Landwards

Agriculture • Horticulture • Forestry • Environment • Amenity

IAgrE Professional Journal www.iagre.org Volume 69, Number 3 Autumn 2014

SPECIAL ISSUE
EDUCATION AND TRAINING

Leading figures from the education and training sector give their views on the issues to be addressed to meet future industry demand

In this issue...

Biosystems Engineering

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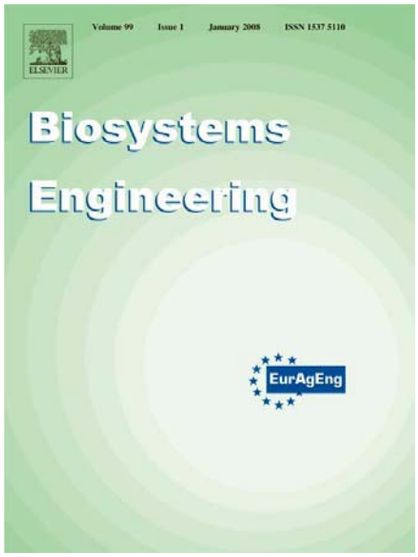

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The Managing Editor of ***Biosystems Engineering***, ***Dr Steve Parkin***, has kindly summarised some of the papers published in the last three issues which he thinks may be of interest to IAgrE members

Biosystems Engineering
Volume 123, July 2014, Pages 91-96

Anaerobic digestion of pig manure fibres from commercial pig slurry separation units

Ole Thygesen, Jin M. Triolo , Sven G. Sommer
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The composition of manure fibres from 17 commercially separated pig slurries and seven raw pig slurries were characterised in terms of dry matter, volatile solids (VS), protein, hemicellulose, cellulose and lignin. The average lignocellulose concentration in manure fibres and pig slurries was 790 and 370 g kg-1 [VS] respectively. Biochemical methane potential was ascertained after 60 days, revealing a trend in biochemical methane potential between the different separation technologies used: pig slurry > shaking filter and screw press combined ˜ decanter centrifuge > flocculation, belt and screw press combined ˜ screw press. The maximum methane yield of manure fibres from decanter centrifuges and the combined shaking filter and screw press was approximately 330 l [CH4] kg-1 [VS] at standard temperature and pressure (STP), while manure fibres from a screw press and a combination of belt press and screw press on average produced approximately 220 l [CH4] kg-1 [VS].

Volume 122, June 2014, Pages 62-73

Prototype semi-transparent photovoltaic modules for greenhouse roof applications

Akira Yano, MahiroOnoe, Josuke Nakata
Shimane University, Shimane 690-8504, Japan
Kyosemi Corporation, Fushimi, Kyoto 612-8201, Japan

Improved energy efficiency and the increased use of renewable energy are important objectives for sustainable greenhouse crop production. Two prototypes of semi-transparent-bifacial photovoltaic modules intended for greenhouse roof applications were developed. A module (PV1) using 1500 spherical solar microcells was produced. Thirty-nine percent of the area was covered with the cells. The remaining 61% was transparent to allow the most sunlight to enter the greenhouse for promising plant photosynthesis. Similarly, a module (PV2) was made using 500 cells. Thirteen percent of the area of this module was covered with the cells. The conversion efficiencies from sunlight energy irradiated into electrical energy were 4.5% for the PV1 module and 1.6% for the PV2 module. Calculations of the annual electrical energy production per unit greenhouse land area indicated that these modules are potentially suitable for greenhouses in high-irradiation regions where electricity production could be high and winter demand low.

Volume 121, May 2014, Pages 186-199

Path planning for the autonomous collection of eggs on floors

Bastiaan A. Vroegindeweij, , Gerard L. van Willigenburg, Peter W.G. Groot Koerkamp, Eldert J. van Henten
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Wageningen UR Livestock Research, NL-8200 AB Lelystad, The Netherlands

A problem in loose housing systems for laying hens is the laying of eggs on the floor; these eggs need manual collection. For collection using a robot, a collection path is required. A novel path planning algorithm is introduced for non-uniform repetitive area coverage (NURAC) paths and evaluated based on information about floor egg distribution probability. Firstly, a spatial map was developed that describes the potential for floor eggs at each location in a poultry house. Next, paths for floor egg collection are planned with a dynamic programming approach that covers the house floor area and frequently revisits locations with a high potential on floor eggs. With respect to the structure of the path and the number of visits to locations with a high potential, the robot paths outperform the farmer. Extending the floor egg model with feedback information could further improve the results.

The Professional Journal for Engineers, Scientists and Technologists in Agriculture, Horticulture, Forestry, Environment and Amenity

Landwards

EDITORIAL:

Preparation for life outside the school gates

CHRIS BIDDLE
Editor
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WHILST I was preparing this issue with its focus on Education and Training, two unconnected events were being reported.

First, the annual and much publicised opening of the envelopes revealing 'A' level results for the year, and almost the same day, news of the death of Robin Williams.

Commenting on the 'A' level results, CBI Director General John Cridland said, "Genuine concern over grade inflation in recent years means we should not beat ourselves up if grades and overall passes don't go up each and every year.

"What's more important is that we have an education system which fully prepares young people for life outside the school and college gates, with the skills and character to do well in life and to get an opportunity to show what they can do. There is a disconnect between too many young people's perceptions of work - and the reality."

And following the news of Robin Williams' sad death, that evening I decided to re-watch one of his most celebrated roles, that of John Keating in ***Dead Poets Society.***

What a terrific film, containing his *Carpe Diem* message to his pupils *Seize the day. Make your lives extraordinary.*

So there was a clear connection between both of these news stories.

Skills and character.

