



Cotgrave and District U3A

Keeping in Touch 30

An Apocryphal Story from the USA

(First heard during a friendly drinking session in the Rose and Crown – so it may not be altogether accurate!).

While the President was making an appearance outside the White House, there was a minor disturbance in the distance which stimulated one of his guards to shout “Micky Mouse!” Somewhat surprisingly, this had the desired effect of quietening things down but prompted a waiting press officer to ask why he should choose such an unorthodox reaction. “Oh” came the answer “I had intended to shout ‘Donald, Duck’ but got my Disney characters a bit mixed!”

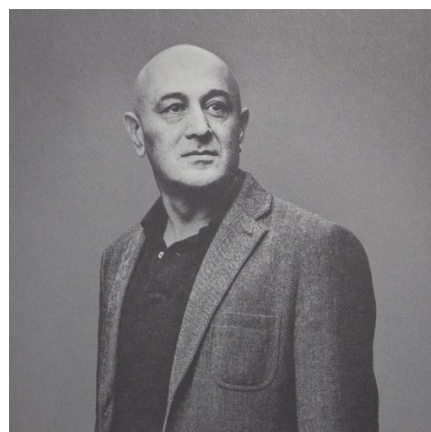


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Now for something a little more serious.

Thinking Like a Physicist

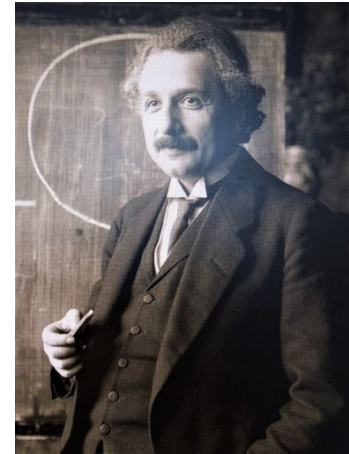
As many of you will know, I enjoyed the privilege of running the Science Group, when it was still possible to meet, and I often feel a trifle guilty that the Weekly Letter contains very little of direct interest to Science Group Members. I therefore propose to take a big risk and include a whole article devoted not only to science but, more specifically, to physics. It all began when Waterstones inveigled me into buying a recent book by Jim Al-Khalili, titled ‘The World According to Physics’. Jim is one of my favourite authors and has written numerous popular science books. He is a theoretical physicist at the University of Surrey and is obviously keen to try and make the complexities of modern physics intelligible to a wide range of non-scientists.



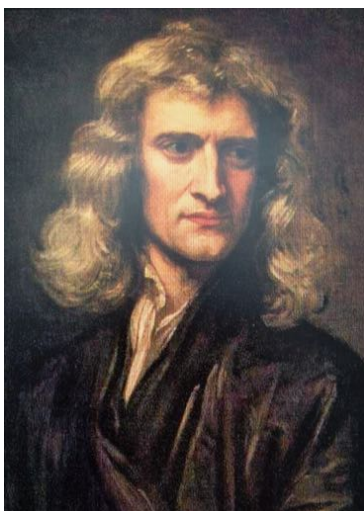
Being a physicist, he believes that physics is the basis of all science – chemistry, biology, physiology and even psychology - and I think I agree with him (for what that may be worth!). This particular book is a bold attempt to summarise the whole of modern physics, making clear just what we think we know and what we clearly do not know. It gets a bit difficult about half-way through, so I’m not going to insist that you all read it. However, there is a fascinating final chapter called ‘Thinking Like a Physicist’ which made me, well, think! It then struck me that it would be worth trying to summarise it for the Weekly Letter.

I still recollect trying to explain something of the confusion over the science of the Covid pandemic, which we discussed back in Weekly Letter number nine. It was largely concerned with the misunderstanding which can arise if science is seen as always being ‘exact’ – when, as I said, this is often far from the case. Anyway, Jim’s last chapter is also concerned with this dilemma so I thought I might quote a few ideas from it Here goes!

