

# Double Entry Book Keeping: A Conversation

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## Abstract

*The following is an edited version of a conversation between Jane Gleeson-White and Geoff Harcourt about Jane's book, Double Entry. This conversation was part of UNSWriting and presented at Io Myers Studio by the Creative Practice and Research Unit in the School of the Arts and Media, Faculty of Arts and Social Sciences, UNSW. UNSWriting brings together writers, academics, and students of writing to facilitate the flow of ideas in and around the city, the country and internationally. The conversation was broadcast by the ABC as part of their Big Ideas program. Emeritus Geoffrey Harcourt is Visiting Professorial Fellow in the Australian School of Business, UNSW, Emeritus Reader in the History of Economic Theory, Cambridge University, Emeritus Fellow, Jesus College, Cambridge, and a leading post-Keynesian scholar.*

## Introduction

**GH:** I was very excited to read this wonderful book by Jane because it has such an overlap with my youth. I first heard of her hero, Pacioli, in 1950 in Lou Goldberg's lectures on Accountancy 1A, the aim of which was a terminal course which allowed you by the end to keep the books of the local tennis club. It just so happens that the [accountancy] I learnt there guided me through both the research for my undergraduate dissertation and for my PhD and for my second best known article, which is called 'The accountant in a golden age'. One of my illustrious colleagues at Cambridge said that if ever I were to be given a life peerage, I would be known as Lord Harcourt of Depreciation.

Jane's book is extraordinarily scholarly. It's beautifully written and it is full of profound insights and economic intuition of a very deep sort. She argues that without double-entry bookkeeping you wouldn't have had capitalism and without capitalism you mightn't have had double-entry bookkeeping. There was a mutual determination process going on. That double entry played an enormous role in the development of capitalism, then the rise of the accounting profession and now, which is the wonderfully humane and moving climax to her book, the accountants may

either save us or doom us to extinction. That leads us into the current debates on sustainable consumption.

Jane concentrates on the central concept of the surplus early on and its relationship to double-entry bookkeeping. When we get to the end of her book I find myself in the company of people who were my colleagues in Cambridge, such as Amartya Sen, Joe Stiglitz, Partha Dasgupta, Richard Stone and James Meade, who made up the national accounts in the UK.

So you can imagine the excitement I had when I read this. I hold Jane up as a model of how to do thorough archival research and apply intelligence and beautiful narrative writing to making alive very important issues.

Jane, perhaps you might just tell us briefly how you got on to this topic.

**JG-W:**

Thank you Geoff. First of all I'll say that yes, a lot of research went into it. My other major area of interest is literature — although I do have an economics degree and obviously an interest in economics. So it was a very unexpected area for me to be considering writing a book on something as unlikely as double-entry bookkeeping and accounting. But the way that I came to it was actually in an accounting lecture in the context of having worked in Venice at the Peggy Guggenheim Museum of Modern Art.

I had spent three months working in what to me was the most extraordinary city on earth, immersed in Renaissance art as well as working every day in a modern art gallery. To me Venice was the ultimate place of art and culture and I hadn't really noticed — well it didn't even occur to me to consider the great wealth that underpinned it because I just saw it manifested everywhere.

Then I returned to Australia the next year and started my economics degree and was sitting in an accounting lecture. The lecturer — who was very engaging — happened to mention the word Venice in association with the origin of double-entry bookkeeping and some illustrious person called Luca Pacioli who had published a book on the subject in Venice. Because it happened to be Venice and Venice was on my mind — and because accounting seemed the polar opposite of Venice, it just seemed so unlikely that these two things should be connected — it caught my very perverse imagination. And so I decided that one day I'd look into it, write a book on it. But I couldn't ever imagine pitching the idea of a book on double-entry bookkeeping to my publisher, Jane Palfreyman, who publishes Christos Tsiolkas and various other works of cutting edge fiction. It seemed most unlikely she'd be interested.

## Pacioli, Mathematics and Accounting

**JG-W:** Eventually I did research the subject a little more beyond the superficial connection between Venice and Pacioli and I found the most extraordinary story. One which not only went backwards to the beginning of writing in Mesopotamia about 3000 or 4000 years ago, but also went forwards to today. I followed the idea to its logical conclusion and it ended up most unexpectedly, but most delightfully to me, with this idea of environmental accounting and the idea that accountants could possibly save the planet where everybody else had failed. Which was also a very exciting idea.