The recent CBI/Pearson Education and Skills Report found that the most important factors employers weigh up when recruiting school and college leavers are their attitudes to work (85%), their general aptitudes (63%) and literacy and numeracy (44%). These rank well ahead of formal academic results (38%).

Far too many school leavers are still leaving school lacking basic literacy and numeracy according to feedback from employers.

Can this be connected with modern mobile technology, truncated messaging, e-mail, texting and the like?

But we can't wind back the clock.

Educators from primary school upwards need all the help and encouragement they can to ensure that school leavers approach potential employees stimulated, with literacy and numeracy skills - and a real desire to make their lives extraordinary

The views expressed in Landwards editorial are those of the Editor, and do not necessarily reflect those of the Institution

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THIS ISSUE

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CEMA elect new president

Richard Markwell, Vice President and Managing Director Massey Ferguson in Europe, Africa and Middle East (EAME), has been elected new President of CEMA, the association representing the producers of agricultural machinery in Europe.

Mr. Markwell takes over the Presidency from Gilles Dryancour (John Deere) who has chaired the association for the past five years. The official handover took place during the last CEMA Board meeting in Brussels on 18 June.

Commenting on the election, Mr. Markwell said: "It is a pleasure and honour to take over the chairmanship of CEMA at such an exciting and challenging time."

British-born Mr. Markwell joined Massey Ferguson in 1975 with degrees from universities in London, England and Aix-en-Provence, France. With widespread international experience, he has held a variety of senior European sales and marketing positions with AGCO. Since 2005, he is Vice President and Managing Director Massey Ferguson in Europe, Africa and Middle East (EAME). Prior to this, he was Vice President Customer Support, EAME with responsibility for Parts and Service across all AGCO brands.

The CEMA President is elected for a two-year term and is eligible for re-election once.

Parlour Safe scheme discussed

MEA Dealer Conference success

L-R: Alastair Taylor, Institution of Agricultural Engineers; Mike Howes, T H White Ltd; Roger Lane-Nott, MEA; Mike Cullen, Reaseheath College; James Miller, Farmer

This year's MEA Dealer Conference was hailed a real success after over 80 dealers, technicians, processers and parlour manufacturers attended to discuss the Parlour Safe scheme and learn more about plans for 2014.

Hosted at Warwick Racecourse early in June, the Conference's content was focused firmly on '*what's in it for me?*' and saw keynote speeches from Mike Cullen from Reaseheath College and Alastair Taylor from the Institution of Agricultural Engineers, before a dairy farmer's view was shared by NFU's Dairy Board Member James Miller, and a dealer's view was shared by Mike Howes from TH White Ltd. The formal part of the event drew to a close with a Q&A session with representatives from Lely, Fullwood, DeLeval, GEA and Boumatic, as well as the speakers from the day.

"We were thrilled with the high turnout," explained Roger-Lane Nott, Director General and CEO of the Milking Equipment Association. "Not only did we have a very high number of dealers and technicians in the room, but we also welcomed representatives from many of the parlour manufacturers and from the processing world too which made for some lively discussions during the Q&A section.

"Our intention was to share an in-depth update on the Parlour Safe accreditation scheme and to encourage all of those dealers whose technicians successfully secured Level 2 of the LTA MEA to enroll on this year's Level 3 course - either at Reaseheath College or at their own venue. We chose to focus the conference as we did because we recognise that only by working with the dealers and the technicians direct will we be able to provide dairy farmers across the country with the peace of mind that their equipment is being properly and appropriately supported, and because we're passionate about providing quality dealers and technicians with the ability to stand out from the crowd."

Parlour Safe is a national qualification and accreditation scheme which was launched to provide a benchmark of the competence of milking technicians. Open to dealers and independent technicians alike, it was developed by the Milking Equipment Association (MEA) in conjunction with Reaseheath College and is administered by the Institution of Agricultural Engineers.

"The open discussions and feedback after the keynote speeches provided some interesting suggestions which we've taken on board and which will help shape the scheme as we move forwards. One of the areas we're now exploring as a result of the conference is the ability to provide exemptions from some modules of the Level 2 and 3 courses if other appropriately stringent training records can be provided.

"Not only will this help dealers and technicians save money and time, but it will ensure that those who are already highly skilled can be fast-tracked all the way to Level 4, Master Technician, should they choose," added Roger Lane-Nott.

•Since the MEA Dealer Conference, Parlour Safe has been continuing to liaise with dealers, technicians, manufacturers and farmers to showcase the benefits of the initiative to them. And, as a result, they are delighted to also now be formally promoting and marketing the scheme with features secured in leading industry publications including *Dairy Innovation* and *British Dairying*.

Visit the website for further info *www.milkingsystems.co.uk/parlour-safe*.

