . . . speculation leads to disaster and ultimately to crises, the brunt of which must ultimately be borne by the central bank."[34]

The second borderline class involves hanging on in the hope of some improvement, or of failing to take a specific type of action when change in circumstances supervenes. I have time to furnish only one illustration of each. On the first score, note the failures of the New York Warehouse and Security Company, Kenyon, Cox & Co., and of Jay Cooke and Co. on September 8, 13 and 18, 1873 because of advances they had made to railroads (the Missouri, Kansas and Texas, the Canada Southern and the Northern Pacific) with which they were associated, which railroads were unable to issue bonds because of the tight condition of the bond market, and which needed money to complete construction already well underway.[35] Similarly when foreign long-term lending to Germany stopped in 1928, New York banks and investment houses kept lending at short term because they had a bear by the tail. What does one rationally do in these circumstances? The question is apposite today as the world banking community contemplates its large volume of loans to developing countries and to the Socialist bloc.

The third borderline case is to have a model in mind but the wrong model. The most famous example is French Maginot-line psychology, but this may be thought of less as irrational expectations than as an undistributed lag. In the 1760s Hamburg merchants were not hurt by the fall in commodity prices until the end of the Seven Years War. Thus in 1799 they were totally unprepared for the decline in prices from a brief hole in Napoleon's Continental System in 1798, since the war was continuing.[36] Or take the French bankers and industrialists who formed the copper ring in 1888, patterned after the cartel movement in iron and steel, steel rails, coal, and sugar that began in the early part of the decade and bemused by the success of the diamond syndicate in South Africa and the mercury monopoly of the Rothschilds in Spain. (One notes even today economists who extrapolate from the success of OPEC to price-fixing in practically every other raw material and foodstuff.) By 1890 the syndicate held 160,000 tons of high priced copper, plus contracts to buy more, with old mines being reworked everywhere, processing of scrap burgeoning, and the price sinking like a stone. From £80 a ton at the top to £38, it almost took with it the Comptoir d'Escompte which was saved by the Bank of France.[37]

For the purely irrational, two different sorts of examples may suffice: a society pinning its hopes on some outstanding event that happens to be of no relevance to the situation, and ignoring evidence that points in a direction one prefers not to think about. A useful example of the first is the World Exhibition in Vienna which opened on May 1, 1873. Already by the first of the year, says Wirth, the liquid assets of enterprises were widely exceeded by their liquid liabilities, credit at banks was stretched to the limit, a move from commodities, shares and debt back into money was under way, the chain of accommodation of bills in the system was extended as far as it would go, but the system hung on, waiting for the opening of the Exhibition which was thought, or at least hoped, would save the situation as a *Deus ex machina* by some unknown means. When the opening of the Exhibition produced no change, the market collapsed on the 5th and 6th of May 1873.[38] For the second I prefer not to think about my experience in military intelligence in World War II, being fooled by the German cover plan which diverted attention from the Ardennes offensive, but refer once again to Beyen's remark noting German failure to restrict short-term borrowing in the late 1920s; he suggested that the dangers were not faced inside Germany, even by Schacht, and added: "It would not have been the first nor the last time . . . that consciousness was being 're-pressed.' "[39]

I forebear from dealing with swindles, tempting as it is to be ironic about them. Let me say merely that I take a Keynesian view rather than the J. B. Say model. Demand creates its own supply, rather than supply its own demand. The potential supply of swindles is infinite at a very moderate positive price. When mob psychology hits and get-rich-quick greed takes over, the swindles pour out of the woodwork, in prototypical demand-determined fashion.

It is time to bring this discussion to a close. I hope to have shown you that irrational behavior of markets is possible, both with rational behavior on the part of various actors, with rationality of some of them, and on occasion when all go berserk. In the quotation from Johnson with which I started, he said that the exchange market should be expected to act rationally like "most markets." I should have preferred him to say that it would be expected to act rationally like most markets most of the time.

I hope that what I have been saying this evening is not taken to suggest that I believe markets don't work well at all. On the whole they do. My position is far from that of Socialists or planners or the New International Economic Order or whatever. While I recognize the arguments for second-best solutions based on monopoly and the like, I am less moved by the thought of market failure than by the possibility of occasional breakdown. On the usefulness of the market overall I am much closer to Friedman and Johnson than to say Prebisch or the late John Blair or Marglin.

Let me illustrate the position by an analogy. That analogies often cloud thought I know, and this one must be offered with particular delicacy as it may be thought offensive by some. If I do offend, I apologize, as my purpose is to sharpen what I consider to be valid distinctions. I may add parenthetically that while the Mother Church has no Pope, I have been assured by a prominent layman that the analogy is not offensive to him.

It runs like this. Milton Friedman is to markets as Christian Science is to the human body. For the Christian Scientists the body cannot be sick. For Friedman, markets always function properly. At the other end of a wide spectrum are the hypochondriacs and pill-poppers and the planners who would replace the market. My position is much closer to Friedman, as I have just said, than to the planners, and much closer to the Christian Scientists than to the hypochondriacs. Mostly markets work, and mostly I, and most of the people I know, enjoy good health.

