

## Of cows, money and bitcoins

### A domestic conversation

Melanie and Jimmy had already finished their breakfast, when James came into the kitchen with the newspaper under his arm. While she poured him a big mug of coffee, Melanie said:

‘Dear, last night, at the gym, Betty told me that we should invest in Bitcoin. It’s a new electronic kind of money that everybody is talking about — or so she says, but I haven’t heard of it. Have you?’

‘A little, not much, but enough, I think. Hand me a slice of that toast, will you.’

Melanie dropped a piece of toasted bread on his plate. ‘Her Albert had been given a bitcoin by a friend for his birthday and it had gone up three hundred percent in just a few months. They bought more since then. Get in before everybody else does, she said, or you’ll regret it for the rest of your days. What do you think?’

James put some strawberry jam on the toast. Jimmy opened the newspaper to look at the cartoons and read the strips.

‘It’s not even seven-thirty, James said wearily. No thinking before eight a.m.’

‘Oh, come on, James. You’ll be out the door in half an hour. I’m going to see Betty again at lunch time. You know her as well as I do. I’ll have to say something about Bitcoin; otherwise she’ll bring it up again and again. Would it be wise to follow her advice?’

‘Why should we be interested?’

‘She said it’s as good as gold, only better. It has to be mined, she said, and mining it is difficult and it becomes more difficult as more coins are discovered — just as gold mining becomes ever more expensive as the known and easily accessible mines are depleted.’

‘Yes, that's true. Of course, there's a difference. Nobody knows where the last accessible ounce of gold can be dug out of the ground. With bitcoins, people know exactly how many can be mined, because the maximum is part of the Bitcoin computer code.’

‘Yes, that's what Betty said: twenty million or so. But how do you mine bitcoins?’

‘I don't actually know how to do it. It seems you're supposed to solve mathematical puzzles — equations of ever-increasing complexity that verify Bitcoin transactions. Solve a puzzle, get a bitcoin — that's the idea; but don't ask me more. Of course, it's not something the average Joe can do. It's for geeks and techies. I've read that they are now making expensive bitcoin-mining equipment: computers designed especially to solve those puzzles. Bitcoin mining is only for the dedicated few. If we'd want them, the rest of us would have to buy them or to get paid in them.’

‘Why is there an absolute maximum of bitcoins that can be mined?’

‘The idea is to give people the assurance that Bitcoin is not like paper money, which can be created out of thin air by the banking system under the guidance of the Central Bank. Bitcoin is not bank money. In that respect, it is like gold. Moreover, the rate at which new bitcoins can enter the system is fixed; and that rate is set to decline over the years.’

‘Betty said, it's better than gold.’

‘I guess that she means that it is easier to use in making payments, because it's just bits of computer code that can be sent almost instantaneously all over the world to wherever there is an Internet connection. It's also cheaper to store bitcoins than it is to store gold. You keep the codes in a so-called “wallet” on a hard disk in your computer, a USB stick, or wherever else you store your data. I suppose the original idea was to mimic the monetary system of the old gold-coin standard, but with electronic instead of physical coins.’

‘So, it's virtual money?’

‘If it were money, it would be virtual money.’

‘But... it isn't money?’

‘No, it's not money. Bitcoin is a system for transferring bitcoins from one person to another. Bitcoins are a means of payment with, for the moment, very limited currency. By the way, there are other electronic currencies, but so far Bitcoin is the most successful of these. Still, few people use it to make payments and few accept it in payment.’

‘Yet, Albert seems to have no problem buying them.’

‘There are some Bitcoin exchanges, where bitcoins can be bought for dollars. But the price changes from day to day — and not by small amounts. So, it's nearly impossible to quote for example a sensible price for a book or a pound of butter in bitcoins. That makes it useless for most businesses, except perhaps as a gimmick.’

‘Yes, but Betty said that more and more people will begin using Bitcoin. It's convenient, you don't have to carry cash around; it's private, you cut out the banks and other financial intermediaries... also the tax man; and... there was more... I forgot what. Now, that's good isn't it, convenience and privacy?’

‘Sure! Remember, though, using cash is also private, and you don't have to carry your electronic gadgets around or worry about computer and server crashes, cell-phone theft, cyber-attacks, hackers, and all the tracking devices the producers build into those machines and gadgets, perhaps at the behest of governments with which they want to make favourable deals.’

‘Why would they want to do that?’

‘They need licences and permits. They want tax breaks, seats on one or other regulatory committee, opportunities to bid for participation in this or that massive military or infrastructure project. They want to forestall being tied down for years in expensive investigations, court proceedings, and a million other things that we know nothing about and never will.’

‘In any case,’ James continued, ‘Bitcoin is very much dependent on rapidly evolving technology, and therefore on

the integrity of those who have big commercial, political and military stakes in the development and implementation of that technology.’

‘That makes sense, but Betty said it's all encrypted and secure.’

‘No system is one hundred percent secure. Besides, no system that involves numerous unknown, anonymous others and requires them all to play by the rules is secure. I’m talking not only about the users but also about the manufacturers and operators of most of the computers, servers, transmitters, cables, satellites and software that make up the global electronic communications systems. It's not as private as you might think.’

‘How does it work, then?’

‘The Bitcoin system must be able to recognise code that belongs to it to accept it, and code that does not belong to it to reject it. It must keep track of every transaction to make sure the same bitcoin is not spent twice — and it must do so almost instantaneously. Therefore, to be able to function at all, Bitcoin must pass an electronic fingerprint along with every transaction to ascertain its legitimacy.’

‘And that means what?’

‘It means that the system can be monitored and tracked by governments, the police, the military, secret services, perhaps also big corporations...’

‘I see.’

‘Moreover, some of those big players are likely to have mined and bought many, perhaps most bitcoins so as to acquire information about the circles in which they are used. After all, they employ top mathematicians, cryptologists, and computer scientists — and they have deep pockets.’

Jimmy looked up from the newspaper and listened intently as his dad continued to speak.

‘It's just my guess, of course, but those official snoopers and their cousins in the secret services may be a sizable part of the Bitcoin community. Money-laundering is what secret services do all the time — and for that Bitcoin is well-suited.

It's also why the police got interested. Criminals used Bitcoin to launder the gains of illicit activities, drug trafficking, smuggling, weapons trafficking, and so on. Because Bitcoin is just one system, it should be relatively easy to monitor and eventually to control it.'

Frowning, Jimmy said, 'But it's completely decentralised, no? Bitcoin transactions are person-to-person, like downloading music directly from somebody else's computer. You do not send them to a central dispatcher who then sends them on to their ultimate destination.'

'That's right, Jimmy. Still, the devices you use can be hacked and every message you send can be intercepted and kept in a database for later use by the authorities... or by common criminals. Moreover, the integrity of Bitcoin as a payment system depends on every bitcoin or fraction of it carrying within its code the full history of every transaction it was ever involved in, so that it is possible to trace who owned it at any time in the past.'

