

# The Journal of the Christian Engineers' Association

## CEA Perspective – Winter 2007/8

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## Editorial

John Baden Fuller

I must start with an apology for being late again. Despite being late, we seem to have assembled a bumper issue of our Journal this time. As we are now three months late in producing the Journal, we have slotted in to the spring mailing from Christians @ Work.

In the Autumn, I felt thoroughly depressed about the state of CEA as an association. I had not received any contributions for this copy of our Journal by the deadline. We had not managed to arrange a committee meeting. David told me that he wished to resign from the committee because he felt that he needed a change. He has made a valuable contribution to our continuing activities and we hope that he will continue to contribute even though he feels unable to attend committee meetings. We reluctantly accepted his resignation while acknowledging what he has contributed to CEA. He will still be happy to receive e-mail contributions to this Journal. As you can see from the committee report on p.42, two new members attended and made valuable contributions to our last meeting., so we were greatly encouraged at the outcome of that meeting.

We have an interesting mix of articles which have been provided for this issue. We start with contributions from Mike Cowan who gives an interesting engineers' insight into Christian salvation. He follows that with a contribution on the question of our interpretation of Penal Substitutionary Atonement. Often an engineer can give a down-to-earth approach to theological questions. David Kay's contribution to the question of Justice in society gives a complementary comment on atonement. We follow that with two further contributions on the question of Sustainability, and then David Kay uses the prophet Isaiah to investigate the use of technology in the Bible. Paul Darley tells us of some of the opportunities his job as an engineer has given him to witness throughout the world. Tony Fletcher gives us his first impressions of attending the CEA committee meeting and we follow that with the Committee report and the treasurer's report showing a healthy financial position.

# Salvation – A Process

Mike Cowan

The article in the Summer 2007 edition of “Perspective” was timely. I have been reflecting on the apparent failure of many of us to be effective evangelists. While there are numerous explanations the following points came to my mind:

- 1 Although we are called to bear witness the initiative in evangelism is with the Holy Spirit. Our work is to reinforce what The Holy Spirit is already doing in the hearts of those we meet. See John 15 vv. 26-27.
- 2 Salvation is a process. See, for instance, 2 Peter 1 vv. 5-7.
- 3 The Holy Spirit may start the process of salvation in dramatically different ways.
- 4 My guide to evangelism was through a Billy Graham Crusade and used an “ABC” guide. It seems to have been effective in bringing churchgoers to a new place of commitment, but irrelevant to the ‘unchurched’.
- 5 I have not approached my own efforts in evangelism with the rigour that I attempt to apply when tackling a new job.
- 6 The way in which I relate with others must be real and genuine.

If salvation is a process, and I believe it is, then it is important to know where to start. We are introducing our fellow humans to Jesus, but every individual is different and we may be answering questions that are not on the mind of our hearer. I note the following variations in approach:

- 1 Jesus preached repentance as preparation for the kingdom of God. He was preaching to a people who were expecting and impatient for the arrival of The Messiah.
- 2 Peter’s first speech after Pentecost, revealed to his Jewish brethren their rebellion against God as demonstrated by their treatment of The Messiah.
- 3 Paul’s teaching to the Greeks in Athens started with their belief in many Gods and began to introduce the concept of one God who created all things.
- 4 Evangelical protestant preaching has traditionally set out to highlight the need for forgiveness of sins and God’s offer of a path to forgiveness and power over sin.

The Bible has no example of an approach to people in a *post-Christian* culture. The drive that brought me to Jesus was a conscious need to find a purpose in life and an unconscious need to *belong* in a community that had a purpose I could subscribe to. I found both through the Christian union within the college I attended. I believe I entered the *process* when I recognised Jesus’ divinity, but for decades following I found the concept of his death as a substitution for the punishment I deserved a logical nonsense. I was relieved to discover that this concept is only one *model* of many that the Bible uses to identify what Jesus achieved for us by his death on the cross, but I also believe that all these models must be retained within our orthodox set of beliefs. I am now constructing another article!

My conclusion is that, in the same way that physics uses many different models to describe physical principles, the Bible uses many different models to describe the spiritual principles it is communicating. When speaking of Jesus to others we can select the appropriate models, but recognise that all the biblical models are valid.

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# An Engineer Looks at the Mystery of the Cross

Mike Cowan

This article was born from reading of a current controversy over the concept of ‘Penal Substitutionary Atonement’ (PSA) referred to in a recent UCCF report and the article on Salvation in the Summer 2007 issue of *Perspective*. For many years I have found it difficult to *own* for myself the idea that a loving God would demand punishment – and accept the punishment of a substitute. It seemed illogical. As a follower of Jesus I consoled myself with the fact that PSA is only one of a number of models used by the Bible to describe what Jesus achieved for me when he died on a cross.

It was 1990 and I was auditing a washing machine factory in Russia. I had been taken to see a museum where one of the exhibits was a 20kg iron cross for penitents to wear around their neck. The Russian Quality Manager asked me what I thought about it. Without any long pause I spread my arms as if on a cross and told him Jesus was punished in my place so that I did not need to be punished or punish myself.

It is now 2007, I am retired, and I have time to reflect on what has remained a mystery. How would I approach a mystery in engineering? I am accustomed to using formulae that I do not fully understand – provided that they work. As an engineer I can make some initial checks:

- 1 Does it come with good recommendation?
- 2 Does it cover the application I am concerned with?
- 3 Can it cope with the range of values I am concerned with? E.g. Does it give sensible results when input with very large, medium and very small values?
- 4 Does it include all the variables I would expect to influence the result?
- 5 Does it pass the test for dimensional analysis?

I happened to see a copy of Einstein’s handwritten derivation of  $E = mc^2$  this month. Knowing and understanding the formula for kinetic energy I know that this formula, that I do not claim to understand, is dimensionally correct. I was intrigued to note that the popular version above does not cover all conditions and that the full formula includes a variable ‘ $q$ ’!

So how do I approach PSA? I could test the following statements:

- 1 My maker has given me significant free will and I have chosen to rebel against Him.
- 2 My rebellion and its consequent behaviour deserves punishment and that punishment is death.
- 3 My maker is not able, within his own principles, merely to *waive* the punishment.
- 4 My maker has provided a substitute to satisfy those principles. The substitute is Jesus and Jesus’ death will satisfy those principles.

In practice most cultures and creeds apply the principle of punishment for disobedience against their codes of behaviour. Humanists may prefer to use the term *re-education*, but that is to discount our free will (see note 1). Our UK *Red Top* newspapers can be shrill in their demand for heavy punishment of certain crimes. The link between crime and punishment (or consequence) seems to be rooted deep in the human heart. Also rooted deep in the human heart is the demand for justice. This demand can even extend to wishing for our own punishment.