It begins with a story. He was involved in a BBC documentary some years ago in which he was discussing the weird variations in gravity over the surface of the earth. Einstein’s general relativity tells us that gravity will vary (very slightly) because of two distinct effects, the fact that the earth is not a perfect sphere (it’s an oblate spheroid, if you really wanted to know!) and that, its speed of rotation varies between poles and equator. Jim had done detailed calculations of both effects and the numbers had been integrated into the programme. However, at the last moment, it was discovered that these calculations were wrong! What could be done? They couldn’t put out the programme with wrong data in it, could they? Something surely had to be done to cover it up! But Jim made the brave decision to go ahead with it as planned and to simply say that he had made a mistake! As he points out, it represented an excellent example of the way in which science actually works. Like everyone, scientists make mistakes – the important thing is that they acknowledge them and learn from them (would to providence that politicians could follow suit!).



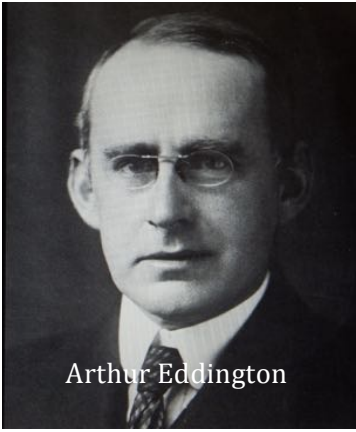
This, then, leads into the concept of a scientific theory and its role in the progress of science. Jim emphasises that the very essence of a theory is two-fold; firstly, it must explain all known facts about the subject and, secondly, it must make predictions which can be tested by experimental



evidence – ie it must stimulate new experiments to check these predictions. The theory of general relativity is a good example in several different ways. In the first instance, it was, of course, preceded by Newton’s theory of gravity which served very well to explain a wide range of observations, such as the fact that an apple falling from a tree drops vertically downwards and that it takes a specific (calculable) time to reach the ground. It also explains the sizes and shapes of planetary orbits and much else.

This seemed extremely satisfactory and stood the test of time – something like two hundred years! However, when scientists thought deeply about it, there was a worry. How could this gravitational force operate over interplanetary distances? What, indeed, was the mechanism? It was this aspect which stimulated Einstein to concoct

his general theory of relativity and (to quote just one example – there are many) it made an important prediction which differed from that of Newton’s theory. Light photons have no mass so, on Newton’s theory, they cannot be affected by gravity – ie light is not bent when it passes close to a large mass, such as the sun. However, Einstein’s theory attributes gravity to a warping of ‘space-time’ by the sun’s large mass and this is effective whether the particles involved are massive or not. So light *should* be bent when it passes close to the sun – this was the important prediction which stimulated Arthur Eddington to perform the experiments which showed that light *was* bent by the sun.



It was not so much that Newton was *wrong* but that his theory was not the *whole* truth. So science progressed. Einstein's theory not only explained everything that Newton's did but it explained even *more*. But, even more interestingly, similar comments can be made about relativity – though it explains a great deal, it cannot explain many of the strange occurrences which we now know are characterised by very small particles such as electrons, The world of quantum theory is, at present, a 'world of its own' and a great deal of scientific research effort is concentrating on attempts to combine relativity with quantum theory, This is very much an area where we *don't* know!

Jim goes on to question further the nature of a scientific theory and contrasts the scientific method with that of what he calls 'the loudest voice', based on little more than pure prejudice. We've surely seen more than enough of *that* from the Trump Presidency! Such over-confidence in a heavily biased viewpoint can be both remarkably successful in attracting followers (as we see again from the USA) and extremely frustrating from the view of a scientist who has been trained always to appreciate the possibility of his pet theory being wrong! Indeed, the 'uncertainty principle' applies to much more than just quantum theory – a good scientist knows that he must always recognise that even the best established theories are only a 'present-time best guess'. It only needs a single piece of experimental evidence to disprove a theory and one never knows exactly when or whether such evidence might put in an appearance! A good example of this is in reference to the campaign a year or two ago to convince us that the moon landing was a hoax put together by NASA to hide its own incompetence. All manner of pseudo-evidence was presented in support of this particular 'theory', such that many people were led to believe it. However, one simple fact is enough to show just how wrong it all was. When on the moon the astronauts left behind a carefully designed mirror which reflects light back directly in line with its incoming direction and scientists have been able to send a laser beam to the moon which is reflected back and can be detected on earth. By using short light pulses it is possible to measure very precisely the separation of earth and moon which, in itself, is of some interest (it doesn't stay quite constant) but it also proved beyond reasonable doubt that astronauts really did land. Retro-reflecting mirrors don't grow on trees – and, even if they did, there are no trees on the moon!