'So it's not secure?' Melanie asked.

'Well, an ordinary thief or pickpocket who runs off with the computer or the portable device on which you store your bitcoins is unlikely to be able to access them. But you won't be able to use them yourself if you lose the hardware. If they're on your hard disk and it crashes, if you accidentally overwrite the code, there's a good chance you won't be able to recover your coins. And don't think about insurance against loss or theft, unless you are willing to give up privacy by having your transactions certified by a bitcoin bank or another third party in good legal standing...'

James looked at his watch.

'Oops, is it that late already? I must get ready, off to the daily rat race again. I'll be back by seven-thirty. You don't have classes today, dear?'

'There's only one, at eleven for the interns at Saint John's Hospital. And of course, lunch with Betty.'

'See you later, Jimmy.'

When he returned that evening, James greeted his wife with a question: ‘How was your lunch with Betty?’

‘Animated — Bitcoin this and Bitcoin that. She asked if I had spoken to you about it, and I told her some of the things you said at breakfast. She wasn't impressed. She said, “James has a point. Bitcoin isn't money yet, but it will soon be. Mark my words. You can't stop the future. Look at this.” And she pulled a photocopy of an article out of her handbag: “Bitcoin — The Money of the Future”. She insisted that I read it, but then forgot to give it to me and put it back in her handbag.’

‘Thank the Lord. As if there isn't enough nonsense to read already...’

‘But, James, why is it nonsense? I understand it may not be as secure as Betty wants me to believe, but surely, it may well become a more popular currency than it is now.’

‘Of course, anything can become popular... for a while.’

‘Then, why isn't it money? If people use it as money, it is money — right?’

‘Not quite. Currency, that is to say, means of payment in current use, is not the same as money. Bitcoins may become currency, like euros, pounds, dollars, roubles, whatever — they are currencies, not money.’

‘Oh, come on. If dollars and euros are not money, what is? Anyway, dinner will be ready in five minutes.’

The dinner conversation was all about an incident that had occurred at Jimmy's school: in a shuffle on the main staircase, a young boy had been shoved aside and made a bad fall. He was unconscious for a while and an ambulance had come to take him to the hospital. Jimmy and all the others who had witnessed the incident had been called into the principal's office to give their accounts of the event.

‘You weren't involved in that shuffle, were you?’

‘No. I was on the lower staircase. I saw him only when he tumbled onto the landing in front of me.’

After they had cleared the table, Jimmy went up to his room and James and Melanie sat down on the sofa for their

usual hour or so of watching television. However, Melanie still had Bitcoin on her mind.

'You don't have a rule that says, No thinking after eight p.m., do you?' she asked coyly.

'No.'

'Good, because you still owe me an explanation, and it'd better be something I can believe. I am not going to let Betty walk all over me again with her superior knowledge of Bitcoin literature.'

'Betty... superior knowledge? That's a good one!'

'I mean it. "Used as money but not money"... what was that supposed to mean?'

'Well, let's talk about money. And let's begin with real money, what the Romans called *pecunia*.'

'Gold? Silver?'

'No, before gold and silver became money. Originally, *pecunia* was cattle — cows, sheep, goats. The word *pecu* means an animal in a herd of cattle, except when it is used to refer to human beings — then it means riffraff, scum. But let us not complicate things and think only of cows as money.'

'Cows are money?'

'They were money in times long gone, when households were extended families, including servants, who lived on the produce of their own land. They grew their own food; made their own clothes. Their commerce was generally restricted to buying and selling cattle, land and tools, such as ploughs, wagons and building materials. Cattle were the most easily tradable items and so they became money, the universal medium of exchange within the economy.'

'You mean that they were cash?'

'Yes, cows were used as cash; they were cash.'

'They were cash cows...'

'Cash cows? Now, that is funny and true at the same time.'

'Okay, I can be funny. Will you now come to the point, if there is one?'

'I've never been good at coming to the point, have I?'

'Please, James.'

‘Patience, love! It’s no use coming to the point unless you know that you’ll be able to recognise it when you come to it.’

‘Stop it! I’ll turn on the television, if you don’t.’

‘Sorry! Just don’t get all het up about this. Incidentally, money is capital. *Capital* derives from *caput*, plural *capita*, head, specifically a head of cattle. Land, tools, and buildings were all priced in cows — in money. If you owned money or things that were worth money, you were a capitalist. But as there is no longer money, there are no longer capitalists either.’

‘Really? That’s news to me. So what do our present-day capitalists — or should I say, so-called capitalists — own?’

‘Debt instruments, claims against others whom they do not own. Think bonds and shares, so-called derivatives of different degrees of complexity, paper money and things that are priced in paper money.’

‘Money or debt instruments: what’s the difference?’

‘If you own money, you own it. It’s yours. There is no counterparty risk, no risk that it becomes worthless because somebody else goes bankrupt or isn’t as good an entrepreneur or manager as he pretended to be when he invited you to invest in or lend to his enterprise. But a debt instrument without counterparty risk is of course impossible. When you buy currency, you buy something that is managed by a few central bankers — and they too may be totally incompetent.’

Jimmy came downstairs again and sat down at the table.

‘No television?’ He asked.

‘Back already? No homework today?’

‘For the hundredth time, Dad, homework is only once a week.’

‘Why’s that?’

‘I told you before. The principal said that many parents complained about too much homework. He talked about parents needing “quality time” with their children. But the story on the playground is that too many parents found the homework much too difficult.’



James laughed heartily, but before he could say anything, Melanie intervened impatiently:

‘Your dad was about to explain why Bitcoin is not money. He said that once upon a time, cows were money, and that in the world today, there is no more money.’

Jimmy gave his father an incredulous look. Then he moaned loudly and laughed uproariously.

James turned to Melanie again:

‘I’ll start with a question. What is the difference between cows and bitcoins?’

‘You really want me to answer that?’ Melanie asked.

‘It’s obvious, isn’t it? You can’t eat bitcoins; you can’t milk them; you can’t use their hides for making bags or rugs or roofing or sails, whatever. What can you do with bitcoins?’

‘For the moment not much, but the whole point is that that will change. They will be used extensively to make payments — at least, that’s Betty’s prediction.’

‘Did people begin to keep cows in the hope of being able to use them in the future as a means of payment?’

‘Don’t be silly. Of course, they didn’t. They began to keep cows for the things you said: meat, milk, strong material for making useful things.’

‘So, we can agree on this: cows had value before they began to be used as money.’

‘Obviously.’

‘And people began to use them as money when they noticed that they and others valued them for their meat, milk and hides, and because they were relatively easy to keep and to move from one place to another?’

‘Certainly.’

‘What happened to the value of cows when they gained currency as money?’