Thus, I can accept the link between crime / rebellious acts and punishment, but at first consideration I prefer the concept of forgiveness to that of substitution. However, the concept of justice does not relate with forgiveness. Forgiveness and justice seem to have different dimensions and I offer a new formula:

*Crime minus punishment equals justice*

True justice requires a *zero* value.

See Romans Ch. 3 v. 25: “God presented him as a sacrifice of atonement, through faith in his blood. He did this to demonstrate his justice, because in his forbearance he had left the sins committed beforehand unpunished”.

How would this principle work out in practice? “Justice is not done until everyone is satisfied, even those who offend us and must be punished by us”, says Qasim Ali in the novel *Shantaram* written by David Roberts. Carrying out a thought experiment at God’s judgement of an offender I see the following:

The victim and his family may be finding it difficult to forgive the offence. Full reconciliation between them and the offender is not yet complete. Jesus steps forward to explain that he has carried the punishment on behalf of the offender and that the offender has submitted to the full process of salvation. The offender is a *new man*. As the victim I might find this difficult to swallow, but I could find no argument to oppose the arrangement. The offender might be inclined to shrug off the offence as minor, but if he truly understands and believes in the work of Christ on the cross he cannot take that attitude. We see a link between the enormity of the crime and the punishment inflicted. The biblical record is clear that if we fail to confess and repent of our offences we must accept the punishment upon ourselves directly. Alternatively the offender might feel that his conscience cannot rest unless he has been punished. His conscience can find rest by faith in what Jesus has carried for him. There will be onlookers that want to observe justice done, driven by motives both good and bad. They too will be presented with the fact of Jesus’ death on a cross. The Bible speaks of the *accuser of the brethren!*

Of God The Father’s attitude I know that he desires that *all should be saved*. My interpretation of his judgement, or wrath, is that he will not subvert our free will. If I refuse the offer of heaven and the requirements for entry I will experience the inevitable consequence. Beyond that I will not allow, what I do not know or understand, to negate what I do know.

In conclusion I always have to remind myself that salvation is primarily about relationships between free persons and must not be distilled down to formulae, however true they may be. For the best allegory of the cross I know read C S Lewis’ book *The Lion, the witch and the wardrobe*.

Note 1: C S Lewis has written a short booklet titled, I believe, *The humanitarian theory of punishment*.

## Down-to-Earth Justice

David Kay

I believe we need to face up to the fact that a pronouncement from a judge one way or the other is potentially sufficient to affect our happiness in a major way for the rest of our lives. As a Christian, I find this thought disturbing. I cannot see God in it. The article highlights this. The point is illustrated using two examples.

### Justice and Lucie Blackman

Most, if not all, readers will be familiar with the name *Lucie Blackman*, the British woman who was murdered in Japan. Maybe many people’s attention was diverted from the news item about Lucie when Madeleine McCann’s disappearance was announced. Of course, the latter event will in no way erase the vivid memories of everyone who knew Lucie personally. Commenting on an event that

evokes so much emotion is a risky thing to do. In one sense only those who have experienced a similar tragedy are qualified to do so. Nevertheless, I believe that it may be helpful to consider a few points.

Lucie was murdered in Japan, but although the accused person was found guilty of murder, he was not found guilty of *her* murder. Anne Atkins spoke about the case on “Thought for the Day”, BBC Radio 4, April 26, 2007. Anne asked what difference the acquittal made, and continued with the statement that God cannot overlook evil.

Website: [www.bbc.co.uk/religion/programmes/thought/documents/t20070426.shtml](http://www.bbc.co.uk/religion/programmes/thought/documents/t20070426.shtml)

Returning to the question of the difference that the acquittal made, the objective answer is “none”, as far as tangible realities are concerned. As far as people’s feelings are concerned, a guilty verdict would have represented justice – at least, insofar as legal processes can deliver it. Moreover, a guilty verdict would probably have brought an immeasurable sense of comfort to Lucie’s parents. I believe we need to face up to the fact that a pronouncement from a judge one way or the other is potentially sufficient to affect our happiness in a major way for the rest of our lives. As a Christian, I find this thought disturbing. I cannot see God’s touch in this approach. The highlighting of this aspect is the whole point of this article. The question we have to consider is: How would we react if we had the misfortune to face what the Blackman family has been through? Rom 12,v.19, reminds us that vengeance belongs to the Lord. “Is it a question of vengeance?” you might ask. Insofar as vengeance is about obtaining what we believe is just, yes, it is.

### **God’s justice cannot overlook evil, what about us?**

Anne Atkins’ argument seems to be that because God cannot overlook evil, nor should we. This approach raises the question: If we fight on in our quest for justice, what *exactly* are we fighting for? It is worth noting that, while Jesus suffered on the cross for our salvation, we do not have to do anything tangible to be saved. We are saved by grace. In a sense the outcome of the Lucie Blackman case focuses our attention on the significance of our inner life – our thinking, our feelings, our responses.

The Lord’s Prayer contains the plea: “Lead us not into temptation...”. This may seem a strange phrase, but maybe one interpretation is a request that we do not find ourselves in a situation where we are seeking justice when it just cannot be delivered. Rather, we accept what Christ has done for us, not only in terms of any specific response to Him, but also as far as everyday life is concerned.

### **Justice in everyday situations**

A few months ago I made a manoeuvre in my car that annoyed an on-coming driver. A car was parked on my side of the road, and another car was turning into my road. Although I judged that there was enough time to pass the stationary vehicle without infringing the rights of the driver of the on-coming car, both before and after passing the stationary car, the driver of the on-coming car clearly thought otherwise, and signalled accordingly. We both continued on our way, but I was left thinking that I would like to have asked the driver what exactly he was unhappy about. I would not have wanted an unpleasant exchange, merely some information. The situation would then have been nicely tidied up, possibly with a mild apology thrown in. In a sense justice would have been done.

The above obviously represents a trivial incident, but many much more serious incidents, where a major sense of injustice prevails, have a similar basis in principle.

On another occasion many years ago I was the slightly offended driver, and indicated my displeasure to the driver of a van, who then pursued my car 500m to a car park. We had a brief frank, and reasonably amicable, conversation about what had happened. The point here is that there were no further loose ends to tie up. How good it would be if everything could have a similar outcome.

## **A good response to everyday incidents is part of Christian discipleship**

Lucie Blackman's murder is discussed above – an example of a very serious and tragic incident where the outcome has not been tidy, there is no satisfactory resolution, and justice has not been done in the eyes of the Blackman family.