IAgrE welcomes new apprenticeship standards

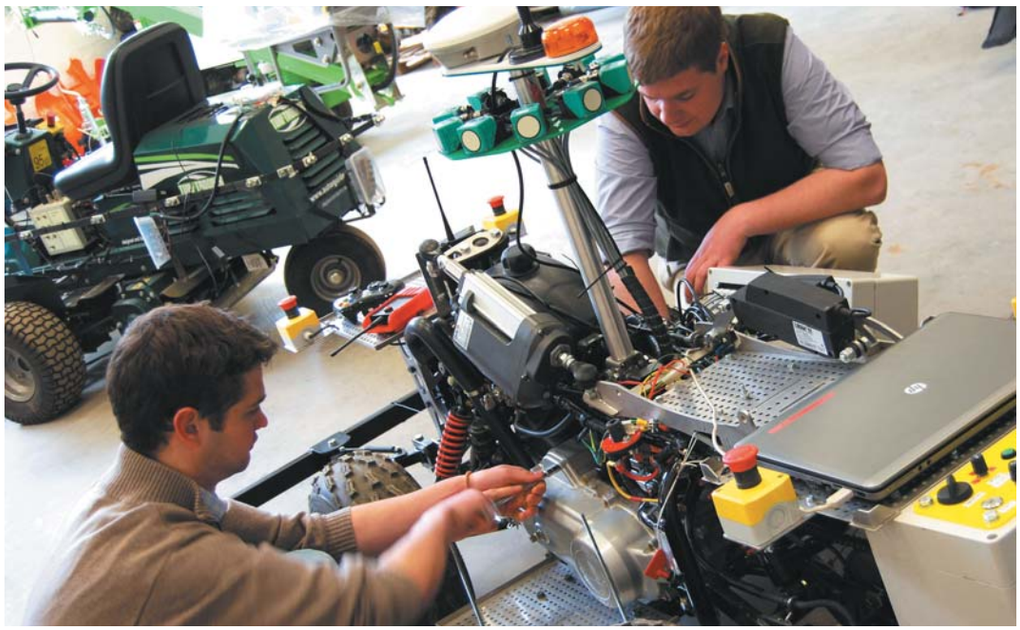
Trade bodies and manufacturers develop new guidelines

The apprenticeship standards for the roles of Service Engineer and Engineering Technician have been approved by the Government, in the second stage of its Trailblazer apprenticeship initiative.

The role of a **Landbased Service Engineer (LBSE) at Level 2 Foundation** (*tinyurl.com/m3csbdh*) and **LBSE Service Technican Level 3 Advanced** (*tinyurl.com/o9cm35v*) was published by the Government on 20 August and was included amongst 40 new standards in industries ranging from Accountancy to Aerospace, Dental Health to Digital Industries and including Golf Greenkeeping.

These have been developed following the October 2013 announcement to reform Apprenticeships so that they are more rigorous and responsive to the needs of employers. Phase 1 Trailblazer standards were published in March 2014 during National Apprenticeship Week.

"Technicians are the backbone of every dealership and as an industry we need to make sure we provide them with a structured training programme and a recognisable career path. With modern agriculture increasingly reliant upon fewer, higher capacity machines, service is the lynchpin of any forward thinking dealership. Farmers and contractors cannot afford to have their machine standing idle, which makes the availability of well trained, highly skilled service personnel essential and often a key consideration in the buying decision. To achieve best-in-class apprenticeship standards will also make the industry more attractive to new recruits and help dealers retain their highly valued technicians", said Alastair Tulloch, Claas UK Divisional Manager - After Sales.



. . . this new approach really puts employers and industry in the driving seat

Alastair Taylor, IAgrE CEO

The Institution of Agricultural Engineers (IAgrE) CEO, Alastair Taylor commented, "I am absolutely delighted that two apprenticeship standards have received the stamp of approval from the government. This new approach really puts employers and industry in the driving seat and will build upon the great work we have been doing to establish a single voice for the training of land-based engineering technicians."

IAgrE joined forces with the Agricultural Engineers Association (AEA), the British Agriculture and Garden Machinery Association (BAGMA) and machinery dealers such as CLAAS UK Ltd, Toro, Kubota (UK), AGCO Ltd, Ransomes Jacobsen,John Deere and Case New Holland to develop the standards for the new apprenticeships.

The Landbased Technician Accreditation Scheme (LTA), a scheme administered by IAgrE, formed the backbone to the new proposals. Under this scheme IAgrE, where appropriate, facilitates the registration of suitably qualified technicians as Engineering Technicians (EngTech) with the Engineering Council.

The scheme provides a nationwide means of benchmarking, monitoring and assessing the competence of technicians employed within the land-based sector.

"The next stage of the process will be to develop the operational standards and we look forward to working in partnership with training providers and employers to establish best practice delivery methods and welcoming those completing apprenticeships moving forward to become engineering technicians," added Mr Taylor.

- Read more about current Apprenticeship Standards - **tinyurl.com/o6x8lb4**
- Read more about the future of Apprenticeships and the Trailblazer initiative - **tinyurl.com/purd8to**

Proposed Centres for Agricultural Innovation welcomed

The Institution of Agricultural Engineers (IAgrE) has welcomed the government's proposal to create Centres for Agricultural Innovation that includes the theme of 'precision agriculture, engineering and sensor technologies'.

Alastair Taylor CEO of IAgrE said, "Last year IAgrE and the Agricultural Engineers Association (AEA) launched a discussion paper for consideration by the Agri-tech leadership council. The paper called for a Centre for Innovation in Engineering for Agriculture to be created to focus on harnessing the work of all relevant innovation and research partners in an inclusive and collaborative partnership.

"The Centres are part of the government's £160m investment strategy to deliver sustainable and affordable food for future generations. With the demand for food rapidly increasing world-wide, the strategy also aims to make the UK a world leader in tackling global food security issues. Developed in partnership with industry, the Centres will build on existing UK ability and join up multidisciplinary teams from industry, research, charities, non-government organisations and those not traditionally associated with the agriculture sector. It is envisaged that each Centre will be set up and operated by a single consortium of publicly and privately funded organisations, with small and medium-sized businesses playing an influential role.

"The next stage will be to invite applications from relevant businesses, large or small and academia to form consortia to create outline proposals on establishing and running the centres. The deadline for proposals is 15th October and we anticipate the Centres will be operational during 2015.As the professional body whose members have long standing expertise in these areas, IAgrE looks forward to contributing to the development of the consortia, supporting their implementation and ultimately delivering outcomes for the benefit of UK PLC," Alastair added.