In the book I set the scene with Pacioli because he lived in such a complex century — the 15<sup>th</sup> century (he was born in about 1445) — which we're mostly familiar with as an era of great painting and scholarship but we're not so familiar with the fact that this was also a century of revolution in mathematics and also in printing and communications. The mathematics that was so significant in this era had arrived in Italy about 200 years earlier, but had actually been banned by the church because it came from the east, from the Arabs, and the church and guilds believed their numerals were easy to tamper with and counterfeit.

Merchants began to use them regardless, because they were so easy to work with, but scholars did not.

So that was the context in which Pacioli was writing.

I'll read you a few fragments to set the scene.

Pacioli was the greatest encyclopædist of the Renaissance in the context of this new mathematics and also in the context of Venice which, in the 15<sup>th</sup> century was the New York of the world and its Rialto was the Wall Street. And though these Hindu-Arabic numbers had been outlawed, their use was advocated by the man who in 1494 codified the state-of-the-art bookkeeping practices of Venice. By the 1430s the merchants of Venice had perfected a system of double-entry account keeping in two columns, which became known as bookkeeping *alla veneziana*: the Venetian method. It is this Venetian method that, through its extraordinary resilience and mutability, has come down to us today, transformed over several centuries from a rudimentary business tool into an efficient calculating machine.

The man responsible for its codification and preservation — the author of the world's first printed bookkeeping treatise — is Luca Bartolomeo de Pacioli, Renaissance mathematician, monk, magician, constant companion of Leonardo da Vinci. As the origin of all subsequent book-

keeping treatises throughout Europe, Luca Pacioli's book-keeping tract is not only the source of modern accounting but also ensured the mediæval Venetian method itself survived into our times. And so accountants have named Luca Pacioli the 'father of accounting' — and any story of double entry must pay him special attention. It's worth examining in some detail not only Pacioli's life but also his times, because in his century Italy was shaken by a renaissance in mathematics and a communications revolution which both bore directly on the staying power of double entry itself. (pp. 27–28)

I could read other passages about his travels to Venice where he learnt bookkeeping from a merchant who had employed him as a 19 year old student to teach his sons bookkeeping and mathematics. But I might move on to his illustrious teacher, who was Piero della Francesca, one of the three great mathematician-artists of the Renaissance, the others being Albrecht Durer and Leonardo da Vinci, who was, as I said, Luca Pacioli's constant companion and who probably, and I say definitely, learnt mathematics from Luca Pacioli.

So there's this incredible sort of interplay between my favourite artists, Luca Pacioli and the revolutionary new application of mathematics to painting during this time, known as linear perspective painting. So Luca Pacioli, whom we don't really know much about, was not only the father of accounting, he was also the great mathematical encyclopædist of the Renaissance and the foremost expert on the mathematics for the art of perspective painting, which was the new way of painting that appeared to be in three dimensions instead of in two dimensions. This new approach was most beautifully executed by Leonardo da Vinci in his 'Last Supper' in Milan — and Pacioli was present while he painted it.

## **Double Entry Book Keeping and the Calculation of Profit**

- GH:** Perhaps you might just briefly say something about how double-entry bookkeeping allowed one of the chief accounting conventions of going concerns to be made and remain viable. What was the link between using double entry and making sure that your business didn't fall apart?
- JG-W:** The key thing that double-entry bookkeeping made possible was the calculation of profit so that at the end of a period a merchant could see whether his business was a going concern or not. The thing that distinguished the Venetian system from the previous forms of account keeping was that it had a bilateral ledger from which you could tell how your business was going at a glance. I

think that was the key thing and it allowed for the calculation of profit.

Previously in Italy there had been accounts kept in paragraph form, more like diaries, narrative records of a merchant's affairs. When a merchant was just a single man in a fixed place, either he kept his accounts in his head or he made diary entries to keep track of his business. But once the Italian merchants became active from the Cotswolds right across to China, they needed much more sophisticated systems. This double-entry bookkeeping was the one they used.