I believe that we can start to lose our objectivity even in relatively trivial situations, so looking at minor incidents, and pondering our response, is a worthwhile activity. If we respond well in trivial incidents, we shall most probably handle bigger incidents better. The ideal is to reach a tidy outcome, a satisfactory resolution, insofar as we can. How others respond is up to them.

So is this way of looking at things just common sense or something specifically Christian? I would suggest that examining our style, and learning to respond well to everyday incidents is very much part of Christian discipleship. Feelings about our rights, imagined rights, and matters of justice seem to be very powerful influences on our lives. Is “an eye for an eye and a tooth for a tooth” sometimes our real, if unexpressed, desire? As we are made in God's image, and we have a strong sense of justice, so must God. A further question to ask is, “How does God feel about the injustice in the world?” As things are inevitably left in an untidy state when offences are committed in the most general sense, there is no neat remedy to injustice. Instead, He sent His Son, who died on the cross – the means of our justification.

Verses to ponder: Dt.19,v.21; Ps.37,v.6; 1 Pet.3,v.18.

Chapters to study: Ez.18; Ez.33,vv.1-20.

## **A focus for injustice**

“At the moment I'm very angry but I have nowhere to focus my anger...” These words were spoken by the father of a young soldier killed in Afghanistan by “friendly fire”, and reported in the media towards the end of August. One of the helpful parameters in dealing with a sense of injustice is the ability to focus it on a person, or at least something reasonably well defined.

Another helpful way forward is to see a particular injustice in a wider context. Injustice, real or perceived, can be categorised; for example, immediate or long-term, health, financial, natural event, etc. The floods in the UK this summer fall into the last category, but have wider ramifications. Some fairly recent topical sources of injustice in the UK include the treatment of asylum seekers, facilities for disabled people, women's pay and medical negligence. If we go back in history, the slave trade is another source of injustice, and has had much publicity in 2007. The list is almost endless.

As far as the flooding is concerned, two important questions are: where does the responsibility for the flooding lie, and what approach should be taken in dealing with those with no household insurance? No-one has directly offended in the flooding incidents, so there is no primary target for feelings of injustice. Some people may blame God; others may pinpoint global warming; yet others may blame the Environment Agency, other service providers or the building industry. Some people with household insurance may resent the assistance given to those without such insurance – an example of consequential injustice.

When injustice is evident, we may have to consider how far we want to pursue a claim for justice. Sometimes an important principle may be at stake. Even when only a sum of money is involved, it may well be our feelings that govern our response. I remember being challenged by reading a comment in a Christian book that we should take care not to pursue our own rights or claims, and be oblivious to others' rights and claims, particularly those of the weak (see 1 Cor.10,v.24 and Phil.2,v.4).

## **How does Jesus' teaching help?**

So, how does Jesus' teaching help? Jesus seemed to prefer to focus on specific things. When He referred in an issue concerning faith to "this mountain" (Mk.11,v.23), He did not have in mind literally moving a particular mountain, but He appeared to have a clear focus. Someone once said to me that the devil likes vagueness. Yet vagueness and the absence of targets for injustice are probably more characteristic of modern times than early New Testament times. We need to take care, as Christians, not to allow the matter of pursuing injustice to become a new sort of secular orthodoxy. So, whilst we cannot earn our salvation, we really do have to work it out in the area of tackling injustice, helping others where possible, and remembering the need to find a focus for injustice. Phil.2,v.12 and Titus 3,v.8 are worth studying in this context.

## **A Quality Engineer looks at Sustainability**

Mike Cowan

### **Introduction**

'God blessed them (mankind, male and female), and said to them "Be fruitful and increase in number; fill the earth and subdue it. Rule over the fish of the sea and the birds of the air and over every living creature that moves on the ground"' Genesis 1 v. 28.

The above are the terms of reference given to us in relation to the earth. We are answerable to our creator to multiply and fill, (but not overstock?), the earth. We are also to take control. As someone put it – it is the only commandment that mankind has obeyed. This year's Reith Lecturer, Professor Jeffrey Sachs argues that we are now in the anthropocene age of the earth in which mankind is the major influence on its behaviour. We cannot avoid responsibility and our numbers mean that our individual behaviours affect everybody and everything else. Sustainability requires tight tolerances on the range of our behaviours.

In the 1980s I was part of a team introducing Statistical Process Control (SPC) to the manufacture of gears for car engines. The aim could be defined as empowering individual machine operators to control the quality of their output. They needed all of the following:

- A machine that was capable of maintaining the tolerances.
- Equipment that allowed them to measure the output dimension to a resolution of at least one tenth of the tolerance.
- Training in the use of SPC so that adjustments were made on the basis of actual drift and not the inherent random variation.
- The motivation to achieve quality.

### **Costs to society**

At different levels all of us need to be empowered to make quality environmental decisions. The battle to convince us that we need to change our behaviour is on, but there are many influential powers that would, knowingly or innocently, lead us in the wrong direction. My local DIY outlet sells a wind turbine that, unless carefully sited, would produce less energy over its lifetime than it cost to produce it and dispose of it. One of my dreams is to have solar panels on the roof charging a large and central battery supplying low voltage circuits around the house. With LED lighting it might be

able to supply all my electricity needs apart from heating. How can I predict the impact on the environment of fitting such products? How can we develop a method of measurement that will allow us to compare alternative behaviours and choices? Many decades ago Ishikawa developed the concept of 'cost to society'. We now need to measure costs to both human society and the earth and from this point I wish to define 'cost to the eco-system' as cost to the earth and all its creatures. As a starting point I will review the needs identified in the bullet points above.

## **What consumers need to inform their decisions**

*Alternative choices must be measurable.*

Just as machine tools can be categorised according to capability, so products and services need to come with all the significant costs visible to the consumer. Thus, I believe that the measure of the insulation of a house should be made available to potential buyers, even if the requirement for a 'home information pack' is dropped.

*Consumers must measure the cost of their consumption.*

We consume as both groups and individuals and we need tools conveniently to measure our costs independent of marketing spin and hype.

*Consumers must understand the measurements.*

Some engineering training is uniquely relevant to an understanding of the search for efficiency across a broad mix of costs. Just as SPC is a tool that can be easily taught to operators who are not natural mathematicians a similar tool is needed to incorporate differing cost centres into a workable algorithm.

*Consumers must be motivated.* We all have to be motivated to accept a change of behaviour to the benefit of both society and the planet. I would recommend everyone to see the film *An Inconvenient Truth*. I learned that Al Gore has been involved with ecology for decades.