‘How should I... Oh, I see what you mean. That was an extra use of cows, and therefore an extra source of value. So, their value went up, because in addition to being in demand for their meat, milk and hides, they were also in demand for their use in facilitating the exchange of one thing for another.’

‘Right. I need a plough and you have one. You need a wagon but I don't have a wagon. However, I have a herd of cattle. I give you two cows for that plough because you want to exchange your plough for a wagon, and you accept the cows to keep them while you shop around for a good wagon maker. Cows being money, a wagon maker will be glad to take a cow in exchange for a wagon, either because he needs meat, milk and hides, or because he knows that others will accept cows in payment for their goods and services. That's understood?’

‘Yes, teacher... Can I go now?’

Jimmy chuckled at his mother's reply, but James ignored their mischievous glances.

‘No, we haven't got to the point yet.’

‘Ah, indeed, the point...’

‘What was the use of bitcoins before some people began to use them as a means of payment?’

‘An exciting pastime for geeks?’

‘Okay, let's say it was. However, is that an exchangeable good? Can I give my excitement in solving crossword puzzles to you in exchange for... your washing my socks?’

‘Is that the first thing you think of when you think of me? Maybe we should talk about something else than Bitcoin.’

‘It's just by way of example...’

‘I know, but tell me something that I do not know already. Of course, money cannot be a feeling, an emotion, or something that you can keep even as you give it away.’

‘What was the value of bitcoins as a means of payment when they were still exclusively in geek territory?’

‘None.’

‘So, how can they ever achieve value as money? A cow is worth a cow, and in addition it is worth whatever you can trade it for — and cows were traded for other things before they became money.’

‘In short, cows could become money because people already had a good sense of what they were worth?’

‘Exactly.’

‘And bitcoins cannot become money, first, because it's nonsense to say that a bitcoin as such has any use at all, and second, because they have no history of being worth anything.’

‘Precisely. Consider this hypothesis. Suppose this is 1950. There are no computers or portable electronic devices in general use, and no Internet. Suppose we are really good at making crossword puzzles that are really difficult to solve. Suppose we spread the word that the first person to solve a puzzle may present it to us and receive an authenticated puzzlecoin from us. Suppose the idea catches on in university towns, where there are lots of clever people with too much time on their hands. Suppose we announce that we will produce only a limited number of such puzzles. Suppose we advertise our puzzles as “The Money of the Future”, talk about the fact that its supply is strictly limited...’

Jimmy came in with a loud, enthusiastic ‘I get it! Puzzlecoin is Bitcoin, without the complex formulas and algorithms, and without the computers and the Internet!’

‘That's right, boy. Some people may want to solve our puzzles for the fun of it; others will want to buy puzzlecoins with regular currency, or accept them in exchange for other things. Would you say that we had invented the money of the future?’

‘No,’ Melanie said.

‘Would you say that we had invented a new currency?’

‘Nobody would be able to guess how many puzzlecoins it would be sensible to pay for an egg, a toaster, a tractor.’

‘But, if you'd paid ten euros for one of those puzzlecoins, it would be worth ten euros,’ Jimmy said.

‘That coin would be worth ten euros to you, but farmers and manufacturers are not interested in how many euros you're prepared to pay for puzzlecoins. They're interested in how many euros you want to pay for their eggs, toasters and tractors.’

‘And, incidentally, Jimmy,’ his mother said, ‘there were no euros in 1950. They weren't introduced until fifty years later as

substitutes for the currencies then in use in a number of European countries — at a different fixed rate for each currency.’

‘I know, mum. We learned that in school.’

James spoke again: ‘When we were still in school we boys treated pictures of footballers that came with chocolate bars as highly valued possessions. I’m sure that you know what I’m talking about.’

‘Sure,’ Jimmy said.

‘As far as we were concerned, the supply of such pictures was strictly limited. Some of us paid good pocket money for them, so that they could brag about the size of their collections. Among ourselves, we used them for buying and selling marbles, an occasional apple or pear, or other small stuff.’

‘It was the same with us,’ Jimmy said.

‘We could even buy candy at the candy store with them, because the shopkeeper expected to be able to resell them at a profit to the most eager collectors. If my memory is any good, he sold one piece of candy for three pictures in good condition; and he sold one picture for the money price of three pieces of candy! The man certainly knew how to do business, transferring pictures from chocolate lovers who didn’t care about footballers’ pictures to those who cared for almost nothing else. That went on for a couple of months, and then all of sudden, nobody were interested anymore. The market for footballers’ pictures imploded.’

‘If I didn’t know you better,’ Melanie interjected, ‘I’d expect you to tell us the old story of the prisoners of war who used cigarettes as money...’

‘Spare the sarcasm. It’s a good story and a true one. In local communities it often happens that some things begin to be valued as a means of exchange and to circulate as money, even though their monetary value drops to zero as soon as you leave the community. Outside the prison camps, the cigarettes were just cigarettes. Inside the camps, they were

local currency for the prisoners — but they were not money, strictly speaking.’

‘Why not?’

‘Proper money is a *universal* medium of exchange. It is accepted such as it is in payment for all tradable goods and services, everywhere, by all who have something to sell. But there were lots of tradable goods and services inside the camps that could not be bought with cigarettes. For example, cigarettes were useless for bribing the guards, although the guards were able to bribe prisoners with cigarettes, for example to induce them to act as informers. Still, among the prisoners, with respect to the things they could trade with each other, cigarettes had currency as money.’

‘You seem to be hell-bent on making a distinction between money and currency. So, what is currency?’

‘Currency consists of units of money such as a cow in the long-gone past, a cigarette in the POW camps, or an ounce of gold well into the twentieth century, or it consists of widely used tokens that represent, or supposedly represent, a quantity of money. Such tokens are often convenient. It is more convenient to put a token marked “Good for one cow” in your pocket than to drag your cow from one wagon maker to another.’

‘Obviously.’

‘Sound currency is a particular unit of money, or it consists of tokens that can be redeemed token for token for the money it represents. If it isn't money itself, it's as good as money.’

‘But not all currency is sound currency?’

‘Unsound currency consists of tokens at least some of which cannot be redeemed because the money they supposedly represent does not exist.’

‘How can that be?’

‘Well, when banknotes became currency, every note said “Good for x grams of gold”, but there were lots of banks that had issued more promises to pay gold than they had gold in their vaults with which to make good on those promises.

The notes weren't as good as money. As a rule, you'd expect to have to pay somewhat more for a good if you paid for it with banknotes than with gold coins. When there was a rumour that a bank could not or would not redeem its notes then there was run on that bank. People wanted to get their money out before the bank ran out of money. Often, people would simply refuse to accept the notes of a bank that had fallen into disrepute. When all the banks in a country were legally compelled to issue the same notes, so that it was impossible to tell from looking at a note against which bank you had a claim, a run on one bank could easily turn into a run on all banks.'

'People feared that there was a problem with the national currency itself, not just with one particular bank?'