Flood prevention strategy

IAgrE lead the debate

IAgrE is behind the Environment, Food and Rural Affairs Committee's report into the 2013-14 winter floods, launched recently, that criticises the Government's approach to funding the maintenance of flood defences and water-courses.

"In the long term the management of water requires a clear strategy. The government needs to recognise the importance of regular maintenance work but overall this is not the all-purpose solution. Farmers need to invest in improvements to their land drainage and factor drainage operations into their overall farm strategy," said Alastair Taylor, CEO of IAgrE.

Flooding not only occurs when water tables are high; a lot of flooding is down to the soil condition. Infiltration of rainwater into the soil is severely limited by loss of soil structure due to compaction. The use of increasingly larger and heavier machinery causing soil surface smearing, especially on wet soils. High animal stock densities, over working the soil, losses of organic matter, soil biology and so on all add to the problem.

Jack Rickson, IAgrE Fellow and Chartered Environmentalist comments, "Often the soil is relatively dry over a spade-depth down because water cannot infiltrate and without soil and water storage flood risk is increased. Many drainage schemes are poorly maintained but the concern is that draining land or dredging of channels will simply send the flood water somewhere else, possibly at a faster rate, so peak floods might be even higher in downstream areas - possibly urban areas with higher population densities."

IAgrE recently joined 16 other professional organisations to urge the government create a clear strategy and engage in appropriate long-term planning to avoid further flooding devastation in the UK.

The group called for a complete re-think to the way the country manages, stores and distributes its water, and how we plan both the natural environment and the built environment of our towns and cities to make them more resilient.

"There are many lessons to be learnt from the crisis and we need more agricultural engineers with an understanding of soil and water engineering. Environmental courses and training programmes need to include more focus on this vital subject. We need environmentalists to have a better understanding of the agricultural engineering solutions to this significant challenge," added Mr Taylor.

> "..the concern is that draining land or dredging of channels will simply send the flood water somewhere else"

Jane Rickson, IAgrE Fellow and Chartered Environmentalist

New Professional register will raise the profile and status of the 'technician' role

The value and importance of the role of the technician is being boosted by the introduction of a new professional register for Registered Environmental Technicians (REnvTech) which is being launched by the Society for the Environment (SocEnv).

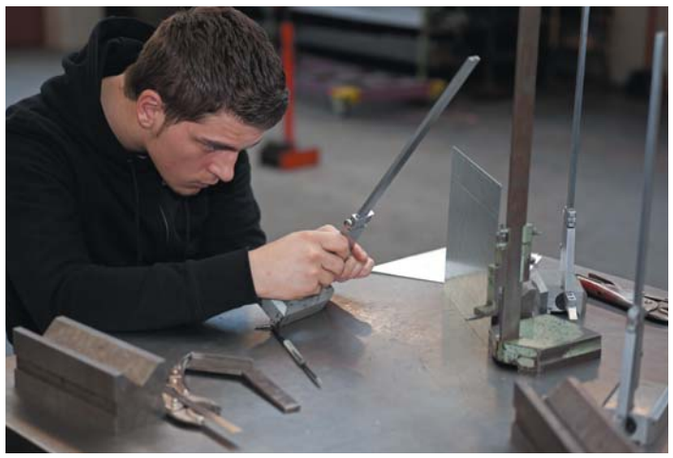
This new professional register is being introduced in response to the Technicians Council's call to raise the profile, status and numbers of technicians in the workforce following a critical report published by the UK Commission for Employment and Skills in 2009.

The report highlighted an alarming skills gap between the number of technicians presently working in the UK and the 450,000 required by 2020 to underpin a growing economy.

Alastair Taylor CEO of IAgrE said, "I believe many technicians working across the wider aspects of agricultural engineering from precision farming to waste management, forestry and soil conservation will be interested in this registration as it will help to validate the professional status of the role.

"As an Institution we have been successful in registering Engineering Technicians as EngTech and we hope we can develop the same level of commitment for REnvTech. It is absolutely vital that professionals are properly recognised and I really believe that eventually it will lead to end users asking the question as to whether the technician they are employing is properly qualified and therefore recognised."

To create the register The Society for the Environment worked alongside the Engineering Council, the Science Council and other professional organisations to provide the framework for the training of technicians. Joining the register will help individuals achieve recognition for their environmentally-related skills and for employers to be certain that their staff understand the value of professional development.



"It is absolutely vital that professionals are properly recognised"

Alastair Taylor, IAgrE CEO

"The race is now on to get the first REnvTech registration, so watch this space," Alastair added.

Ofsted praises facilities

Top marks for JCB Academy

The JCB Academy - Britain's only school dedicated to developing engineers and business leaders of the future - has passed its first full Ofsted inspection with flying colours.

Inspectors concluded that the achievement of pupils, the quality of teaching, the behaviour and safety of pupils and the leadership and management were all 'good'.

JCB Academy Principal Jim Wade said: "We are delighted that the inspection team saw so much that was good or outstanding at The JCB Academy during the recent inspection. It is particularly pleasing that the team recognised that progress in mathematics, engineering and vocational courses is outstanding and that 'the academy's work to keep students safe and secure is outstanding' and 'students state they feel exceptionally safe in the academy'".

JCB Chairman Lord Bamford said: "I'm delighted that the JCB Academy has been rated so highly by OFSTED in its first report. The young people attending The JCB Academy are not only receiving a fantastic education, they are also leaving with the exact skills and attitudes that employers in the engineering sector are looking for."