## **The need for holistic measurements of cost to the eco-system**

Sustainability demands a holistic approach. Meeting energy needs by growing energy crops may leave millions to starve and to limit the net production of carbon dioxide in isolation is not sufficient. Measurement systems must comprehend all the costs involved. Water, agricultural land, energy and global warming potential do not, at first sight, share the same dimensions. In the first instance we can only ensure that all the significant costs are listed and I offer a first attempt in the Table below:

Claimed environmental solutions can be challenged when looked at holistically:

- Hybrid cars reduce pollution within cities, but may be more costly alternatives for general driving.
- Use of 'food miles' as a measure of cost could be misleading. Flying vegetables from an African country that is short of water would be costly, while shipping fruit from New Zealand could be cheaper than importing from Europe or growing in hot-houses.

## **The search for a common unit to measure cost**

A method of comparing the effectiveness of different ecological solutions is needed. Toshiro Oka , (see notes below), suggests the use of a maximum abatement cost (MAC), measured in cash. MAC would be based on known costs of reducing the negative effects elsewhere. His paper quoted below



used a figure for the cost of Carbon Dioxide that had been estimated as the abatement cost of meeting the Kyoto target. As I understand the principle, water in a desert location near the sea would be calculated at the cost of water produced by a desalination plant. Government is already introducing 'green' taxes and methods of grading the ecological efficiency of products. It is important that all factors are put into the 'formulae' used and applied in a balanced way - otherwise there will be perverse results.

Cost centre	Explanation	Notes
Prime energy	Energy in a form that can be directly traded.	Local solar heating can be costed as an installation only, or as a negative value?
GWP	Global warming potential of carbon dioxide, methane etc.	
ODP	Ozone depletion potential	
Land	Land cost will depend on quality, location and alternative uses possible	
Water	Cost varies with location.	Applicable to tourism as well as agriculture
Pollution	Pollution not covered above	
Materials	There are many exotic materials lacking sustainable supply	
Waste		
Safety	e.g. Atomic power has a safety cost	
Noise	e.g. Airports, fast rail	
Social	e.g. The loss of income from tourism when flying is reduced.	
Bio-diversity	Man's respect for God's Creation.	

### The search for simple guidance

I recognise that the above is getting very academic. While grand policies need to be sophisticated the individual consumer needs simple guidelines! I hope that articles like this will get us thinking and acting. In some ways engineers are uniquely equipped to create and validate such guidance.

### What about human nature?

This was an oft-repeated question from those listening to this year's Reith Lectures. It remains that it is the salvation offered by Jesus that can transform human nature. If Britain could act to abolish the slave trade 200 years ago Christians can work with others to face up to the challenges of today – especially where the future of all our children depend on it. The bigger challenge will be to ensure that the solutions applied are just.

Note that for further reading on 'MAC' you can obtain the following papers from MIT Press [<http://mitpress.mit.edu/jie>]:

*The maximum abatement cost method for assessing environmental cost-effectiveness.* Toshiro Oka, 2005.

*Calculating cost-effectiveness for activities with multiple environmental effects using the maximum abatement cost method* Toshiro Oka et al, 2005

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# Sustainability – Some ideas of what needs to be done

David Kay

## Options for air transport

The table below is a simplified illustration of some possible actions and their likely effects, based on air transport.

Action	Effect
Individual declines to travel by air	There is one more empty seat on the plane, and a very small fuel saving, as the take-off weight is reduced
Individual lobbies people with political influence	None, unless many people do the same
Airlines reduce the number of flights	Damaging to airlines that act alone; beneficial to the environment if joint action agreed
Plane manufacturers develop more efficient/less polluting engines	Modest reduction in harmful gas emissions
Government increases fuel tax per passenger	More room for passengers on a plane
Government introduces flight tax	Possible reduction in number of flights, and thus reduction in damaging environmental effects

In this wide context we must, as Christians, consider how far to go ourselves, and be ready to change our response as circumstances dictate.

## Maritime development

The UK Government has recently put forward its view on the possible environmental impact of any new maritime development which needs to demonstrate that it is sustainable. Environmental protection must be considered as well as social and/or economic benefits.

In pursuit of this goal the UK believes that EU Maritime Policy should reflect environmental objectives. High quality impact assessments are needed to ensure that the social, environmental and economic effects of any proposed developments are considered. It was particularly noted that a wider view on climate change impacts, such as carbon emissions, was needed.

## Impact of flaring of natural gas on climate change

Flaring produces the primary GHGs, CO<sub>2</sub> and methane (CH<sub>4</sub>). In addition, flaring of gas rich in liquids can produce smoke, with aerosol effects that also contribute to global warming. One of the key problems in assessing the impact of flaring on GHG accumulation is the lack of information not only about the quantities involved but also about the types of gases emitted. Key issues include:

- 1 The ratio of gas vented to gas flared is crucial because the impact of methane on global warming is about 21 times greater than that of CO<sub>2</sub>, so a small change in the ratio of flaring to venting makes a disproportionate change in the impact on the global environment. For example, if 90 percent of the associated gas volume is flared and 10 percent is vented, the amount vented would have approximately twice the global warming effect as the amount flared.
- 2 Gas flares vary greatly in the efficiency with which they burn methane and thus convert it into CO<sub>2</sub>. The least efficient flares still in use may convert only 90 percent of the methane to CO<sub>2</sub>, while the most efficient flares convert 98 percent. The global warming impact of the least efficient flares is twice that of the most efficient.
- 3 The composition of the gas being flared can vary greatly. Some gas is rich in hydrocarbons heavier than methane (propane, butane, pentanes plus) and thus produces more carbon, as well as smoke and aerosols. In other cases, gas may contain significant proportions of inert gases

(nitrogen, helium) and sulphur compounds (H<sub>2</sub>S), as well as CO<sub>2</sub>. Incineration of such “impure” natural gas will have a different impact on the climate change than that of pure hydrocarbons.

The worldwide annual carbon contribution to the atmosphere associated with gas flaring is 84,000 tonnes. Low-light imaging data reveal a total of between 150 billion and 170 billion m<sup>3</sup> each year. Russia is the biggest contributor, followed by Nigeria. Other big contributors include Iran, Iraq, Angola and Venezuela. The hydrocarbon industry claims that some reductions in on-shore and off-shore flaring had been achieved in recent years.

Information obtained from the Climate Justice Programme which is directed by Peter Roderick and Roda Verheyen, under the auspices of Friends of the Earth International. Material reproduced with permission. Their website is [www.climatelaw.org](http://www.climatelaw.org).

Additional information from *Professional Engineering*, 5 September 2007:

### **Cement production and global warming**

Cement is the key ingredient in concrete, and the manufacturing process depends on burning vast amounts of cheap coal. This process also relies on the decomposition of limestone, during which carbon dioxide is released as a by-product. Cement plants and factories across the world are projected to turn out almost 5 billion tonnes of carbon dioxide annually by 2050. This amount is 20 times as much as the government has pledged that the entire UK will produce at that time. There is no obvious substitute for cement, so a trade-off exists between development and sustainability. Concrete is the second most used product on the planet, after water, and almost half of it is produced in China. However, many of the newer cement plants in China are cleaner than established facilities elsewhere, such as in the US.