In summary, one can say that three things are important to the scientific method, complete honesty, a recognition that best-known theories may yet turn out to be wrong (or, at least, incomplete) and, of course, the need to be inquisitive. Indeed, with regard to this last requirement, we are probably all scientists, even if we didn't know it! I leave you with that singular thought.

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Musical Families



I came across this delightful photograph of the Nottingham-based Kanneh-Mason family the other day and felt that it would touch the hearts of many U3A members. Even without any explanation, it is rather obvious that they are all musicians – the eldest, Isata, plays the piano rather well (I’ve heard her a couple of times and can certainly vouch for that) so is the only one not holding their instrument of choice. As many of you will know, the family came to public notice when the cellist, Sheku, won the BBC ‘Young Musician of the Year’ in 2016 and was chosen to play at the wedding of Prince Harry and Meghan Markle but it looks as though they may all follow suit in building musical careers. Oddly enough, they have actually benefitted from the advent of lockdown in that it has held them all together while they worked on a ‘family album’ which is about to be released to an eagerly waiting musical world. It may strike some readers as surprising that all the children have chosen to play stringed instruments – not one single woodwind or brass to be seen! Perhaps they just couldn’t summon up enough puff!

Apparently, the only reason that none of them plays the double bass is the difficulty of fitting it into the family car – large though that had to be in order to ferry so many of them to and from music lessons, concerts, etc. Their mother, Kadiatu, has recently published a memoir, ‘House of Music’ in which she describes the complexities of bringing up such a talented family of children – I’m sure it must be a fascinating read. She is quoted as saying that, in spite of the pleasure of hearing the children play at concerts, her greatest pleasure is listening to them at home, sitting on the stairs, as it were. How wonderful to be so privileged.

Obviously the ‘gene’ figures large in such musical families, as was evident some three hundred years ago with the growing fame of the Bach family. Johann Sebastian Bach has been described as one of the best composers of all time but his father was ‘Director of the Town Musicians in Eisenach, Thuringia, while his uncles were all professional musicians and several of his brothers likewise. All-in-all, the family produced Court Musicians, music teachers, composers and church organists over a period of something like two hundred years. It will be interesting (though not for most of us!) to see if something similar applies to the Kanneh-Mason family.

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Jet Provost

Now for something altogether different. Jim Benn has very kindly sent in the following:

Jet Provost

I guess a lot of you have seen a jet aircraft whizzing about from Nottingham City Airport. I wondered if you would like to know a bit about it, I worked on them.



After the war, the RAF needed a new training aircraft to replace the venerable Tiger Moth. A number of aircraft were made and the de Havilland Chipmunk was selected. A company called Hunting Percival made an aircraft called the Provost. It featured side-by-side seating but was not selected.

Two things happened. Hunting Percival was absorbed into the British Aircraft Corporation (BAC) and the RAF decided on a policy of “Through Jet Training”. This meant that the RAF needed a basic trainer that was a jet. BAC decided to re-work the Provost into a jet with an Armstrong-Siddeley Viper engine. This was very successful and the RAF bought a lot of them.

It’s a very basic aircraft for a jet. It has an ejector seat but it doesn’t really need them. The Viper engine is noisy (we know that!) and it’s thirsty but it is very reliable. There was a saying in the RAF: it was “constant thrust, variable noise”!



After long service in the RAF (and sales to a number of other countries) its service life came to an end. The RAF went back to propeller-driven aircraft for training and Jet Provost became available to buy, surplus, from MoD. They were snapped up.