'Yes, and that's one reason why central banks became so important. They had a monopoly privilege on issuing notes, and so the other banks were forced to keep their money reserves at the Central Bank. As a result, the Central Bank and the Government became key players in managing the relation between money and currency (bank notes, demand accounts at the banks). The Central Bank could determine how many notes it would issue. The Government could close the banks or suspend their obligation to redeem notes in money, for example when there was a threat of a run on the banks.'

'No banknote I have ever seen came with a promise to pay anything.'

'That is because banknotes today are fiat currency.'

'What's that?'

'Fiat currency consists of tokens that do not represent any money at all. None of them can be redeemed in money. You use them only because you believe that others will accept them because they too believe that others will accept them because these people in turn believe that still others will accept them, and so on.'

'Their value as a means of payment depends entirely on the willingness of other people to accept them. But why would anybody agree to accept fiat currency in the first place?'

‘Habit, I suppose. First, you get used to sound currency — tokens that are as good a money — because it's more convenient than handling real money, such as cows, pounds of sterling silver, or dollars, which were just pieces of silver and later gold of well-defined weight and fineness. Then, banks betray people's trust in their currency by issuing more tokens (paper dollars or paper pounds) than they can redeem. Still, as long as the advantages of using tokens outweigh the risk of being unable to redeem their tokens for real money, people continue to accept them in payment. At the same time, people lose the habit of thinking about real money when making or receiving payments. They think in terms of dollars or pounds, regardless of whether these are definite quantities of gold or silver or merely paper tokens that they may or may not be able to redeem in precious metals. And finally, the government may relieve the banks of any obligation to redeem their notes, while at the same time telling the public that it will accept their paper money for paying their taxes, and that it will somehow “guarantee” the value of those notes by entrusting the management of the currency to a privileged but well-regulated and closely supervised central bank. The public continues to think in terms of pounds and dollars, and most members of the public are not aware of the tremendous differences between real money, sound currency, unsound currency and fiat currency.’

‘You mean to say that on the day the fiat dollar is introduced, people continue to value their dollars as they valued their unsound paper dollars the day before. And when unsound paper dollars began to circulate, they inherited the valuation of the sound paper dollars that preceded them. But bitcoins did not inherit any original valuation from any currency that preceded it.’

‘Exactly. However, like unsound currencies, fiat currencies such as today's dollars, pounds and euros are not universally and everywhere accepted such as they are in payment. The same is true for bitcoins.’

‘Aren't you exaggerating, Dad? I can spend my pocket money everywhere I want. And so can you.’

‘Are you sure? Remember our vacation in England last year. In Dover, most shops in the centre of the city accepted euros, but not in Cardiff, Nottingham or Chester. You must convert your euros into pounds before you can use them there in general commerce. For other currencies, it's far worse.’

‘What do you mean?’

‘Other than an occasional collector of foreign banknotes and coins, no one will accept North-Korean currency anywhere in Europe, the United States, or indeed, most of the rest of the world, either in payment of goods and services or even for converting them into euros or dollars. Even the U.S. dollar is not a universal medium of exchange, although it is by far the easiest currency to convert into any other local currency.’

‘But the dollar is money, no?’

‘No, Jimmy, it is not. It is a currency, but you cannot redeem it in money, because there no longer is money. It is a fiat currency — an irredeemable currency.’

‘You can buy everything with dollars,’ Jimmy insisted, ‘including gold.’

‘Buying gold with dollars is not the same as redeeming dollars in gold. Buying a cow with dollars is not the same as redeeming an honest token that says “Good for one cow”. The dollar price of a cow fluctuates from day to day, but the value of the token is one cow, no matter what the dollar price of cows may be on any particular day. Until 1971, the dollar was defined as a quantity of gold, although by that time only central banks could still redeem dollars in gold. Ordinary citizens could not do that.’

‘James,’ Melanie said, ‘this morning you mentioned a Bitcoin bank, but when I told Betty, she said that I was talking nonsense. No banks are involved.’

‘No banks need be involved in using cash, but banks still got involved, because they offered some security and other services that cash users appreciated. It's frightfully easy to



coax people into surrendering their privacy for a bit more convenience... their privacy and their freedom as well.'

'I know: Internet fraud and all those dubious apps that people have on their smartphones... They really should do something about that.'

'They do; but remember, governments will make exceptions for themselves: "To protect you better we'll have to have access to the things you want us to protect."'

'That's true and it makes sense, doesn't it?'

'Up to a point, it does. It did when the function of the police and the civil service was "to serve and protect" the public. The police was intended to uphold the law, and the law consisted of general principles that were not all that difficult to understand. Nowadays, we have a bewildering array of legal rules, and their function is often to make us serve the police and the civil servants — to make it easier for them to do whatever the government commands them to do.'

'The public's function is to make life easier for the police and the bureaucracy — that's a good way of putting it. But let's get back to the banks, shall we?'

'They (and other commercial entities) are easily intimidated by governments, politicians and bureaucrats who continually threaten them with burdensome regulations, extra taxes, revocation of their operating licences or privileges that protect them against competition, and so on... unless they agree to cooperate with the authorities. It's called *legal extortion*, and it goes on all the time. The banks and other businesses readily give in to the pressure, because they want to remain on friendly terms with the governments. Banks do not want to be excluded from profitable markets such as selling government bonds, and buying and selling foreign currencies. You think you are dealing with a private entity; in fact you are dealing with a special kind of government agent...'

'I was not aware of that, but I can imagine that it is true.'

'Nowadays, the banks are in cahoots with the governments in their increasingly less secret "War on Cash". Both profit if cash is outlawed, if every payment has to go through the

banks and leave a trail that the tax man and the police can follow from bank to bank and from client to client. But hey, Jimmy, fetch me a beer, will you. All this talking...'

'And a glass of wine for me,' Melanie added; 'white wine, from the fridge.'

'It's funny, isn't it,' she continued, 'all those politicians grandstanding about how they'll bring the banks under control, while they're busy making it almost impossible for people to use cash, without passing through the banks. They pretend to want to control the banks, but in reality they want to control us.'

'And there is a lot of money to be made from selling the data in large databases to commercial and political operators for fine-tuning their advertising and recruitment campaigns, and to fiscal authorities for identifying and prosecuting so-called tax delinquents.'

Jimmy returned with the beer and the wine, and a large coke for himself. Melanie sipped from her glass and then replied to James's remark about selling computer data:

'I remember reading about disgruntled bank employees in Liechtenstein, Switzerland and God-knows-where selling CDs with data about foreign account-holders to the German and French governments, which then passed on the information to other governments.'

'Yes, but even before that happened, the once vaunted "financial privacy", which had been a major item in the original propaganda for the banks, had disappeared, together with much of the privileged privacy of relations between doctors and patients, priests and confessors, lawyers and clients, journalists and their sources. Now, with the Internet, interactive websites, cyber-snooping and the like, privacy is an illusion, even for those who are careful — for they are probably connected to many others who couldn't care less.'