**GH:** One of the things that comes out of Jane's book as far as accounting and economic concepts are concerned, is the great necessity to distinguish between stocks and flows. What double entry shows you is that profit and loss are flows of expenditure or ingoings and outgoings, whereas balance sheets are stocks, a stock at the moment of time. The best economists have always talked about the very important inter-relationships between stocks and flows and that comes out of double-entry bookkeeping. Also of course in modern accounting another very important concept is what they call the flow of funds statements, which show funds coming in and the uses of those funds, both for current purposes but also for capital accumulation.

Because as you know, one of Karl Marx's most famous remarks is 'Accumulate, accumulate, that is Moses and the prophets'. Now I don't know whether you can make puns in German, but I always ask how did he spell prophet — with a *ph* or with an *f*? But I don't think Marx was noted for his sense of humour.

But the whole point about understanding capitalism — this comes out of Marx rather than out of mainstream economics — is that the decision makers and the drivers are ruthless and swashbuckling capitalists — industrial, commercial, financial. One of Marx's great insights — and this is where double entry is very important in keeping accounts — is that if financial capital gets out of kilter with industrial and commercial capital, instability and sometimes crisis occurs. I rest my case. We're living through such a period at the moment.

## Keynes, Kalecki and Financial Capital

**GH:** One of my recent papers has been on what would Marx and Keynes have told us about the last 30 years as opposed to mainstream economists? I think that they had far greater insights and Keynes is one of your heroes isn't he?

**JG-W:** Yes.

**GH:** Yes, and one of mine too. But while we're talking about Keynes, the principal propositions of his most famous book, *The General Theory of Employment, Interest and Money*, were independently discovered by a Marxist Polish economist, who's my greatest hero, Michal Kalecki, who I think was the greatest all-round economist of the 20<sup>th</sup> century. But he came out of Marx and one of Marx's use of double entry was in volume two, (which was only published after he died, by his mate Engels) where he discusses the concept of what he called the schemes of reproduction. In that he divides the economy into the production of capital goods, production of consumption goods and production of luxury goods.

He works out the conditions under which it would be true that the total amount produced and the composition of the total amount produced would be bought either directly or indirectly by the three departments. Of course he's not saying this is how capitalism works. What he's saying is it will only be a fluke if those conditions are established by individual capitalists doing their own thing. If they don't do it then you are going to have instability and crisis.

So again double entry is very important for understanding why capitalism, while it is a remarkable producer of goods and services and so on, is nevertheless at its basis a very irrational and unjust and cruel system if it's left to itself. Now Keynes, who was a liberal — his great biographer Robert Skidelsky calls him 'the last of the English liberals' — wanted to save capitalism from itself. Of course Marx rubbed his hands and said it's full of basic contradictions and if we just wait long enough it'll blow up. We're still waiting but ...

**JG-W:** Well Keynes keeps tampering with it.

**GH:** Keynes could never understand Marx. He was very, very rude about him and when my mentor, Joan Robinson, sent him her book, *An Essay on Marxian Economics*, he wrote to her and said that's the best thing you've written so far and it's very interesting. Which is strange because how can you make something which is basically wrong other than boring? I think that reflects much more on Keynes than on Marx, but there we are.

**JG-W:** Absolutely. And perhaps on Joan Robinson as well.

**GH:** Yes, well I have to say that Joan on Marx also had certain blind spots.

## Limited Liability, Double Entry and Capitalism

**JG-W:** There was a German economist at the beginning of the 20<sup>th</sup> century called Werner Sombart, who I hadn't heard of before. He has not been translated into English, for good reasons, mostly related to his political persuasion as a German ...