(L-R) Students Michael Woodward, 17, of Derby; Megan Barr, 15, of Lightwood, Stoke-on-Trent; Adam Ashworth, 14 of Bucknall, Stoke-on-Trent and Georgia Turner, 17, of Denstone, near Uttoxeter, celebrate The JCB Academy's Ofsted report findings

CEO View

A view from the Bullock Building

Alastair Taylor

It is a great challenge to describe to my ninety year old father in law what the CEO of the IAgrE actual does! He is from an era when it was pretty clear what a plumber, doctor, teacher, fitter or draftsman did for a living - now a days, things are much more complicated. So what do I do?

An interesting question and one which I will answer for members through a periodic update. So what are we up to in the Bullock Building? As I write this during August, the secretariat are busy with a range of important tasks.

Elizabeth Stephens, as well as dealing with everyday matters such as invoices, online banking and keeping an eye on the bank balance, is starting to prepare for the next meeting of the IAgrE Executive - agendas to be circulated, papers to be gathered, mid-year accounts to be reconciled, draft budgets to be compiled. All of this on top of preparation for the annual internal audit, advising me on matters relating to our investment income, VAT, governance and our legal obligations. It is a never ending task. Elizabeth has a wealth of knowledge on the organisation and there are few questions she cannot answer. A good job as I still have many to ask!

Marion King, who joins us for two days a week is busy maintaining our social media presence making sure we keep our Facebook page up to date and tweeting relevant information for members and wider contacts. In addition she is scanning the media and government policy for potential news items. This week, she has prepared two press releases, one for immediate release and the other, on the new Trailblazer Apprenticeship, ready for when we are in a position to do so. All need to be well written, punchy and hopefully eye catching. Marion also chairs the monthly communications meeting where we review the past months activities and think about what we need to be doing over the next few weeks. *Landwards* is at the top of the agenda.

Sylvia Harris is busy preparing a new e-news for members and is pulling together a range of stories and links. Alongside this she is uploading new information to the website (events, vacancies etc.) and making sure this is relevant and current. As we approach the autumn, she is pulling together the new Branch Meetings programme of events which involves liaising with the branch secretaries for up to date information. She is also circulating local event information to members. We are already thinking about the autumn council meeting and 2015 annual conference. Our Awards Panel meets in October and the call for nominations having been sent, both for student projects and members recognition, she is now collating submissions and preparing for that meeting. Sylvia is also responsible for maintaining the members' records and the recent introduction of a new system is challenging her at the moment.

Membership Secretary, **Alison Chapman** is busy communicating with student members as they leave college and university and become pre-professionals. Let's hope that more of these students decide to continue with their IAgrE membership - something we need to work on. Applications come in throughout the year and often these need some advice on the best grade of membership and registration. These are copied and forwarded to the membership committee for approval. The committee meets six times a year so there is always the routine of agendas, papers, and minutes. Alison is often the first point of contact and as such uses her customer service and telephone skills to the full.

We have a broad range of associates involved with the IAgrE. **Bill Day** and **Steve Parkin** edit and manage *Biosytems Engineering* and we meet with them from time to time. Mike Hurst looks after developing our website and database systems. **David Kirschner** acts as coordinator for LTA and was in the office earlier during the week to participate in a meeting we had with colleagues from AEA and BAGMA. **Chris Biddle** and **Steve Gibbs** look after Landwards.

> “My role is much more outward facing”

As the secretariat keeps the internal IAgrE machine running smoothly and makes sure we provide a good service to our members and maintain our Engineering Council and Society for the Environment licences, my role, as well as leading the team and dealing with those office based functions which require my input, is much more outward facing.

This engages me with a very broad range of activities, all of which I view as being important to the success of the institution. Over the past few months, this has been very varied and never mundane. Here is an overview:

- **INNOVATION CENTRE** - You should be well versed on the IAgrE response to the Foresight Report and the hard work which has gone on to promote the role of agricultural engineering in tackling the food production challenge. Much of this went on before my time but as the UK Agritech Strategy developed, it became clear that an innovation centre for our discipline was something which had potential. Along with others, IAgrE has put much effort into promoting this initiative to central government and with some success as we are now engaged in responding to a recent call to put forward a proposal for an innovation centre. This work will be high on the agenda for the foreseeable future and if it comes to fruition will open up good opportunities for IAgrE members.
- **APPRENTICESHIPS** - The opportunity to get involved with the new Trailblazer Apprenticeship was something too good to miss. Working with industry partners we have developed two new standards aimed at the important role of 'Land-based Service Engineering'. This has been a complex task with meetings, consultations, dealings with government officials and even the then skills minister - Matthew Hancock. Exciting developments but one which benefits the IAgrE with Engineering Technician (EngTech) status as the end point of the new apprenticeship. This also aligns with the Land-based Technician Accreditation scheme. Good for our industry and good for the IAgrE.
- **LICENSING AUTHORITIES** - Without the Engineering Council (EngC) and Society for the Environment (SocEnv), the IAgrE is nothing so a great deal of effort goes into ensuring we espouse best practice in respect of these organisations. A plethora of meetings, mostly in London, could fill most weeks so here we are dependent upon help from volunteers from the membership committee. It is an important job to keep an eye on what is coming over the horizon from SocEnv so activities such as the Registration Authority, Council, and the new Registered Environmental Technician (REnvTech) accreditation are all important. With both EngC and SocEnv, our five year licence event is set for spring 2015 so an update of policies and procedures is ongoing. Add to this the recent update to the EngC UK Specification for CEng, IEng and EngTech and you can imagine how much effort is needed to keep on top of all of this.