'A Trojan horse in every home — that's how you called the Internet, didn't you,' Jimmy said.

After another sip of wine, Melanie asked impatiently, 'Shouldn't we be talking about Bitcoin?'

‘Well, you don't think that the War on Cash will stop merely because some cash is in the form of bitcoins, do you?’

‘No. And in many countries the banks are legally required to report large deposits of cash. I don't see why the Bitcoin exchanges that you mentioned, where you exchange bitcoins for dollars, should not be compelled to do the same.’

‘As long as bitcoins are used commercially only occasionally for things such as buying bouquets of flowers, the authorities may not bother. However, if a flower shop does a large part of its business in bitcoins, the florist will have to convert them immediately into regular currency to pay his suppliers and accountants, to pay the rent or the mortgage, his utility bills, taxes and the like.’

‘He will have to make selling bitcoins a part of his business practice — become a currency trader?’

‘Right. Buying consumer goods or personal services is not at all like buying supplies or machinery, or paying wages. And of course, there is not a single class of goods that are habitually priced in bitcoins — not oil, wheat or water; not bread, butter or eggs; not computers, smartphones or newspapers — only a few items at a few shops, mostly online shops.’

‘And if he has large contracts in bitcoins, or wants to pawn his bitcoins or use them as collateral for a loan, he will want to have them registered somewhere so that he can use the registration as evidence in court, should there be any litigation about the contracts.’

‘You don't expect the authorities not to be interested in the Bitcoin part of a business. Should Bitcoin ever become popular, you may expect it to be illegal for businesses to keep commercially significant Bitcoin accounts on storage devices that are not accessible to the fiscal and other police agents of the State.’

‘If a Bitcoin user is threatened with harassment, fines or jail sentences, how long will he hold out before he surrenders the access codes and key codes to the authorities?’

‘Yes — or to other blackmailers, extortionists and assorted con-artists. And if they get access to his Bitcoin data, they get access to the full history of his bitcoins or fractions of it. At least some of the previous users will be easy to identify (by matching the data with other databases, police records and the like). They too can then be pressured into revealing their accounts. And so on.’

‘Betty did not talk about any of this.’

‘Bitcoin aficionados rarely do. They prefer to marvel at the ingenuity of the code in solving the particular problems of making a decentralised, fast, and forgery-proof system of electronic person-to-person payments. Theoretically, the Bitcoin network is as good as it gets for transferring units of currency from one address in a network to another. The financial and legal infrastructure in which it has to be embedded to be useful; how the system interacts with the real world, where real people buy and sell real goods and services and have to deal with other real people and with real crooks and often rapacious legal environments — those things are not their primary concern.’

‘For sure, they’re no concern of Betty.’

James drank from his glass, and then continued, ‘Bitcoin enthusiasts are like people who like to marvel at the creative ingenuity of Panamarenko's “flying machines”, which make them dream of new ways of flying but won't be able to fly until the laws of physics are repealed. For Bitcoin to become money, or even a generally accepted currency, the laws of economics need to be repealed — unless it can count on being granted some degree of legal-tender privilege.’

‘Meaning?’

‘Meaning, for example, that people are permitted or even obliged to pay their taxes in bitcoins; that lenders are obliged to accept bitcoins in repayment of the loans they granted.’

‘What I don't understand,’ Jimmy said, ‘is that you claim there is no money anymore — that even the dollar and the euro aren't money.’

‘No, they aren’t. Apart from being a universal medium of exchange, money — be it cows, gold or silver, even cigarettes — has intrinsic value. The intrinsic value of the dollar or the euro is zero.’

‘You mean, the fiat dollar, or the euro, has a monetary use but no non-monetary use?’ Melanie asked. ‘Nowadays, nobody wants a dollar for the sake of a dollar?’

‘Exactly.’

‘That’s not what people mean when they say *money*.’

‘Indeed, when people now say *money*, they mean first of all the legal currency in their country: here euros, in England pounds, in Sweden kronas, in Hungary florints; and secondarily, they mean any currency in which they can easily convert their local currency. However, none of these currencies are money. None of them have intrinsic value; none are acceptable as such everywhere in payment for every tradable good or service. They’re not really universal media of exchange.’

‘And gold?’

‘Gold — think gold coins and gold bars — used to be currency, but it is no longer currency. You can’t use it in general commerce, partly because even where its use as a means of payment is not illegal, gold may not have legal-tender status, and partly because people do their bookkeeping in the national currency. They speak of the price of gold and express it in the same currency as the price of an egg or a haircut.’

‘Prices would be quoted in ounces or grams of gold, if gold were still currency?’

‘Yes. When a European buys dollars with euros, he does not first redeem his euros in gold and then buys dollars with the gold. He can’t redeem his euros in gold (or anything else), because a euro is not a token representing a fixed quantity of gold (or anything else). He can only buy gold at the current price in euros, which may fluctuate wildly from day to day, as does the price of eggs.’

‘Gold has been de-monetised.’

‘Yes. It is still potential money, though, but at present it is not actual money. At present, there is no actual money. There are only currencies and more-or-less fixed or floating exchange rates between them. And those currencies aren't even potential money.’

‘Strange! Everybody talks about money, but you say that today we're in a moneyless economy.’

‘Few people care about the meaning of words. Most care only about how others, especially their teachers, use it. They don't get good marks in school for using words according to their proper meanings. They get good marks for using them the way their teachers want them to use the words. And — don't take this personally — most teachers are unimaginative parrots, trained to pass on to their pupils no more than what they've been trained to pass on.’

‘I do take it personally, but I see your point. I'm expected to teach what is in the instruction manuals — and I do. It's my job. I get paid for it, and I'm happy with the pay, because it allows me to buy things, to add to my savings account at the bank, to pay my taxes.’

‘Dad, what you say reminds me of that little bloke in *Through the Looking Glass*, Humpty Dumpty: “When I use a word, it means just what I choose it to mean — neither more nor less.”’

‘You're not comparing me to Humpty Dumpty, are you, son?’

‘No, it just came up in my mind.’

‘I remember one or other professor who maintained that the meaning of a word is its use. That's nonsense, of course. People often use the wrong words when they speak. But the wrong word does not become the right word merely because many people, even most people, make the same mistake. When I think you use the wrong word, I ask what you mean. And from your explanation, I try to determine whether you did in fact use the wrong word, or whether I was wrong to think that you used the wrong word. The words themselves are not important — they are just tokens that have to be

redeemed in clear meanings. The problem is that what words objectively mean need not be what people subjectively mean when they use them. Unfortunately, quite a number of teachers seem to forget they ought to be educators, concerned with the difference between right and wrong rather than between hip and pedantic uses. The proper function of language, I should say, is to facilitate clear thinking, not to be a medium of propaganda or entertainment; certainly not a source of confusion.'