Cement companies do not have the same profile as power companies and airlines. Some cement companies have, nevertheless, already taken steps to reduce their environmental impact. Some burn waste products along with coal, while others have reworked their recipes and tried to make their plants more energy-efficient, with modest success. Sustainability needs to be looked at in the context of a business rationale. Regional caps such as the European scheme create an uneven playing field, and have unintended consequences. The problem is a global one, not a regional one.

In the long term, only carbon capture and storage could significantly reduce emissions from cement production; the industry sponsors research into how these processes could operate.

Information from an article entitled: “The unheralded polluter: cement industry comes clean on its impact”, *The Guardian*, Friday October 12, 2007.

### **Severn tidal schemes**

The Severn Estuary was mentioned in the previous issue of *Perspective* as a possible location for a tidal barrage scheme. Readers will be interested to note that hopes for the construction of a barrage have recently been revived (*Professional Engineering*, 3 October 2007). The idea of a barrage stems from the year 1849, but the staggering scale and costs of any projects have meant that nothing has ever materialised. A new feasibility study will cover the engineering, technology, social, economic and environmental aspects of a barrage. However, judging from Radio 4 listeners’ comments, serious environmental objections continue to exist in the minds of the general public.

*Professional Engineering* is published by *Professional Engineering Publishing*, and is made available to members of the *Institution of Mechanical Engineers* through their annual subscription.

# Isaiah

David Kay

## Isaiah's technical instincts promote the prophetic message

I read in the management section of *Professional Engineering* 5 September 2007 that engineers have a certain type of mindset, whereby they tend to see things in *black-or-white* terms or as *right or wrong*, and perhaps *overly analytical and logical*. Engineers need to be able to *juggle a number of different parameters*. However, engineers also have positive qualities, such as the ability to listen to other people.

I think that some engineers, maybe Christian ones in particular, are sensitive to some of the above criticisms. A further vulnerability can be caused by the science-faith debate, in which claims are made that science is anti-faith. Christianity is sometimes presented as a matter of the heart, not the brain, and engineers have to use both in their work! There can also be a sense of vulnerability concerning the perception of being too intellectual. No-one criticises artists in the same way! In the above context it is interesting to look at the book of Isaiah, which is the next longest book after the book of Psalms. Isaiah contains numerous references of a technical nature, reflecting a technically orientated mind, as well as the heart of a prophet.

The table below includes a large number of, but not all, references to technical things in Isaiah, and is followed by some detailed notes on individual verses. In order to avoid undue complexity, verb tenses do not necessarily correspond precisely with the original text.

### Key for table below

AV Authorised (King James) Version

RSV Revised Standard Version

GNB Good News Bible

NIV New International Version

Chapter	Verses	AV	RSV	GNB	NIV
2	4	Swords, plowshares, spears, pruninghooks	Swords, ploughshares, spears, pruning hooks	Swords, ploughs, spears, pruning-knives	Swords, ploughshares, spears, pruning hooks
3	24	Rent	Rope	Ropes	Rope
10	15	Axe, saw, rod staff	Axe, saw, rod staff	Axe, saw, club	Axe, saw, rod, club
10	24	Rod, staff	Rod, staff	-	Rod, club
10	34	Iron	Axe	Axe	Axe
18	5	Pruning hooks	Pruning hooks	Knife	Pruning knives
22	23 & 25	Nail	Peg	Peg	Peg
28	17	Plummet	Plummet	Plumb-line	Plumb-line
28	27-28	Threshing, staff, rod	Threshing, stick, rod	Threshing, club, sticks	Threshing, rod, stick
33	20	Stakes and cords (of tent)	Stakes and cords (of tent)	Pegs, rope	Stakes, ropes
33	23	Tacklings, mast, sail	Tackle, mast, sail	Rigging, -, sails	Rigging, mast, sail
34	11	Line, stones	Line, plummet	-	Line, plumb-line
36	6	Staff	Staff	Walking stick	Staff
41	7	Hammer, anvil, soldering, nails	Hammer, anvil, soldering, nails	Beats, -, soldering, nails	Hammer, anvil, welding, nailing
41	15-16	Threshing instrument, fan	Threshing sledge, winnow	Threshing-board, toss	Threshing-sledge, winnow
44	12	Hammers, worketh	Hammers, forges	Hammer,	Hammers, forges

Chapter	Verses	AV	RSV	GNB	NIV
				pound	
44	13	Rule, line, planes, compass	Line, pencil, planes, compass	-, -, carves, -	Line, marker, chisels, compasses
45	2	Cut in sunder (bars)	Cut asunder	Smash	Cut through
48	10	Furnace	Furnace	Furnace	Furnace
49	16	Graven	Graven	Written	Engraving
54	2	Cords, stakes	Cords, stakes	Ropes, pegs	Cords, stakes
54	16	Bringeth forth (an instrument)	Produces (a weapon)	Forges (weapons)	Forges (a weapon)

Individual notes on the verses follow. These notes are not necessarily clear without reference to the text in question.

### **Isaiah 2v4**

Some minor differences in spelling may be noted. The direction of the technical process is: swords into ploughshares, and spears into pruning hooks, as in Micah 4v3. The direction is reversed in Joel 3v10. In Isaiah 18v5, the term “pruning knives” is used in the NIV.

A *ploughshare* is a sharp instrument for breaking up soil. For further details, see <http://encyclopedia.thefreedictionary.com/plowshare>.

This website also contrasts a ploughshare and a sword, referring respectively to their creative and destructive nature.

For information on pruning hooks, which are long-handled pruning tools, see <http://www.thefreedictionary.com/pruning+hooks>.

### **Isaiah 3v24**

This very wordy section features the judgement of people, especially women.

### **Isaiah 10v15**

The GNB makes clear that the words are spoken by the Lord, and not by the Emperor of Assyria. Isaiah 45v9, has a similar construction: “Does the clay say to the potter...” (NIV). In both cases the Lord states his position and then the metaphoric language follows.

### **Isaiah 10v24**

The prophet calls on God’s people not to be afraid when the Assyrians use these items.

There are numerous references to rods and staffs in the bible, particularly in the Old Testament. See also Isaiah 36v6. The “rod and staff” phrase (see also Psalm 23v4) has found its way into one of our best known hymns: “The King of love my Shepherd is...” In the hymn the context is continuing comfort.

In the GNB the technical language is avoided.