- **RECRUITING** - IAgrE is in a similar position to most other Professional Engineering Institutions where the age profile of members is, shall I say, 'not as young as we would like it'. Recruitment is an ever pressing matter so working with colleges and universities to recruit students is a priority. Recently we have been working with the Land Drainage Contractors Association to promote IAgrE membership and EngC registration to their members. We are about to develop a new mentoring scheme to support new members and have some ideas on a leadership challenge for early to mid-career members. At the same time, we seek to make the IAgrE offer irresistible to members - much easier said than done!
- **LAND-BASED TECHNICIAN ACCREDITATION** - owned by industry, managed by the Land-based Engineering Training and Education Committee, and administered by the IAgrE, this is an area of work which demands a great deal of time and effort. Promoting this to manufacturers, dealers, and the technicians themselves requires a continued push. The effort is worthwhile though as new manufacturers come on board and an increasing number of technicians sign up for EngC registration as Engineering Technicians.
- **SPECIALIST GROUPS** -Currently, I am developing two new groups, the first around Precision Engineering for Livestock Production as part of the National Centre for Precision Framing (NCPF) at Harper Adams University. I am on the steering group of the NCPF which is both stimulating and useful as it helps IAgrE to identify new boundaries and opportunities for our specialism. We are also developing a specialist group around health and safety which we hope will give those working in this important area a vehicle for sharing experience and expertise. Add to this our existing specialist groups and local branches, with the need to attend these where possible, and there has been plenty of engaging activity.
- **ROUTINE THINGS** - it goes without saying that the CEO role draws on a broad range of leadership and management skills. E-mails never stop coming in. Business plans need to be written. Reports for meetings need to be written. Members are supported and assisted where needed. The secretariat need support and assistance in their duties - questions to be answered, new ways of working established, coffee to be made (and drunk!).

It has been a busy year and it is difficult to capture all of the things we do in these few words. However, I hope this gives you an insight into some of the things we are doing.

In my mind all of these are vital to the future prosperity of the institution as well as being relevant to members and hopefully of benefit in terms of business and development opportunities.

WHY THE BULLOCK BUILDING?

For those of you who were unaware, the Bullock Building is named after Professor Peter Bullock who was a distinguished soil scientist and was awarded (collectively) the Nobel Peace Prize in 2007. He demonstrated the role played by soil in the earth's ecosystem and the impact of climate change on land degradation.

Professor Bullock joined the Soil Survey of England and Wales (SSEW) as a surveyor. He became a world expert in soil micromorphology after taking the post as head of the mineralogy section of the SSEW. After being appointed as Director of the Soil Survey and Land Research Centre in 1986, his involvement in national and international scientific and advisory bodies grew.

IAgrE is proud to be associated with such an eminent name.

Additional Editors Required for Biosystems Engineering

Biosystems Engineering is a peer reviewed journal owned by the Institution of Agricultural Engineers (IAgrE) and published by Elsevier. It is the scientific journal of the European Society of Agricultural Engineers (EurAgEng).

IAgrE is looking to recruit two additional Associate Editors to join the current team of three (Editor-in-Chief, Managing Editor and Associate Editor). It is expected that each Associate Editor will take editorial responsibility for between 55 and 65 submissions to the journal assigned to them each year.

The successful candidate will need:

- A high degree of proficiency in written English, either as first language or high fluency as second language
- To be technically experienced in significant aspects of the engineering or physical sciences associated with agricultural or other related biological systems
- To have a history of publication in international peer-reviewed journals
- Have significant experience as a reviewer for such journals
- Be experienced in decision-making in relation to scientific research.

As much of the work related to this position will be internet based, access to a good internet connection is essential.

In the first instance, interested candidates should write to:

The Chief Executive
IAgrE
The Bullock Building
University Way
Cranfield
Bedford
MK43 0GH
email: secretary@iagre.org

Closing date for Applications - 28 November 2014

Registrations show an increase in size

Larger tractors proving more popular

The AEA say total tractor power sold in the first 6 months was 1.053 million hp - an increase of 6.7%. The average size of unit was 151.6 hp which is a 2.6% increase on a year earlier.

An analysis by broad power group shows the biggest increases in the 141-160 hp sector but all groupings above 120 hp showed an increase in units registered when compared with the same period last year.

In terms of a regional analysis, Chris Evans, AEA Economist, said, "Northern Ireland and the North East of England are showing by far the larger increases over last year, being up 30.4% and 29.3% respectively.

"Few regions can really be ascribed to a particular farming activity although the eastern side of the country including Yorkshire & Humberside, Eastern England and the South East are generally associated with the arable sector and showed a slippage, or at most only a small increase."

MEA marks milestone

200th Level 2 candidate

The Milking Equipment Association (MEA) is celebrating after signing up the 200th Level 2 candidate on to its dedicated accreditation scheme, Parlour Safe.

To be eligible to enroll on the LTA MEA Level 2 programme, individuals need to have successfully completed Level 1 or to already be trained technicians with up to two years' practical experience. Candidates are required to further their knowledge of the milking industry by studying 27 distinct modules including everything from animal behaviour and physiology through to the more technical elements of parlour hydraulics and pneumatics over a two year period.

Roger Lane-Nott, Director General and CEO of the Milking Equipment Association, said, "This is a fantastic milestone for Parlour Safe and demonstrates the growing awareness of its value to all those involved in the milking industry. With the advancement of technology and the increasing sophistication of milking equipment, the need for fully qualified technicians has never been greater.

"The Parlour Safe scheme will not only help farmers ensure that risk to the wellbeing and health of their herd is minimised, but will also provide them with the ultimate confidence that they are receiving a high level of expertise in design, installation, maintenance servicing and repair from fully accredited technicians."

The first qualified technicians graduated from Parlour Safe in February 2013 and since then the scheme has enjoyed a number of successes with independent technicians and dealers from across the UK pledging their support.

Mike Cullen from Reaseheath College, which runs the accreditation scheme under the administration of the Institution of Agricultural Engineers, commented, "To welcome our 200th individual onto the scheme is hugely positive news for Parlour Safe and we are delighted that dealers, processors and individuals UK-wide are recognising the significance of it."