'But how do you know that your distinction between money and currency is objectively right?'

'When someone says *money*, it may not be clear whether he means money or locally common currency. When he says *currency*, it is very unlikely that he means money. He'll readily understand that currency is not money, even if it is used locally as if it were — that euros are currency but not a universal medium of exchange with intrinsic value that is accepted everywhere in payment such as it is. So there's really no excuse for using the word *money* when you mean currency, or vice versa.'

'Sorry to interrupt,' Melanie said, 'but can we get back to Bitcoin? Betty told me that some institutions are beginning to accept bitcoin donations. She told me that even some pizza parlours and bars accept them. Migrant workers use them to send money to their folks in the home country. That's a good start for a new currency, isn't it?'

'It's a start, but not more than that. Tell me, how many firms pay their employees and suppliers with bitcoins? How many banks extend credit denominated in Bitcoin? Did Betty say anything about that?'

'No.'

'Besides, how many people actually use bitcoins as currency as against the number of people who hold on to their bitcoins only because they've been told that they are bound to rise in value and can be sold eventually at a profit in dollars or euros. How many treat them differently than the candy-store owner treated pictures of footballers?'

‘You mean, Dad, that they consider them an investment?’

‘No, no! An investment is not to be confused with an appreciating asset. You invest expecting to generate an income stream in the future. We invest in your education and schooling because we expect that it will help you earn a decent living, a decent stream of income, later. You invest in a company, because you expect the company to make profits and to pay out dividends over an extended period, or to pay back the amount you lent it and in the mean time make yearly interest payments.’

‘I see. You don't buy bitcoins or dollars expecting your ownership of them to generate a stream of income.’

‘You buy them either for immediate use or because you expect that their value expressed in the currency with which you bought them will appreciate — that is to say, that they will turn out to be more stable currencies than the currency with which you bought them. If you don't expect that, you'll spend them as quickly as possible, for nobody is going to pay you interest for holding on to them. And then, when people begin to spend more of their bitcoins, prices expressed in bitcoins will tend to rise.’

‘That's true.’

‘As I said before, if you own money, *real* money, you own it. There is no counterparty risk. There is no risk that the managers of the currency you buy will mismanage it.’

‘Bitcoin is not a managed system.’

‘True, Jimmy, true! It's designed to operate as an autonomous payments system. But it is still like the footballers' pictures currency. There is a risk that the hype surrounding Bitcoin evaporates and that the market for bitcoins collapses.’

‘Bitcoins are not money, and they're not an investment?’

‘They're just currency — and as a currency, they're insignificant compared to dollars, euros, even pounds, let alone all the major fiat currencies put together. Bitcoin is economically insignificant, even though it's the most significant of the presently existing electronic currencies.’



‘We’ve been here before, haven’t we?’ Melanie said. ‘What you say is true today, but things may change. “The Money of the Future”, remember? Okay, make that “The Currency of the Future”, if you prefer.’

‘I’ll gladly remember the future when the time comes, but bitcoins will be at best a minor part of it. They’re not dollars, euros or pounds — they’re not a significant currency. And they’re certainly not cows, gold, or even cigarettes — they’re not money or potential money.’

‘Ah, yes — the cows! What was it again that made them money?’

‘They had non-monetary value and their monetary value — their value as means of exchange — derived from their having non-monetary value. People accepted them in payment for other goods and services only if they intended to use them for their meat, milk or hides, or to exchange them in turn for other things at later date — or else, and this is the point, to breed more cows from them.’

‘If that is the point, it’s a new one. So please, explain.’

‘What happens to the value of cows when the demand for cows increases, other things remaining equal?’

‘It goes up.’

‘Right, and what do cattle breeders do then?’

‘They slaughter less calves and bring more cows to the market. They’ll breed more cows.’

‘What happens to the value of cows when the demand for cows decreases, other things remaining equal?’

‘It goes down.’

‘And cattle breeders do what?’

‘They slaughter more calves and bring less cows to the market, because they do not want to be stuck with cows for which they have no use. They’ll breed fewer cows.’

‘But we’re discussing a situation in which cows are money. If the demand for money increases, more cows will be produced for the market. That is because other people will be willing to sacrifice more other goods to get their hands on a cow even though they do not intend to use it for its meat or

milk. Even without an increase in the demand for milk, meat or hides, producing more cows becomes profitable.’

‘That makes sense at least as long as there is enough land available to feed the animals.’

‘If the demand for money decreases then fewer cows will be produced for the market. That is because other people will not be so willing to sacrifice other goods for a cow they do not intend to use for its milk or meat. Producing more cows becomes less profitable and may lead to losses.’

‘Again, that makes sense. But tell me about gold and silver, because I can't get used to thinking about cows as money.’

‘If gold and silver are money and the demand for money increases, gold and silver mining and prospecting for undiscovered deposits become more profitable. Even if there were no more gold or silver to be extracted from the earth, more people would be willing to melt down golden rings, bracelets, necklaces, goblets, and the like, and recycle industrial products to recover the gold or silver in them, and to refashion the material into bars and coins — into monetary gold and silver.’

‘And what happens, if the demand for money decreases?’

‘Then marginal gold or silver mines will be closed, and prospecting for new deposits will cease. More people would be willing to melt coins and bars to turn them into ornamental objects or use the metal in industrial products.’

‘That'd be a sensible thing to do.’

‘The quantity of such commodity money — monetary cows or monetary metal — available for use adjusts itself fairly quickly to changes in the demand for money. Even if the demand for monetary cows, gold and silver vanished completely, the animals and the metals would remain in existence and valuable in their other uses. And they would be ready for monetary use again at a moment's notice, because they would still have non-monetary uses and therefore non-monetary value. That's why they're called stores of value.’

‘So, what about bitcoins?’

‘There is no decentralised mechanism to adjust the quantity of bitcoins in existence to the changes in demand for them. You cannot turn bitcoins into something else that still has value, or back again, because their only use is as currency, i.e. as a means of payment that lots of other people are willing to accept. Bitcoin is not a store of value’

‘But that's true of every fiat currency today, isn't it?’

‘Yes, but they are managed currencies. Central banks have ways to increase and to decrease the quantity of the currency they manage. The same is true if the government rather than the Central Bank manages the currency. Bitcoin, in contrast, was designed specifically so that its supply cannot be manipulated.’

‘Still, the demand for bitcoins may go up.’

‘True. Their value is bound to go up when the demand for Bitcoin currency is expected to go up — that is to say, when more people want to hold more of them in their Bitcoin “wallets”. Then, except in moments of crisis, nobody will want to spend bitcoins. Everybody will want to keep them. They will be worth more tomorrow than today, and more the day after tomorrow than tomorrow, and so on. So, why spend them sooner rather than later?’

‘Okay. Suppose people hold on to their bitcoins rather than spend them, expecting them to increase in value.’