### **Isaiah 10v34**

The context is the Lord’s judgement. *The Interpreter’s Bible* (Vol. V) states that the reference to an axe is too specific; the term “iron tool” is considered satisfactory.

### **Isaiah 18v5**

The message about the Lord's judgement is extensively decorated with technical terms, and could be far shorter than it is. In the AV "pruning hooks" is in contrast to "pruninghooks" in Isaiah 2v4, Joel 3v10, and Micah 4v3.

### **Isaiah 22v23 & 25**

The theme is the security to be found in the Lord. The technical language reinforces the message.

### **Isaiah 28v17**

A plummet is the weight on a plumb-line. The use is metaphoric, as the key idea is measuring the righteousness of God's people against a completely "straight" target.

See also Isaiah 34v11; Amos 7v7-8; II Kings 21v13; and Lamentations 2v8.

### **Isaiah 28v27-28**

*Threshing* is an agricultural process involving beating plants to separate the different parts. For further details, see <http://encyclopedia.thefreedictionary.com/threshing>.

The verses are an illustration of God's wisdom. The ordering of the words and the different forms of phrasing make the comparison of one version with another rather difficult.

See also Isaiah 41v15-16. There are numerous Old Testament references, but only one New Testament reference, to "threshing-floor" (Matthew 3v12, and the same idea in Luke 3v17).

### **Isaiah 33v20**

This verse is prophetic in a positive way. Isaiah 54v2, is similar, but extends the theme.

### **Isaiah 33v23**

Verse 21 also has a rare marine flavour in the technical sense, and verse 23 continues this theme.

### **Isaiah 34v11**

The wording is poetic in this verse: "the measuring line of chaos and the plumb-line of desolation". See also Isaiah 28v17.

### **Isaiah 36v6**

This verse is within the historical section of Isaiah. The text of the verse is duplicated in II Kings 18, but not in II Chronicles 32, both of which chapters contain common material. The context is a challenge to Hezekiah from the King of Assyria. The usage represents an analogy; a typical rendering is "broken reed of a staff".

### **Isaiah 41v7**

This verse illustrates the preceding one. God draws near. The word "sodering" becomes "soldering" in the RSV because of diachronic change. *The Interpreter's Bible* (Vol. V) considers the word "anvil" to be too specific. More generally, this particular verse stands out for its highly technical language. The GNB and NIV refer to an idol, but the AV and RSV simply use the non-defining word "it".

### **Isaiah 41v15-16**

*Winnowing* is the separation of chaff and grain, using some kind of air flow. The context is God's creative work in developing the resources of the people of Israel.

### **Isaiah 44v12-13**

The passage in which these verses sit is about the manufacture of idols. Craftsmen are denigrated. These verses stand out for their extensive technical content.

### **Isaiah 45v2**

These are words of encouragement to pro-Israel King Cyrus; the context for the key words is freedom rather than bondage.

### **Isaiah 48v10**

The usage in this verse is metaphoric; the most common renderings are "furnace of affliction" and "furnace of suffering". The reference to silver in the GNB is negative, unlike that in other versions.

### **Isaiah 49v16**

The word "graven" is essentially an Old Testament word that is usually found linked with the word "image". The context is God's care, but the GNB tones down the wording.

### **Isaiah 54v2**

See comment on Isaiah 33v20. In Jeremiah 10v20, the application is reversed.

### **Isaiah 54v16**

This verse is comfort for the church in a prophetic sense, despite the weapons context.

## **Further comments**

In some cases differences between one version and another simply reflect language changes. Another notable feature is the tendency in the Good News Bible just to miss things out (see, for example, the tabulated entries for Isaiah 10v24).

Some biblical authorities assert that there was more than one author Isaiah. This idea is not reflected in the technical content of the book of Isaiah.

The Pentateuch in particular contains some of the technical words found in the verses above in Isaiah. Technical language is found also in the New Testament. Matthew's gospel and Revelation are two books in particular where Old Testament usage is found in the New Testament. Other examples are: Luke 3v9; Luke 3v17; and I Corinthians 9v10.

Not surprisingly, there is an agricultural flavour in many of the verses highlighted above. Although agriculture was obviously an important activity at the time, other technical areas were also important. Many engineers will have an interest in construction projects and materials. There are numerous passages dealing with the former, and not a few references to the latter (e.g., Daniel 2v32-35 and v40-43). Other topics of interest are fire and weapons. Consideration of these aspects lies generally outside the scope of the present article.

## Hymns

As far as the inclusion of technical matters in hymns is concerned, there are a few examples. Jan Struther attempts a technical adventure in the second verse of a hymn:

“Lord of all eagerness, Lord of all faith,  
Whose strong hands were skilled at the plane and the lathe”

Unfortunately, the machine tool reference is not biblically sound, and the ends of the lines do not properly rhyme, so the verse is not really successful.

## Conclusion

In conclusion, Isaiah uses technical language to illustrate and reinforce his message. Christians today should not be afraid of doing the same. The ultimate focus should be not on the technical aspects, but on the prophetic content of the message.

## Reference

*The Interpreter's Bible*, Abingdon Press, Nashville, US, Vol. V, 1956

# Opportunities To Witness

Paul Darley

## Sri Lanka

### Identifying the possibilities

The attempt to develop some small renewable energy power plants in Sri Lanka on behalf of a British client has been a roller-coaster experience. To develop the projects, which my client will finance, build, own and operate, we first needed to identify the projects, then to find appropriate partners, and then to raise the necessary money. Whilst our projects had to be financially viable to proceed, our vision was to provide solutions which will bless local people with:

- provision of renewable energy to reduce the frequent black-outs caused by insufficient power generating capacity resulting from failing hydropower caused by global warming;
- removal of their waste dumps to clean up the environmental and eliminate the health hazard;
- provide good quality employment including training.

We wanted to work with people who share this vision, but with less than 1% of the population in Sri Lanka being Protestant, let alone evangelical or committed support such a vision, I knew this would be impossible.

### Finance expert who shared the vision

To develop the projects, I also needed to find a financial specialist in raising funds for infrastructure projects who was willing to work for minimal payment. The only person I knew who fitted the bill was the former Group Finance Director of a major British construction company. He gladly came on board. Unbeknown to me at that time, he is a committed Christian who upholds the highest standards of integrity which is needed for a project in Asia.



## **Project sponsorship by a politician who shared the vision**

In previous visits to Sri Lanka we had tried to develop an energy-from-waste facility at Colombo, Sri Lanka's largest city, but just as things seemed to be moving positively, the project was dashed for reasons we failed to understand. We then tried at Kotte, the capital, but after reaching agreement with the Mayor, the local MP, who was the Minister of Trade and Commerce, over-ruled the agreement and blocked the project.