New training programme

Deere dealers get to grips with greenkeeping

John Deere dealers from across Europe have been brushing up on their greenkeeping skills and knowledge at Morley Hayes Golf Club in Derbyshire this summer.

The company's Golf Ready training programme for 2014 involved over 200 participants from six countries. The dealership staff, along with key John Deere turfcare personnel from the US and Europe, spent most of May and June taking over responsibility for the daily maintenance of the nine-hole The Tower course at the Midlands non-member complex.

Weekly groups of dealer salesmen, golf & turf specialists and service technicians were effectively simulating what a greenkeeping team would be doing on the course each day, alongside detailed product training on new greens, fairway and rough mowers and new pedestrian aerators for 2014.

Each day started at 7am, and involved a mix of practical indoor and outdoor training on the course maintenance equipment, including machine set-up, optimisation and operating procedures, safety requirements and product sales challenges.

In addition, an agronomy management presentation and a review of cultural practices plus a course walk were conducted with each group by experienced consultant Laurence Pithie of Turf Master One Ltd. Finally, after each mowing assignment was completed, the dealers had to wash down the machines in the yard before reviewing the day's activities.

"The Golf Ready programme meant our dealers could really understand and appreciate the full range and importance of the greenkeeper's roles and responsibilities, and the critical role they play in the successful management of any golf club," said John Deere Limited's turf division manager Chris Meacock.

President's Musings

Ideals for Professional Development

New IAgrE President, MARK KIBBLEWHITE, considers the importance of ideals and how mentoring is vital for our industry's future

Ideals are important to me. Years ago, I was standing in front of a derelict school building in South Africa where many of its future leaders and heroes, including Steve Biko, had been educated, but which had been 'expropriated' by the apartheid regime.

A faded plaque on the wall remembered one of the school's former headmasters, a Scottish missionary, with the words "*For James Stewart, who from these steps taught us life's ideals*". It made a big impression and it seems to me that the essence of a good education is about developing values that will sustain a person through inevitable challenges and give them the best chance of being good citizens. And this applies to our profession: we need colleagues who instinctively reach for professional values associated with making a contribution, integrity and fairness and who are robust and able to take on the challenges of a complex and unforgiving World.

Sometimes an idea really attracts you because it makes sense of lots of things. One that has done this for me is a simplification of the human world that says that in the end all communities can be mapped according to whether they prefer rules and regulation or not, on the one hand, and their emphasis on groups or individuals, on the other.

My own ideal is a society that empowers individuals and expects very high standards of individual behaviour without the rigidity of rules or deference to the group. It is not that I think there is no such thing as society or that I think all regulation is bad, rather that I dream of an ideal world in which individuals are fully-developed citizens.

I know, however, that this is the ideal and that reality must fall short and that is why we have to have some rules and corporate governance structures. All the same, we should be developing trustworthy and competent individuals as the first priority, rather than inventing ever more complex nets to protect them and us from anticipated failings. And this human development is the primary role of professional institutions like IAgrE, notwithstanding that we also have to set and maintain rigorous formal standards and qualifications.

The critical question that follows from the above is '*How best to develop a professional citizen?*'

And I stress that the important question is the 'How' one and not just the 'What they should know?' one, because for me it is about a process that develops the individual's abilities to navigate future unknowns as well as the more predictable of life's challenges.

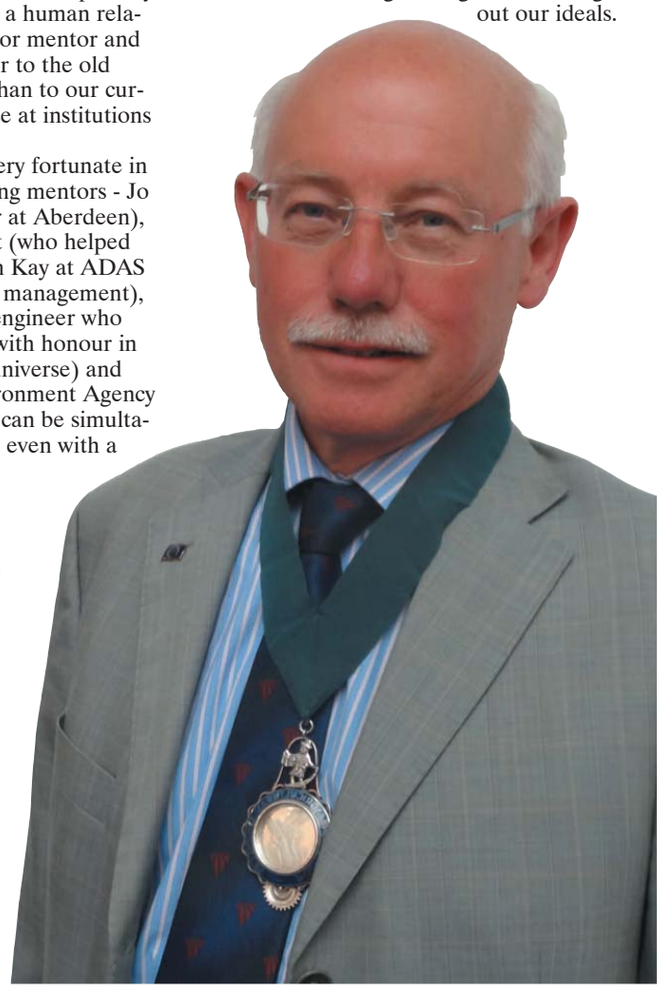
The process that has worked for me and I believe does for others is experiential and not one of formal learning and competency box ticking. It is founded in a human relationship between a teacher or mentor and a pupil and is perhaps closer to the old concept of apprenticeship than to our current emphasis on attendance at institutions and passing exams.