‘That will make bitcoins more valuable, more expensive in terms of other currencies. Many people will no longer be able to afford buying the by then very expensive bitcoins. They may still be the currency of choice for people wanting to buy Renaissance paintings, space rockets and the like. But they will not be the currency of choice for anybody else. For a long time, gold was the money of the rich and silver the money of everybody else. More things were priced in silver than in gold, but both gold and silver were money. However, as a currency, silver was more popular than gold.’

‘Okay, we're supposing a situation where bitcoins become really expensive. What happens then?’

‘Pretty soon, another thing will take the place of bitcoins in general commerce. For the Bitcoin crowd, that other thing is “bad” currency. However, there is a law of economics — it’s called *Gresham’s Law* — that says that bad currency drives good currency out of circulation. Why pay for things with good currency (that will increase in value), when you can pay with bad currency (that may not increase in value, even lose value)? Why not accept bad currency if you do not intend to keep it for long, and if opportunities to spend it are rife? Which businessman will insist on being paid in good currency when he knows the great majority of his customers can’t afford to buy it?’

‘I see. It’s like the Argentineans, who hold on to whatever dollars they have while trying to get rid of their pesos as quickly as possible... And the more they do so, the more pesos enter circulation as currency, and the more the Peso loses value.’

‘Yes, if bitcoins are perceived to keep on rising in value, there’s a risk that they will cease to be currency.’

‘And as bitcoins are not money, because they have no intrinsic value, owning them for the long run will be a gamble — is that what you’re saying? People will try to get rid of them, thereby bringing them back into circulation, but with a lower value than before, so that it may compete with the “bad” currency that displaced it.’

‘To become the common currency again, Bitcoin must become “bad” currency itself relative to its competitors.’

‘That may provoke a race to the bottom.’

‘Yes. Instead of a monetary system, you have a system of competing currencies, all of them intrinsically valueless, all of them depending on the willingness of people to accept them for their use in general commerce — which is to say, depending on the willingness of people to spend them quickly.’

‘And so drive up prices! People are betting on continual inflation?’

‘Exactly.’

‘But Bitcoin cannot be inflated continually. The supply is absolutely limited.’

‘Value is not just a matter of supply. Without demand, there is no value. So, the question is, “Why would people demand and continue to demand bitcoins?” Not because it's money, which it is not. Not because it's an investment, which it also is not. Do they demand bitcoins because they expect it to appreciate in value against other currencies? Perhaps, but then bitcoins will become very expensive and tend to disappear from circulation. They will be “things” priced in other, weaker currencies, as is the case with gold today. Again like gold, they will become a non-interest-bearing thing-to-hold — that is to say that they will not earn you a nominal interest while you hold them. However, unlike gold, they have no intrinsic value. When their value-as-currency begins to sink, for whatever reason, there is no point at which the value of their non-monetary uses stops the decline.’

‘I never understood that distinction between real and nominal interest.’

‘Well, think of it this way. Suppose the money supply is absolutely fixed. Every piece of money in the world is owned by someone. How can everybody earn interest on their money holdings?’

‘It's impossible, I should say. The quantity of money being fixed, the only way anybody can get more money is if somebody else gets less — no?’

‘In nominal terms, you are correct. But in real terms, it is possible for everybody to earn interest on his money holdings, even though the quantity of money is kept the same.’

‘How?’

‘Well, if there is economic growth, and more goods and services are supplied to the market... what happens then to the prices of goods and services, other things remaining equal?’

‘Prices will tend to come down, I guess, as more goods and services compete for the same quantity of money.’

‘Right. So, your money earns interest in real terms, because...’

‘...because as time goes by, and prices go down, you're able to buy more for the same sum than you could buy previously.’

‘That's right. Assuming economic growth and a fixed quantity of money, you would earn real interest on your money, whether you kept in a bank or at home. The nominal rate of interest for money kept in the bank might even be slightly negative, if the bank deducts a storage fee.’

‘So, why do we get a nominal rate of interest on money holdings kept in a bank?’

‘In part, it is because the banks do not want simply to keep your money in storage with them. They want to use it for lending it out to other people at a rate of interest above the rate they promise to pay you for letting them do so.’

‘I understand that. But, you say “in part”; so, what's the other part?’

‘Let us forget about lending and borrowing, for the sake of the argument. If we are dealing with an inflating currency, you would want to be paid for not spending it while it is depreciating because of the inflation, wouldn't you?’

‘Assuredly.’

‘Well, that's where nominal interest comes into play. You deposit your currency (euros, dollars, whatever) in the banks and expect them to pay you interest to compensate for the loss of purchasing power — because you'll need more of it to buy the same quantities of the same things.’

‘Yes, otherwise I might just as well keep it under the mattress... where it will also lose value because of the ongoing inflation.’

‘So, if the banks did not pay you interest then...’

‘...then I would rather spend it than see its purchasing power evaporate.’

‘Even if by doing so, you would aggravate the inflationary tendency?’

‘What choice would I have? What choice would anyone have?’

‘But where do the extra units of the currency come from that make it possible that everybody receives interest on his currency holdings in the banks?’

‘No idea... from the central banks, the banking system itself, which can create more currency units out of thin air, as they say?’

‘I see no other way.’

‘So, the other part of your explanation is that the banking system needs to inflate the currency so that the banks can pay interest if only to induce the public not to create inflation by spending their depreciating holdings of that very same currency? How mad is that?’

‘I suppose the reason is that they hope to be able to control inflation as long as the banks are the principal conduit of inflation. They can't hope to control inflation if it comes from people accelerating their spending because they lose trust in the currency.’

‘So, that is why you say that the current financial system is addicted to inflation, because we do not have a sound currency, one that is redeemable in real money.’

‘Yes. In addition, the system is obsessed with nominal economic growth as reflected in GDP numbers, however illusory it may be in real terms.’

‘If I understand this correctly, you're saying that Bitcoin can earn you interest in real terms but not in nominal terms.’

‘Yes, if the rate of economic growth exceeds the rate at which new bitcoins enter the system, then keeping bitcoins may earn you real interest, provided there is ongoing interest in Bitcoin itself.’

‘And if the rate of economic growth is below the rate at which new bitcoins enter the system...’

‘...then bitcoins will “earn” you a negative real interest — that is to say, keeping them in your possession will cost you, and you'll have an incentive to spend them quickly. No one will pay you a nominal rate of interest for keeping them in your wallet. In that respect, they are like a wad of paper dollars under the mattress.’

‘But if people start spending more bitcoins, prices in Bitcoin will go up. So they’ll lose even more value.’

‘Yes. There is no nominal interest to entice you not to spend them; and they have no “non-monetary” use that will stop their value from falling to zero.’

‘So, Bitcoin users may be thankful that there is still economic growth.’

‘Economic growth... or the illusion of it — either will do. If the global economy tanks, bitcoin will go the way of all irredeemable currencies, and it does not have the support of any political institution, central bank or government, to prop it up.’