The same day that happened we saw the Mayor of Moratuwa, Sri Lanka's third largest city, about solving his sawdust disposal problem. The furniture industry currently dumps 200 tonnes of sawdust each day into a lake and river. The availability of the sawdust made all the difference to us: we are able to dispose of their sawdust and municipal waste on terms acceptable to them because sawdust is a good fuel. When the Mayor came to the UK to sign a Memorandum of Understanding, we discovered that he is a committed evangelical Christian who went into politics because he was called by God to do so. Hence he understands our overall vision.

## **Local partner who shared the vision**

We also needed a local partner. Having visited all major workshops in Sri Lanka to find one able to manufacture some equipment we need, I was discouraged to find that we were limited to one company with the required capability. But it also could do the civil construction and has experience in mini-hydro, which we need for another project we are developing in parallel. Then the owner/Chairman turned out to be a committed Christian and ex-OM worker who had started his company as a result of a call from God to bless the local people. He was also willing to be an equity partner rather than just a supplier – which is just what we needed.

To raise the finance, we had many meetings with banks. There were three main banks, but one of them was preferable because it alone had the responsibility for administering World Bank funds we hoped to use, and it alone had a Leasing Division, which we also hoped to use. Whilst we had positive meetings with all the local banks, we did not find anyone in them who shared our overall vision. But with people put in place by the Lord for all other elements, we felt we couldn't expect to have everything we needed.

## **Access to the necessary funding**

Aside from the business, I was asked by the Mayor to speak at his church on Sunday: the largest Anglican church in Asia, he told me – which made it rather daunting. To make matters worse, before the service, the vicar told me he had been trained by John Stott, which sounded a bit like he was saying “follow that”!

My slot came after an hour of very lively worship – an encouraging start. The passage I had been given was Ephesians 3:14-21, so I focused on what it means to be (a) strengthened in our inner being, (b) rooted in love, and (c) filled with the fullness of God in every part of our lives – especially the workplace where most of us spend most of our time. Afterwards someone rushed to see me to ask for a copy of the sermon. As I hadn't written it out, I promised to write some notes and send them to him. So he gave me his card with his e-mail address, which showed that he was Executive Vice President of Corporate Banking at the very bank we really wanted to work with. Now there's a coincidence. So much for the impossible!

Next time I'll have listen more to my own sermon: “He is able to do immeasurably more than all we ask or imagine, according to his power that is at work within us.” (Ephesians 3:20).

## **Then failure?**

It all sounds marvellous and it is wonderful when God seems to be blessing at every turn. But things

can go wrong and subsequent events were no so propitious. Subsequent events led to the abandonment of the project.

Under Ranil Wickremasinghe's premiership, in 2003-2004 the ruling United National Party introduced a new round of economic reforms and, most notably, made substantial progress on a Norwegian-brokered peace process with the Tamil Tigers. It was the combination of the economic reforms and reduced terrorism that provided the opening for our project.

However, in November 2003, President Chandrika Kumaratunga initiated a constitutional coup in Sri Lanka by suspending parliament and declaring a state of emergency. This was done on the grounds of national security, and the actions were within her Constitutional powers, but few doubted that it was a means of enabling her then-opposition Sri Lanka Freedom Party to gain power. In February 2004, the President dissolved Parliament and called general elections, which her party won on 2 April. The new government abandoned the peace pact that the previous government had made with the Tamil Tigers and overthrew the economic reforms. The agreements on which our project had been based were thereby nullified, and the political stability that was required for the project to be funded was destroyed. The project suffered a further blow when the Tsunami struck on 26 December 2004. The site we had been allocated and on which we had conducted geotechnical investigations was totally destroyed.

Looking back one can wonder what God had in mind in all this. At the time, we thought his plan was for a power plant which would provide environmental and social benefits. Maybe it was that in pursuing this project we had been given the opportunity to share the gospel of Jesus Christ with senior politicians from both main parties – at their homes and at their request – as well as many others in the beautiful country of Sri Lanka. We pray that something of what was shared will be used for the glory of Jesus.

## **Uganda**

### **Meeting with President Museveni**

I was invited to a meeting in Kampala with President Museveni to discuss economic, social and environmental development within Uganda based on an holistic approach to solving some very common problems. The problems are:

- reducing output from hydro power due to drought;
- increasing cost of importing oil, and environmental damage caused by burning it;
- electricity shortages, leading to a lack of refrigeration for food preservation, which discourages farmers from producing products like milk;
- migration from rural to urban areas, leaving good land unfarmed, which in turn leads to further reduction in food production, and to soil erosion; and
- in urban areas, increasing population causing garbage to accumulate, which in turn causes disease.

I am seeking to encourage farmers to grow energy crops (cassava, palm oil, miscanthus, etc) which can be used as fuel to generate electricity. The electricity generation is sustainable and does not cause environmental harm. A reliable electricity supply will facilitate irrigation for agriculture and essential services like hospitals. And in urban areas the organic garbage can also be used as fuel to generate electricity. Ideally, I would like to see mini power units for this programme manufactured in Uganda to provide employment opportunities and, in the longer term, export opportunities throughout Africa.

So far as I can tell, Mr Museveni has a genuine desire to see economic, social and environmental development in Uganda. If so, I am keen to assist if I can with the technical expertise for implementing a programme of mini power stations using energy crops and organic garbage. I would

love to see this as a practical expression of the love of Christ Jesus for the people of Uganda. However, I am aware that it is possible for naïve outsiders like me to be used to further political ambitions which do not always have the best interests of the people as their top priority. Hence the need for prayer and wisdom!

### **Encouraging outcome**

The meeting with President Museveni went very well. He brought in the Ministers of Energy, Agriculture and Finance, and after listening to the proposal said the Minister of Energy, “Make it happen”. So we met her later to go through the project details. The project is now in the hands of local people to take it forward.

Whilst in Kampala I also met a local church leader called Medad Birungi. I was disappointed not to have been able to benefit from his wisdom before my meeting with President Museveni due to the delayed travel. However, the Lord knew the circumstances and gave the words to say for *the Lord gives wisdom* (Proverbs 2:6) because, as Paul says in 1 Corinthians 1:30, *you are in Christ Jesus, who has become for us wisdom.*

### **Church support**

I have been doing similar work to this for some years in many countries; work in which my local church takes no interest because I am an engineer not a *missionary* or a *full-time Christian worker*. But our church supports various activities in Uganda because the Rector spend a year there. So when he heard I was going to Uganda he asked for details and spread them throughout the church asking everyone to pray for me. Since then there has been continued interest by members of the church in the activities in Uganda – but nowhere else!