The Civil Aviation Authority (CAA) decided that the Jet Provost was a “Simple Aircraft” and could be registered and flown as a Civil aircraft. There are lots of them about and, of course, we have one at Nottingham.

The owners of the aircraft are very aware it is noisy and, on Facebook, you will read how they try to fly it with respect to our neighbourhood. My involvement with them came when I worked in the Aircraft Inspection Department (AID), part of MoD. My job was to check and approve that they were safe to fly. I even got a ride in one.

Jim Benn.

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Wool Stapling

Last week, you may remember, we talked a bit about wool stapling and this proved of special interest to Lesley Sinclair, who wrote the following, which will be of interest to many:

One section particularly interested me, the part describing 'wool staplers'. 'Staple' is a word I'm very familiar with: I'm a quilter, and it is used to describe the length of fibres in the cotton I use (I use 'long' or 'extra long staple cotton' as opposed to 'short staple' as the quality is much better). So I imagine that the word 'staple' when used for wool also means the same thing, ie the length of fibres. The 'wool stapler' would therefore be grading the wool according to the length, and therefore quality (and ultimately the price), of the fibres.

*This is a good explanation (for cotton at least!):
'When you think of a cotton plant, a little white puffball probably comes to mind. That's called the "boll" and each boll contains nearly 250,000 individual cotton fibres, or staples. There are three different classifications of staple length - plants with individual fibres measuring 1 1/8" are known as short staple, the most common type. Long staple cottons have individual fibres of 1 1/4" and fibres of 2" are called extra-long staple. These length differences may seem small, but they make a big difference in the quality, strength, and softness of the cotton.*

Short staple fibres produce a cotton that is great for basic, everyday use. As staple length increases, so does cotton's soft, silky feel. For this reason, long staple cotton is a popular choice to make sheets, towels, and other quality products. Through the spinning and weaving process, a longer fibre length results in a smoother surface with fewer exposed fibre ends. This means that items made with long staple cotton don't pill or tear as much and can even become softer over time.

The most luxurious cotton products are made with extra-long staple cotton. The species of cotton that produces extra-long staple fibres are a more challenging crop and not as abundant as the plants that produce short or long staple cotton. You may be familiar with Egyptian cotton, which is one of the most famous extra-long staple cotton plants. The other extra-long cotton is Pima cotton.'

Amazing how one thing leads to another!

Best regards
Lesley

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Art Group

The Art Group continue to help me out with excellent examples of their work. Here are two more, one by Desna Haskell, the other by Don Whitaker. Thanks once again to all Group members.



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Quiz Corner

We are indebted to Paul Childs for this week's quiz. Can you translate from the rather pretentious 'Olde English' format, here presented, into the better-known modern version?

Translate the following expressions into more commonly used English

- 1 Scintillate, scintillate, asteroid minify.
- 2 Members of an avian species of identical plumage congregate.
- 3 Surveillance should precede saltation.
- 4 Pulchritude possesses solely cutaneous profundity.
- 5 It is fruitless to become lachrymose over precipitately departed lacteal fluid.
- 6 Freedom from incrustations of grime is contiguous to rectitude.
- 7 The stylus is more potent than the claymore.
- 8 It is fruitless to attempt to indoctrinate a longevity-oriented canine with innovative manoeuvres.
- 9 Eschew the implement of correction and vitiate the scion.
- 10 The temperature of aqueous content of unremittingly ogled saucepan does not reach 212 degrees.
- 11 All articles that coruscate with resplendence are not truly auriferous.
- 12 Where there are visible vapours having their provenience in ignited carbonaceous materials there is conflagration.
- 13 Sorting on the part of mendicants must be interdicted.
- 14 Eleemosynary deeds have their incipience intramural.
- 15 Male cadavers are incapable of yielding any testimony.
- 16 Individuals who make their abode in vitreous edifices would be advised to refrain from catapulting petrous projectiles.
- 17 Neophyte's serendipity.
- 18 Exclusive dedications to necessitous chores without interludes of hedonistic diversion renders John a hebetudinous fellow.
- 19 A revolving lithic conglomeration accumulates no congeries of small green bryophyte legume.
- 20 A person representing the ultimate cachinnation possesses thereby the optimal cachinnation.
- 21 Abstention from an exploratory undertaking precludes escalation of a lucrative nature.
- 22 Missiles of ligneous or oterous consistency have the potential of fracturing my osseous structure, but appellations will eternally remain innocuous.