- GH:** He was to the right of Genghis Khan ...
- JG-W:** Yes, but he made some really fascinating assertions about double-entry bookkeeping and capitalism. So I followed the trail of double entry from Pacioli through the years that his treatise became widespread in Europe and became the standard practice, and then through the industrial revolution when it was applied to factories and the new form of business, which was the corporation or the joint stock company.
- So it was all fascinating and exciting and amazing and I just couldn't believe this tiny little Venetian relic continued to find ways of being central to business and economics in Europe.
- GH:** Or limited liability.
- JG-W:** Yes, it proved to be this extraordinarily flexible and adaptable tool. But I was very, very excited to discover Sombart and then to discover that Marx, although he doesn't mention double-entry bookkeeping in *Das Kapital*, does refer to it often in his letters to Engels and asks that Engels send him the accounts of his family cotton mill in Manchester, which I just found fascinating. So it means that Marx already had his theoretical vision of how he thought capitalism worked. But he was looking at actual double-entry accounts from Engels' state-of-the-art family cotton factory in Manchester to see how businessmen in 1850s (in those days they were almost exclusively male) were actually keeping their books and how they were dealing with profit and how they were accounting for it.
- So I think possibly he drew comfort from seeing the way that his theoretical views were actually practised.
- GH:** Now did Marx see limited liability come in? You see, if you don't have limited liability, if a firm goes bung the shareholders are just bankrupt — you know, are ruined as well. Whereas with limited liability you're only up for the shares that you hold.
- JG-W:** Yes, I think that was early in the 19<sup>th</sup> century in Britain. I think Europe was ahead of England with limited liability.
- GH:** You're probably right.
- But also in Tawney and Weber there's a connection between religion and the rise of capitalism as well as bookkeeping and the rise of capitalism.
- JG-W:** Yes. Anyway I will just read a little bit from this chapter about Sombart:
- In 1902 a most intriguing claim was made on behalf of double entry. It was proposed by a German economist, Werner Sombart, in his six-volume work on capitalism, *Der moderne Kapitalismus*. In six pages Sombart set out his

belief that the emergence of capitalism and the appearance of double-entry bookkeeping in the 13<sup>th</sup> century are causally related. He wrote: 'It is simply impossible to imagine capitalism without double-entry bookkeeping; they are like form and content'. In Sombart's view, capitalism and double entry are so intimately connected, it is difficult to tell which was cause and which effect: 'one may indeed doubt whether capitalism has procured in double-entry book-keeping a tool which activates its forces, or whether double-entry book-keeping has first given rise to capitalism out of its own spirit'.

Sombart defines capitalism as 'a particular economic system recognisable as an organisation of trade, consisting invariably of two collaborating sections of the population, the owners of the means of production, who also manage them, and property-less workers bound to the markets which they serve; which displays two dominant principles of wealth creation and economic rationalism.'

Sombart's definition derives from Karl Marx. Friedrich Engels, Marx's collaborator and editor, wrote of Sombart's work: 'It is the first time that a German professor succeeds on the whole in seeing in Marx's writing what Marx really says'. (pp. 161–162)

But Sombart took his claims for double-entry bookkeeping much further and they were also very exciting to me. So I'll just read a couple more paragraphs about that.

According to Sombart, capitalism originated with double-entry bookkeeping, which created the category of capital — or 'that amount of wealth which is used in making profits and which enters into the accounts'. Not content merely with assigning double entry a foundational role in the capitalist economy, Sombart also accords bookkeeping the same parentage as modern science, arguing that 'double-entry bookkeeping was born of the same spirit as the systems of Galileo and Newton, and the modern schools of physics and chemistry. In fact he goes further still, suggesting that double entry itself was the germ of the scientific revolution of the 16<sup>th</sup> century: 'Without looking too closely one might already glimpse in double-entry bookkeeping the ideas of gravitation, the circulation of blood and energy conservation.' What Sombart means by this extravagant claim is that through its encouragement of regular record-keeping, mathematical order and the reduction of events to numbers abstracted from time and place, double entry fostered a new view of the world as



being subject to quantification. It was this urge to abstract and quantify natural phenomena that lay at the heart of the scientific revolution. Oswald Spengler makes a similar claim in *The Decline of the West* where he equates Pacioli with Copernicus.

When we put together all the claims Sombart made on behalf of double-entry bookkeeping [this essentially mediæval technical procedure that was born in northern Italy], we see that he is effectively arguing that it gave birth to the entire modern scientific capitalist world. In particular he says that by enabling a numerical, monetary (and hence, in his view, 'rational') calculation of profit, double-entry bookkeeping provided the basis on which commerce could be seen as a process of acquisition: as an unending, systematic pursuit of profit? (pp. 166–167)

We live with the consequences!