Melanie got up from the sofa.

‘I need another drink. You want another beer?’

When she had disappeared into the kitchen, Jimmy said to his dad,

‘So, that’s why you say Bitcoin depends on hype?’

‘Yes. Unless a major power, say the United States of America, the EU or China — or, God forbid, a World Government — makes bitcoins legal tender, and requires people to do their bookkeeping, to pay taxes and other duties and their debts in bitcoins, only faith fuelled by continuous hype will support demand for them. But that can last only so long.’

Melanie returned from the kitchen with another bottle of beer for James and the bottle of wine from the fridge, and poured herself another glass. James drank straight from the bottle. Then he said,

‘Bitcoin faces an uphill struggle to gain wide acceptance to the detriment of currently established currencies such as the dollar, the pound, the euro etc., but also a struggle against other more-or-less similar electronic would-be currencies that may come about. Like all currencies, it’s a network good.’

‘Meaning?’ Melanie and Jimmy asked with one voice.

‘They’re valued according to the number of people willing to use the same network. Think telephones. Their value increases with the number of people who have telephones on



the same network or on interlinked networks. Bitcoin is a long way from being a currency that can rival any of the major currencies in existence today. And there is no way of predicting how it will fare in competition with similar electronic currencies.'

'Still, against the latter, it has a head start,' Melanie said. 'And that is a good thing for a network good, no?'

'Certainly, but it may not be decisive. Don't think Bitcoin is already a currency in general use. Except perhaps in secretive, illegal, criminal circuits, it is still used almost exclusively in gambling on its future price increases or for buying a few consumer goods and personal services — or as a partial and temporary fix in countries where the national currency is a shambles, because bitcoins can be converted into dollars without being hindered by exchange and capital controls.'

'But then a currency reform in such a country is likely to reduce its people's demand for bitcoins again. Or the country might implement exchange and capital controls for Bitcoin too.'

'Bitcoin will not be able to hold its ground against a government-issued Bitcoin look-alike that can be deposited without much ado in interest-bearing saving accounts in banks and that will be accepted in payment of taxes. Without such political support, the demand for bitcoins may fall for any number of reasons, regardless of its previous popularity.'

'Okay, I think I get it, but right now, Jimmy,' Melanie said, turning toward her son, 'it's bedtime for you.'

'Oh no, mum.' Jimmy's voice was shrill with excitement. 'I have one more question. What if I discover a super-algorithm that solves all Bitcoin equations, all Bitcoin puzzles, in one go? Will I then be able to claim all the as yet undiscovered bitcoins as my own?'

James nodded appreciatively. 'Good question, son, but I really don't know enough about that to answer it. In any case, you may not be the first to have that idea. Maybe that mysterious genius who invented the Bitcoin system, and who seems to have disappeared from the scene, has all the answers

and is quietly mining one bitcoin after another. Maybe he sold his secret super-algorithm to one or other central bank or financial institution. Who knows? I don't.'

'Or to an evil rich rascal with a plan to become the Master of the World... That would be a great plot for a James Bond film!'

'Yea, *Bitcoinfinger*.'

'Eh?'

'Never mind, a long time ago, even before your mum and I were born, there was a James Bond film called *Goldfinger*.'

'He's that old — as old as granny?'

'Older. Anyway, you don't have the wherewithal to hire a bunch of mathematical geniuses and hardware engineers to act on your idea. But... yea, you can always dream...'

'To me,' Melanie said, 'the whole thing's beginning to look like a Ponzi scheme. You can make money out of bitcoins if you get in early and get out in time, before most other people lose interest, before they discover that they paid a lot for something that has no significant added value compared to what already exists — if it isn't completely useless.'

His James Bond moment already forgotten, Jimmy was puzzling again over a question that he had intended to ask much earlier:

'Dad, people always want more money... currency... anyway, say, euros. How could there be a fall in the demand for euros?'

'Foreigners may want to import more goods and services from countries outside the Euro-zone and less from countries inside the Euro-zone. Then they need fewer euros and more American, Canadian or Australian dollars, Norwegian kroner, Korean wons, South African rands, whatever.'

'I understand that, but what about people in countries of the Euro-zone? Leaving aside their desire for exotic things, why would their demand for euros ever fall?'

'Think about it, Junior. You always want more pocket money, right? Still, your demand for it goes up and down. Some weeks, you spend all of it. Then, your demand for euros

is low. You prefer having other things to having euros in your pocket. Other weeks, you prefer to keep the euros for whatever purpose. Then, your demand for euros is high: you prefer to have them in your pocket to having whatever it is you would otherwise spend your weekly allowance on. It's the same with us. It's the same with everybody. Some people are on the whole inclined to spend more (have a low demand for cash) and others to save more (have a high demand for it). The cumulative effect is that the demand for cash holdings fluctuates.'

'But, surely, such fluctuations cancel each other out.'

'Not necessarily. Long-running trends may appear, for example because of slow demographic, cultural or mentality changes. In recent times, thriftiness seems to have been replaced with a live-it-up, spend-spend-spend mentality in large parts of the Western world. An increase in the number of childless people is another relevant change. They have no incentive to hold cash to pass on to their children, and don't see any point in letting it fall into the hands of the State when they die. "You can't take it with you to the grave," they say. So they try to spend it all, expecting the Welfare State to look after them if they live longer than they anticipated. If they had children they wouldn't mind leaving their cash balances to their children or grandchildren. Wouldn't it be nice, if you could expect to come into a sizeable inheritance?'

'Which you won't get if you don't go to bed right now,' Melanie said.

The next week, when Melanie returned from her weekly session at the gym, James asked:

'How was Betty?'

'She was furious at Albert. He'd bought another bitcoin for nearly one thousand dollars, and a couple of days later the price was down almost thirty percent. When she questioned him about that, he told her that he had bought some more. "From now on, I'll be buying the dips!" he said.'

James chuckled. He liked Albert, even though he could be as stubborn as a mule.

‘You don't think we should buy some, now that the price has fallen so much?’ Melanie asked.

‘No. If the Euro collapses before the Dollar does then I may reconsider my position. If the Dollar goes first then all bets are off. I do not expect Bitcoin to make much of a difference in a rapidly disintegrating global economy. And if the fools that govern us should ever come to their senses and re-install a real monetary economy with real money — who will need Bitcoin then?’

‘I told Betty that we're in a moneyless economy, but she thought I was crazy. And I must confess that while your arguments sounded convincing when you explained them, they're still so unfamiliar that I found it impossible to repeat them in my own words.’

‘It's not just a moneyless economy, dear. We're also in a faithless culture and a lawless civilisation. Instead of money we have fiat currencies; instead of faith, hype after hype; and instead of a coherent set of principles of law, a kaleidoscopic chaos of ever-changing rules and regulations. It's progress — or so we are told.’

Frank van Dun  
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