Quiz Corner (continued)

Then we have the answers to Peter Shreyhane's 'Cotgrave Street Names' quiz of last week (several of which baffle me more than a little!):

Answers.	Last week's questions
1. Rectory Road	1. An ecclesiastical address.
2. Hollygate Lane	2. There's a Christmas feeling here.
3 Troutbeck	3. Where you might catch a fish.
4. Crosshill	4. The angry incline.
5. Mill Lane	5. Where you might find wool being woven.
6. Thornton's Close	6. You might get your sweeties here.
7. Orchard Drive	7. A place to pick fruit.
8. Saxon Way	8. Where our ancestors may have walked.
9. Dean's Court	9. Does a university official live here ?
10. The Warren	10. Did Beatrix's Potters little friend live here ?

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Creative Writing Group

At last, we have arrived at the Creative Writing Group contribution, this week from our prize-winning author Chris Tomblin, who also leads the Group. It's all about Money, would you believe! And I always thought they were just interested in Culture.

Money

It was very very noisy when she was born. One minute all was nothingness and then suddenly there was a cacophony of noise and clattering and she felt herself travelling quickly downwards and landing with a sharp thump before being whisked away at speed. What's happening she thought as she tried to look round her but she was going far too quickly. There were others travelling along with her she could hear them crackling and swishing in front and behind and could hear occasional squeals and grunts as they tried to hang on to the sides but onwards and onwards they went until eventually they came to a stop.

When they'd all got their breath back the noises started. All around her she could hear other talking.

Where are we? came a voice from beyond.

But what are we? came another.

We are money came a deep voice from the back. You are new money and have just been born. You have just arrived in this place. I am older money I have been here before often. This is where we come to rest in between times.

But what are we for she asked and what do we do when we're not resting here.

She opened her eyes and first of all looked down at herself. She was crisp and new and pink and when she looked round she could see others exactly like her. Some were different colours blue and brown but they were all trembling with excitement because they were new. Further back were others like them but they looked older and seemed to be resting. What are we for? she asked again. The deep voice from the back said we are money, we are here to be spent and to provide joy to humans, that is our purpose that is our reason for life. Humans use us to buy things. Things?? She asked what things.

Well things humans need like food for their table houses to live in clothes for their bodies. We are exchanged for things human beings need or want. Soon you will set off on your adventures some of them will be short and some will be long but you will usually come back here for a rest from time to time.

Where is here? asked the brand new banknote of the older one. Everybody listened carefully to his reply. Here is a bank, he said all money comes and goes from this place. This is our home but our work is in the world outside helping the humans to be happy.

And do we always make humans happy she asked.



Not always he replied although that is our main purpose. Money is not always used for good and it doesn't always make people happy.. He looked troubled but before she could ask him further questions the door creaked open and the new bank notes were picked up and on the move.

From that moment the new banknote became very busy indeed. Before long she had been passed over the counter of the bank. First she visited a shop where she was exchanged for food. Given as change she was pushed deep in a mans trouser pocket only to be used shortly after for admission to a football match. In between times she went back to the bank for a rest but was soon on the go again and visited many places. It was fun she seemed to be giving pleasure to so many people. She particularly liked being given to children and used to buy toys.

One day when she'd gone back to the bank for a rest a large number of the banknotes were sent to the post office. It's a bit like the bank but it's where people collect their old age pensions said one of them who'd been there before. We'll soon get back into circulation though and can start spreading joy again.