## National Accounting

**GH:** But we should also say that when Keynes was writing, one of the things that made it possible for his work to be used for policy purposes was the simultaneous development of the idea of the national accounts. This was very important in the Second World War because it helped to see what resources were and were not available for the war effort. That's when two of my older colleagues, Richard Stone and James Meade, calculated in 1940 the first national accounts for the UK to be used by the war effort. Joan Robinson's husband, Austin Robinson, an economist, said that his greatest contribution to the war effort was to get these two young fellows to make up these national accounts.

So the national accounts are extraordinarily important and for wartime purposes they were absolutely indispensable. I must say that there were some Australian — or Australian adopted — economists associated with it, Sir John Crawford and also Colin Clark, who was an Englishman but who came out to Queensland to advise Joh Bjelke-Petersen amongst others I think. But they also did early studies of national accounts as well as Meade and Stone and of course Simon Kuznets who (like Meade and Stone) got the Nobel Prize. But then they fell into disrepute, as you quote Robert Kennedy as saying. Because capturing everything in the national accounts is problematic. For example pollution is not captured: it is put out by factories, but it's not counted as a cost of production in the national accounts. Producing armaments, and all sorts of similarly questionable things are regarded as positive — part of the measurement of our wellbeing — and yet there's a huge gap between them and their true impact.

Now the best economists always understood that. But what they are now working on, and Jane describes this with great passion at the end of her work, is how do we adjust doing our national accounts to take into account the fact that we are ruining the environment in the process? We'll eventually have some measure of being able to create a sustainable environment while at the same time the wretched of the earth — the majority of the earth — raise their standard of living to something which is liveable with. So that — along with global warming, which is connected with it — is the number one problem of our time, the major problem of our time, which the best economists now are addressing. There's the Stern Report, there's Bill Nordhaus' work in the States, and Marty Weitzman at MIT. They're all working on it and it is absolutely of major, absolutely fundamental importance if the world is going to be saved. That's why you said the accountants can either ruin the world by wrong measures or save it by getting the measurement right.

But we must keep one of the great gifts of the enlightenment, which is you do need to measure things in order to have a scientific study. But of course there are two ways of knowing things, at least. One is the scientific way but there is also — and this is why you span both cultures in C.P. Snow's ridiculous dichotomy — knowledge through intuition, through poetry and even dare I say it, through religious insight. They need to be combined in order for us to have a full understanding of the human condition and what we can do to preserve it.

**JG-W:**

Yes, another exciting moment in my journey with double entry was discovering that the same Venetian technique was applied by Stone and Kuznets and others to construct these national accounts — during the depression, first of all in America with Roosevelt's New Deal and then in the United Kingdom under the guidance of Keynes with his *General Theory* during the Second World War. The figures that they generated (which we commonly call the GDP), are the measure of economic growth, or enable that measure to be made. I discovered that this GDP figure had really only been around since the Second World War and had gradually been spread to every nation on earth under the aegis of the United Nations after the Second World War.

We tend to take this GDP accounting for granted, but I question the idea of endless economic growth...

## **GDP Accounting and the Limits to Growth**

**GH:**

Victoria Chick has just written a lovely paper comparing the ideal end states of Keynes in the economic possibilities for our grandchildren, and Fritz Schumacher who argued that small is beauti-

ful. They both had visions of what the ideal world was. Keynes thought you needed to solve the economic problems so we could all be reasonably well off, but then you can get on with the real business of life. He belonged to the Bloomsbury circle, and Noel Annan once said 'the Bloomsbury circle lived in squares and loved in triangles'. Keynes thought let's get rid of money making, which from a Freudian point of view he regarded as anal-retentive. Then we can get on with friendship and beautiful objects and using our leisure properly.

Schumacher similarly thought that small was beautiful but once you reach a certain standard of living let's get on with being human beings. So I agree with you, growth is necessary but it is a means to an end. When we've solved sustainable consumption, we rich people in the West cannot stop — should not stop — the less fortunate majority attaining a decent standard of living.

We've got to solve that but then we've got to settle down to having a sensible civilised system and smashing the idea of 24/7. Ross Gittins commented that we've all been sold this idea that we work seven days a week, without penalty rates, and the employers are allowed to manage their workers so that they do their five-day week spread over the seven-day week. Gittins says this is rubbish and I couldn't agree with him more. Instead, we could share our higher living standards with the less well-off, and allow ourselves more leisure.