But market breakdown on occasion seems to me to have been clear in the record. Just as I am prepared to go to the doctor when I am sick, hurt, or in need of repairs, so am I willing to intervene in the market when breakdown occurs. We are not discussing policy this evening, I realize, but implicit in the view that all markets always work, or even that most markets always work is the view that no market medicine should be taken.

Time has not permitted discussion of monetary policy this evening, and one can be sure that all that I have said would be dismissed with a wave of the hand by a strict monetarist, if there be such any more, with the statement that there would be no problem at all, if the money supply grew at x percent each year, rain or shine. This comes close in my judgement to Linus Pauling's view, which I caricature, that the problems of the body would be solved if we all ingested copious draughts of Vitamin C or to Benjamin Franklin's recipe for "air baths." There is no doubt that a large part of the manias and panics we have been discussing stem from "displacements" initiated by mistakes of monetary policy, and/or are exacerbated by mistakes in the ways in which monetary systems have been operated over time. So much is freely granted, and chapter and verse can be cited from recoinages, failure to understand bimetallism, and from the Banking School. But let me close by quoting the view of the representative of another Chicago school, the great teacher of the great economist we honor this evening, Jacob Viner:

> "The (great) fault of the currency school was the exaggerated importance which they encouraged the public to attribute to the automatic regulation of the issue department . . . Peel went further than his currency school supporters . . . Torrens and Overstone had never committed themselves to the doctrine that regulation of the note issue was a remedy for all banking ills . . . They had a hankering for a simple automatic rule, and could find none suitable . . . in case of an internal panic (Overstone thought) resort must be had to 'that power which all governments must necessarily possess, of exercising special interference in cases of unforeseen emergency and great state necessity.'"[40]

Lord Overstone, I should perhaps add (formerly Samuel Jones Loyd with one "l") must be distinguished from the firm of sapient nincompoops, Overend, Gurney and Co. and from overconfidence, overspeculation and overtrading.

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25. Clapham, *loc. cit.*, II, p. 20. Note that Hyndman sarcastically ascribes this example to the 1820s: "The most ridiculous blunders were made by the class which was supposed to be carrying on business for the general benefit. Warming-pans were shipped to cities within the tropics, and Sheffield carefully provided skaters with the means of enjoying their favorite pasttime where ice had never been seen. The best glass and porcelain were thoughtfully provided for naked savages, who had hitherto found horns and cocoa-nut shells quite hollow enough to hold all the drink they wanted." (H. M. Hyndman, *Commercial Crises of the Nineteenth Century*, London, Swan, Sonnenschein and Co., 1892, 2nd ed., 1932, reprinted Augustus M. Kelley, New York 1967.) Clapham is right and Hyndman wrong. The source of both is J. R. McCullough, *Principles of Political Economy*, 2nd ed., Edinburgh, 1830, p. 329.

26. William Smart, *Economic Annals of the Nineteenth Century*, Vol. II, 1821–1830 (1911), reprinted New York, Augustus M. Kelley, 1964, Chapter XXVI "The Speculative Mania," p. 292.

27. Matthews, *op. cit.*, p. 25.

28. D. Morier Evans, *The History of the Commercial Crisis, 1857–1858 and the Stock Exchange Panic of 1859*, (1859), reprinted, New York, Augustus M. Kelley, 1969, p. 102.

29. Max Wirth, "The Crisis of 1890," *Journal of Political Economy*, Vol. I, No. 2 (March 1893), p. 220.

30. A. C. Pigou, *Aspects of British Economic History, 1918-25*, London, Macmillan, 1948.

31. J. S. Mill, *Principles of Political Economy, with some of their Applications to Social Philosophy*, Ashley edition, London, Longmans, Green & Co., 1848, reprinted 1929 (7th edition), p. 709.

32. Charles Wilson, *Anglo-Dutch Commerce and Finance in the Eighteenth Century*, Cambridge, at the University Press, 1941, p. 25.

33. W. Jett Lauck, *The Causes of the Panic of 1893*, Boston, Houghton, Mifflin & Co., 1907, p. 39.

34. A. Andréadès, *History of the Bank of England*, Two Volumes in One, London, P. S. King, 1909, pp. 404-05. See also p. 249.

35. O. M. W. Sprague, *History of Crises under the National Banking System*, Washington, D.C. U.S. Government Printing Office, 1910, pp. 35–36.

36. Wirth, *Geschichte des Handelskrisen, op. cit.*, p. 109.

37. Wirth, "The Crisis of 1890," *op. cit.*, pp. 222-24; Lauck, *op. cit.*, pp. 55–58.

38. Wirth, *Geschichte des Handelskrisen, op. cit.*, p. 519.

39. J. W. Beyen, *Money in a Maelstrom*, New York, Macmillan & Co., 1949, p. 45.

40. Jacob Viner, *Studies in the Theory of International Trade*, New York, Harper & Brothers, 1937, pp. 231-33.