The next day a few of them were handed over to an old man who carefully put them away into a large purse.. Great she thought new adventures , all the notes were excited wondering where they would be going and what they would be buying before moving on somewhere else. The old man stopped at the grocery store and when it came to paying he opened up the purse. She held her breath would it be her turn now but the old man just took out a few coins paid for his shopping which didn't amount to very much and carried on home.

Never mind she thought another day, sometimes she spent quite a bit of time in a purse before being spent especially if the owner was careful with money. They all liked it best when they went to people who knew what money was for namely spending and they could get on with their purpose in life.

When the old man got home they heard him shuffle off and climb the stairs as they settled down in the purse but before long they heard him return and slam something down on the table. Next he opened up the purse and took out all but one of the notes and placed them on the table. It gave her chance to look around. She had been in many human houses before sometimes left on a table in the kitchen sometimes a bedside table or mantelpiece so even she could tell this house wasn't as nice and bright as some she had seen. The furniture looked worn old and drab although there was a lot of it crammed into the room. They all shivered, it was chilly. The man opened the large suitcase that he'd slammed onto the table and to their surprise it was full of money, bank notes just like them. Before they could realise what was happening they were all scooped up and placed on top of the other notes the lid was closed and locked and the case carried back upstairs and placed under the bed in the spare bedroom.

What's happening she asked the notes nearest to them. We've been here since he collected us last week they replied but the ones at the very bottom have been here for years. They don't speak much anymore though they spend most of their time asleep.

What's the point came a flat depressed sounding voice from the bottom of the case we'll never get out, we've been stuck here for years.

But I don't understand she said aren't we meant to be spent to spread joy and happiness everywhere we go isn't that our purpose.

Well yes came the old voice but some people have forgotten that and they use money for bad things. Some people have too much others have too little and there are people who spend more than they have but the saddest thing is people who have enough but are fearful they won't and are frightened to spend any of it other than for bare necessities. But isn't it sad if people don't have enough or spend too much asked the new note. Well yes you would think so but on the whole those people joyfully spend what money they do have in the hope of having more one day. They make the most of it and what life has to offer. Our man downstairs has never had a wife because he worried she would spend his money, he has only had one car in his entire life which is now so ramshackle he won't be able to drive it much longer. He talks about buying another but he never will because he is too fearful about spending the money. He needs a warm winter coat but would rather be cold than spend any of us.

The new notes were astonished. But look at us they cried there are thousands of us he has enough money more than enough. He will never have enough said the old note grimly. All the money in the world would not be enough for him to feel safe. We will never get out of here.

However the old note was wrong. For a while more notes continued to be added to the suitcase each week when the old man collected his pension, but suddenly it stopped. They were just left under the bed and they wondered what was happening.

All went quiet they didn't hear the old man pottering about the house anymore.

Some time later it could have been days weeks or months they had no way of measuring time they heard noise and activity in the house again.. Is it him they whispered. They heard footsteps and voices and suddenly the door was opened and somebody said. This is the spare room I doubt there'll be anything much of value in here. They heard the drawers and cupboards being opened and closed and another voice said no as I thought this room can be cleared. I'll just look under the bed said the first voice and suddenly the suitcase was pulled out plonked on the bed and opened. The money blinked and quivered with excitement. Bloody hell said the young man look at this lot. I always suspected Uncle Ken had a lot of money stashed away but he always acted like he was a pauper. What was it he used to say about the bank there not getting their hands on my brass but I never imagined he had this much.

And so the money was liberated. There was £90,000 pounds in there and he had left the money equally to his brothers and sisters but only one had outlived him and she inherited the lot. Luckily she wasn't like him she generously shared it out amongst her children and nephews and nieces and they spent it on happy and joyful things. And they all said what a shame Ken didn't spend it on things that would have given him comfort joy and pleasure instead of saving for a rainy day that never came for him.

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And if you thought you were to be excused the weekly limerick, think again – here it is:

In order happiness to seek,
We write a limerick a week.
It aids reserves
And calms the nerves
And helps mop up my verbal leak.

That's all for this week. Keep well. See you next week.

John