**JG-W:**

Just to give you some flavour of what Geoff's talking about with the national accounts, I think Robert Kennedy summarised it very poetically in a speech about the GNP and the flaws in using it as a measure of a nation's wellbeing. This was in 1968 when America was the richest country in the world, and it probably still is.

'Too much and for too long we seem to have surrendered personal excellence and community values in the mere accumulation of material things. Our gross national product now is over \$800 billion a year but that gross national product counts air pollution and cigarette advertising and ambulances to clear our highways of carnage.

It counts special locks for our doors and the jails for the people who break them. It counts the destruction of the redwood and the loss of our natural wonders in chaotic sprawl. It counts napalm and counts nuclear warheads and armoured cars for the police to fight the riots in our cities. It counts Whitman's rifle and Speck's knife and the television programs which glorify violence in order to sell toys to our children. Yet the gross national product does not allow for the health of our children, the quality of their education or the joy of their play. It does not include the beauty of our

poetry or the strength of our marriages, the intelligence of our public debate or the integrity of our public officials.

It measures neither our wit nor our courage, neither our wisdom nor our learning, neither our compassion nor our devotion to our country. It measures everything in short except that which makes life worthwhile.'

That is so resonant for me, especially as a lover of the intangible goods that don't get measured by the GNP, and the reason that I've muddied my hands with economics and accounting is because I care so much about these other things and it feels that we're living in a world that is governed by numbers and accounts and money. For example, yesterday's announcement by the new Premier of Queensland that he was going to abolish the Literary Awards is just a classic one of a gazillion examples. Of how this sort of thinking that I argue came from Luca Pacioli's double-entry bookkeeping treatise and the merchants of Venice is infecting every sphere of our lives. I'm sure anyone who's an academic here would experience it every day in your academic departments and universities. Anyone who has children who go to school experiences these terrible kinds of cost-cutting measures that value profits and money over wellbeing and health and sanity.

So I'm not sure that it's possible to put a price on all these things that we value so much, but I think it's really important that we know the mechanisms that generate the numbers that are crushing these things.

**GH:** Of course the Kennedys were great friends of John Kenneth Galbraith, one of the giants of modern economics, and the theme in Robert Kennedy is taken straight from *The Affluent Society*, Galbraith's book published in the '50s.

## Questions from Audience

**Q:** Are you surprised and do you have any reasons why you think your book may have captured a broader audience?

**JG-W:** I was surprised when my publisher said that she would be happy to publish this book so anything else is a surprise. But I did write it for the general reader, so I'm actually more surprised that the specialist readers, including the professors of accounting at Sydney Uni and Geoff Harcourt and some of these people, have taken it up.

I actually think that it's found its time. I think with the crash in 2008 and with all this talk about environmental crisis and climate change, the book encompasses it all, and people now want to talk about economics.

- Q:** Do you spend any time discussing the relation between the rise in capitalism and the rise in democracy?
- JG-W:** No, but that is an incredibly interesting question and might be implied at various stages in my book. Because especially in Northern Italy I think one of the driving forces of this new form of wealth creation for the merchants was the fact that their city states became independent from the church around the time of the crusades. So already they're freeing themselves from external constraints and probably finding a more democratic — but based on individual wealth — way of governing their estates, their cities.
- GH:** It's a very controversial question because the farther to the right you are, the more you say you can't have democracy without capitalism, and vice versa. The farther to the left you get, they say no, it's not that they're against democracy but it's not necessary. Indeed, for example Galbraith, who was a true democrat, said that the Soviet Union system was very successful while you only had to meet rudimentary targets. Like making steel and houses and providing education and so on. Where it fell apart was when you got into consumer things. Sen has an idea that they have to go together. But my colleague Peter Nolan, who's a leading authority on China and the Soviet Union, argues in his book *China's Rise, Russia's Fall* that no, it's not necessary and indeed it may hold you back on development. One of the reasons why China is doing well, is that it's nowhere near anything like a democracy but it's pragmatic in the way it's creating capitalist modes and state controlled modes. That's one of the secrets of its success since Mao died.
- Q:** Are there any intimations of triple bottom line accounting in any of the work of Pacioli or further on from that, apart from the obvious times when it rears its head? Were there any glimmers early on of people wanting to take into account not just the double entry, you know pure profit and loss side, but other factors? Were there any kind of historical incidents, maybe plagues or famines or crop failures, or things where people thought wait a minute, there might be other things at work that we have to take into account?
- The second question is about Pacioli himself. He seems like fascinating character. Has he appeared much in historical fiction or movies about him?
- JG-W:** As far as I know, no to the question about triple-entry accounting in Pacioli's work. Even the early cost accounting that was done in the late 18<sup>th</sup> century by Wedgwood didn't take account of so-called 'externalities' such as pollution.
- GH:** Pigou, who did *The Economics of Welfare*, was very well aware of all these things we're discussing now and makes it very clear when he says I'm going to use the national income as a very imperfect index of welfare, but it's all we've got at the moment. He was very