In fact, of the dozens of countries I have worked in and visited, Uganda is by far the most truly Christian and the least needy spiritually. Every few metres along every street in the urban areas and villages there is a Christian church, school, clinic or shop. I loved the names: such as *The Hallelujah Book Shop* and *The John 3:16 Wellbeing Clinic*. I was told by an Oasis worker in Kampala that there are less than 200 street kids in that city but there are 203 charities registered to work with them.

By contrast, there is severe persecution of Christians in Saudi Arabia, yet there are opportunities for me as an engineer to talk about Christ. Whilst I was in Sri Lanka in 2003-4, 42 churches were burned to the ground by Buddhist monks and several Christians were tortured and killed for talking to Buddhists about Christ. North Korea is the most closed nation on earth and one in which Christians are most severely persecuted, but as an engineer I have had the opportunity to talk about Christ to the interpreters of senior politicians and business people without fear of recrimination. Last year there were opportunities whilst I was in Vanuatu, a poor Pacific island nation with little Christian witness. And I found the spiritual need and opportunities were no less when I have worked in secular European countries like France, Germany and Italy.

## **First Impressions**

Tony Fletcher

### **God’s guidance?**

It was with considerable trepidation that I drove along the A14 from Ipswich towards Gilmorton which is at the A14, M1, M6 junction, to attend my first CEA committee meeting at the beginning of

November 2007. How would I find the other people there? Perhaps more importantly how would they find me? Would I be able to contribute anything? Is this what God wanted me to be doing?

## **How can I help?**

Well John (Baden Fuller), whose house we met in, and his wife made us very welcome and it was worth the journey for lunch alone! The other two people present Nick (Stroud) and Paul (Darley) also seemed very nice and competent people, though what they thought of me I still do not know! I am still not sure whether I can contribute much, or if it is what God wants me to be doing. However I did come away feeling that there was a real need for something like the Christian Engineers Association and many more people should be contributing. Therefore I will do my best to do what I can, at least until others step forward and it is clear that the work is in better hands than mine. I feel that the fact that God prompted me to write a contribution to the CEA Perspectives journal, which led to an invitation to attend the committee meeting, and that I was enabled to make the journey and I felt it right to do so, confirms to me that it is what God wants me to be doing, at least for the present.

## **The committee**

John and Nick were the only actual committee members present at the start of the meeting. John explained that Chris (Raziah) was unable to attend and indeed unable at present to do much at all towards CEA as he was having to look after his father following an accident, as well as do a full-time job. Also David (Kay) had tendered his resignation which regrettably we had to accept. I know that David did a good job collecting in material for the journal and passing it on to John and we all hope that he will be able to continue to have a role even if not on the committee. In passing I should note that helpers, and observers of the committee, will be made welcome and valued, especially given the small size of the current committee.

## **Purpose of CEA**

As reported elsewhere in the official notes of the meeting by Nick, in the morning we had a discussion on the future and purpose of CEA. We were all disappointed at the struggles to keep a committee going and the relatively small number of Christian Engineers on the mailing list – estimated to be between 80 to 100 (a precise figure from Christians at Work was not available to us). In passing I would like to pay tribute to Nick and John who have been on the committee of CEA since its inception 20, or more, years ago and to all those who have served in the past. As we were all engineers of one sort or another we did a back of the envelope type of calculation. Given 60 million people (very approximately) in the UK suppose just one per cent count as engineers that makes 600,000 people. Now suppose that 5 per cent of those are Christians. That gives 300,000 people who could be participating in, and benefiting from CEA. That thought gave us real encouragement. As we discussed, I think we all felt that there was a role for an organisation such as CEA to share information, to act as a forum for discussion and to provide encouragement in sharing the Good News about Jesus by our lives, actions and words.

## **Need for CEA**

At the meeting Paul expressed this much better and more fervently than I can, but we all agreed and felt that the Lord was calling us to continue under His authority to fulfil these aims, and to do what we could to expand greatly the membership and therefore the usefulness of CEA. Personally I think there is a role for the CEA Perspectives journal in providing a forum for debate among Christian Engineers about the issues of the day. Climate change and the use of resources are obvious ones where engineers should have a view and can make an impact but I am sure there are plenty of others. Also I think it is good to read how engineers are providing appropriate solutions in countries where there is a need, and for examples and encouragement as to how we can share the Good News of Jesus legitimately through our working lives.

## **Spread the Word!**

Thus you will understand that we are sure there are a lot of Christian Engineers who are not members of CEA and indeed probably do not know about CEA at present. I would therefore urge all of you who are in contact with CEA to talk to your engineering friends and colleagues, who are also Christian, to see if they are interested in joining. It was suggested at the committee meeting that we should try to have representation at events such as Spring Harvest, New Wine and the various other Christian celebrations and festivals that occur throughout the year and that we may add a lot more members that way. We did not discuss the subscription but I am sure we would want to keep it at a level which was not a barrier to anyone joining. The aim of increasing the membership must be to make CEA more effective. We therefore hope you will join, or continue in membership if you are already a member, will pray for the committee and all the members, and try to contribute, as God leads you, to the discussion, information-sharing and encouragement, so that we can all lead more effective lives for our God.

Due to his work commitments, Paul felt that he could not commit to being a member of the committee at this time. However he did agree to try to attend the next committee meeting as an observer and to be an active helper. Thank you Paul and we need many more like you! I agreed to join the committee and will try to help anywhere I can.

## **Committee Report Autumn 2007**

Nick Stroud

Your committee met on 3<sup>rd</sup> November 2007 at John Baden Fuller's home near Leicester. Although there were changes in attendance it remained a roughly equidistant venue and had, for the travellers, the bonus of a good lunch as sustenance for us mid way through the meeting.

### **Changes of membership**

We acknowledged the support that David Kay had given to the Association, in particular for the Journal, over a number of years, and wished him well as he stood down from the committee. Family commitments meant that Chris Rasiah was unable to attend. Paul Darley and Tony Fletcher were welcomed to the meeting; Tony would become a member of the committee and Paul stood ready to help and be engaged.

### **Publicity**

We debated how to better interact with younger engineers and noted that for this group a lack of web presence means that we fail to engage and publicise what we do. Some Domain Names would be (have now been) obtained to allow us to move our current content, hosted by Christians @ Work (C@W) to a location which would more clearly advertise what and who we are.

We hope to use the support of Transform Work UK to help publicise the Christian Engineers Association at Spring Harvest. If any member is at Spring Harvest this year, please look out for and support our literature, which should be alongside that of Transform Work UK.

We noted that the C@W annual conference would be on 28<sup>th</sup> June 2008. Professor Keith Fox, the Chair of Christians in Science, had asked if CEA was interested in being involved in their 2009 event *Challenge of applied science*, in London. We agreed that we would engage with this.