aware of a lot of the problems that we talk about today and he distinguished between social costs and private costs, private benefits and social benefits. He thought about ways of measuring them.

The person I regard as the greatest English economist, Tony Atkinson, was inspired by Meade, Meade in turn being inspired by Pigou and Keynes to work on these things.

**JG-W:** As for Pacioli as a historical figure in any other accounts, there's only one biography written about him, in 1942, by a very romantic accountant and it's said to be mostly unreliable. I find it amazing that he's not more widely known and written about. Here is a man who was the best friend of Leonardo da Vinci, lived with him in Milan, and was influenced and possibly taught by Piero della Francesca — two of the greatest painters of the Renaissance.

**Q:** Wasn't the development of double-entry accounting inevitable? If Pacioli hadn't invented it, somebody else would have?

**JG-W:** That's true. Especially as it was being practised in Northern Italy, in Florence, Genoa and other northern Italian city states, since about 1300. But it was perfected in Venice and that was the version that Pacioli chose to formulate. Pacioli didn't actually invent it, he formulated what was already in practice. He did it very well, and then it spread throughout Europe because of the printing press which had just been invented. So it made his version the standard version.

**Q:** Pacioli's era would have been shopkeeper time when we didn't have what Marx would have called capitalism or developed capitalism. I think about — and I am sure you would agree — that we need the creation of surplus that has to take place first.

**JG-W:** It was mercantile capitalism. Merchants were exporting wool from the Cotswolds on credit so they had these really sophisticated systems of credit. Under the influence of a lot of contemporary thinking about capitalism we imagine it as having emerged around the middle to the end of the 18<sup>th</sup> century. But this is very sophisticated capitalistic behaviour. It's mercantile and it's different from factories and the rise of the corporation.

**Q:** But this is capitalism based on trading and this is to do with selling things at higher prices than you bought them at, which is not what Marx thinks about as surplus creation.

**JG-W:** Yes. In the sense that there's no labour involved.

**Q:** I think limited liability is something which really gave a big spark to the development of capitalism. Because you could then invest large sums of money and you could still go home without having lost anything yourself.

The other point I was going to make which double-entry book-keeping doesn't seem to say anything about, is the problem of dis-

tribution, which was touched on earlier. That is still an important point- the distribution of wealth is so unequal in some developing countries that you can't just look at national income accounts and you can't just look at double-entry bookkeeping unless you look at the distributional factors.

**JG-W:** Absolutely, I totally take your point and I do touch on that towards the end of my book.

**Q:** I understand there was a Council of Venice which perhaps shared ideas and perhaps needed to share information as well. That may have had some impact on democratic systems in terms of accounting. I wonder has that been considered, whether the way that Venice was managed politically had an impact on the economic system?

**JG-W:** The political system of Venice is absolutely fascinating because it's the ultimate capitalistic — or mercantile — political system. The rulers or Doges of Venice said money is the sinews, nay the life blood of our city. They even decreed when the ships should come to and from Venice so that they would have enough goods from the Levant and from Constantinople, which was their major trading partner, to trade at key times such as Christmas. I don't know where democracy fits into that — unless it's a democracy of merchants — but certainly economics and politics were hand-in-glove. The Venetian Navy, which was instrumental in giving Venice the power that it had at the time, was effectively designed to accompany all its trading ships.

It was a city that above all protected the rights of merchants, uniquely in Italy at the time.

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