Personally, I have been very fortunate in having a series of outstanding mentors - Jo Tinsley (my PhD supervisor at Aberdeen), Dave Wood at Severn Trent (who helped me become Chartered), Jim Kay at ADAS (who introduced me to line management), Ian Watson (a mechanical engineer who showed me how to survive with honour in the commercial corporate universe) and Barbara Young at the Environment Agency (who illustrated how policy can be simultaneously radical and feasible even with a cynical establishment).

These and others helped me to develop as a professional and they did this with generosity. And my strong message is that this mentoring role is the most important one we have as professionals. It allows us to really make a difference to the future. And we should not hesitate to be bold in explaining and acting on our ideals as exemplars.

It also brings its own rewards. Often unexpected ones that enrich one's professional life, such as a letter I received last month from my talented 1981 chemistry student who was expelled by the apartheid regime from my class at Fort Hare University and ended up in the mines. I hope that our short time together helped him through hard times and towards his eventual success as a highly regarded PhD chemical engineer.

These are the things that matter. IAgrE and its members can grow and be even more successful if we all look for opportunities for mentoring colleagues and living out our ideals.



. . the essence of a good education is about developing values

The Douglas Bomford Trust, The Bullock Building, University Way,
Cranfield, Bedford MK43 0GH
Telephone: + 44 (0) 1234 750876
www.dbt.org.uk enquiries@dbt.org.uk
Secretary: **Paul Miller** Administrator: **Elizabeth Stephens**

Activities of the DOUGLAS BOMFORD TRUST

An update

Reports of technical visits that received funding support from The Trust

An important part of the work of The Trust is the award of travel grants that enable recipients to attend conferences, workshops and/or work with groups away from their home location.

Below are edited extracts from two reports submitted this year as a result of grantees completing such visits (Full versions of these reports are available from the DBT office).

From Dr Branislav Vuksanovic, Senior Lecturer at the School of Engineering at the University of Portsmouth - visiting Curtin and Wollongong Universities in Australia as part of work to establish a project concerned with *'Ground Penetrating Radar (GPR) - based Water Reservoir and Pipe Work Inspection Systems'*

The main purpose of the visit was to explore the possibilities for collaboration with the research groups based at the two Australian universities. There is no GPR expertise available at the University of Portsmouth and very little work done in the area of digital signal processing for GPR data in UK. Thus this visit was important for the work I intend to pursue in order to get up to date with current work and developments in this important research field and relatively new GPR technology.

During the first part of my visit I was hosted by the Communication Technology and Signal Processing research group which is part of the Department of Electrical and Computer Engineering at Curtin University in Perth. The time spent at Curtin provided a useful experience although during this period it has become clear to me that the group expertise and research interests are moving away from the ground penetrating radar (GPR) technology. However, I was given a number of useful suggestions about the possible algorithms (Independent Component Analysis in particular) that might be worth exploring in more detail in the next stage of my research.

The second part of the visit was to the University of Wollongong in New South Wales. Here I was provided with Matlab software developed during a project conducted at the university and described in key publications. I am currently trying to extend it and use it to analyse some of the data I have obtained at the Portsmouth University laboratory.

The whole trip and the research visits I have made have greatly benefited me and my research work. At the same time I have managed to improve my chances of obtaining further support for my research by preparing the Fellowship application in the research oriented environment. Thus I am grateful to Douglas Bomford Trust for the help and support they have provided for this trip.

From Jean Mtethiwa, Cranfield University - visiting Malawi as part of project work concerned with *'Sustainable Irrigation Development: Assessing the potential for small-scale pumped irrigation systems'*

The main objective of the field research work was to collect field data from stakeholders and small-scale irrigation (SSI) pumped systems users in Malawi in order to inform the on-going PhD research project currently being undertaken at Cranfield University. The aim of the PhD is to identify the potential and options for supporting sustainable development of SSI pumped systems and their future development in Malawi and Sub-Saharan Africa.

The field research used various types of data collection method. First formal and informal meetings were conducted with government officials and relevant stakeholders at both higher and lower level in order to understand the extent of SSI pumped systems and select the study locations. Two districts from Central region of Malawi were selected for an in-depth study, Lilongwe and Ntcheu. Selection of the districts was based on convenience and prevalence of diverse SSI pumped systems in the region.

Second, a reconnaissance survey was conducted in selected communities where SSI pumped system were known to be taking place. Selected interviews with selected key informants were conducted to ascertain the existence of the pumped systems and their mode of operation.

Third, a detailed in-depth survey was conducted in selected communities using the information collected from reconnaissance survey and snow ball sampling. Finally relevant stakeholders were interviewed and documents were analysed to compliment the findings.

The study managed to collect adequate data to inform the initial objectives of the field visit. So far the preliminary results from the fieldwork have been communicated to the research community through a poster presentation in a Conference organised by Cranfield University in February 2014. However, a second field visit will be required in order to fulfil the main aim of the on-going PhD research project and the results need to be communicated to a wider community through oral presentations in other Conferences and Publications.

Post-graduate research funding

The Trust is pleased to report that two of our sponsored post-graduate research students have successfully completed and defended their PhD theses and will be awarded their Doctorate degrees from Cranfield University. They are:

- **James Ulyett** whose project was concerned with the application of Biochar to arable soils and the impact of this on nutrient and water dynamics; and
- **Raed Al-Asadi** whose study examined combined impedance, visible and near infra-red spectroscopy techniques for the non-invasive in situ measurements of soil compaction.

Studentships and prizes

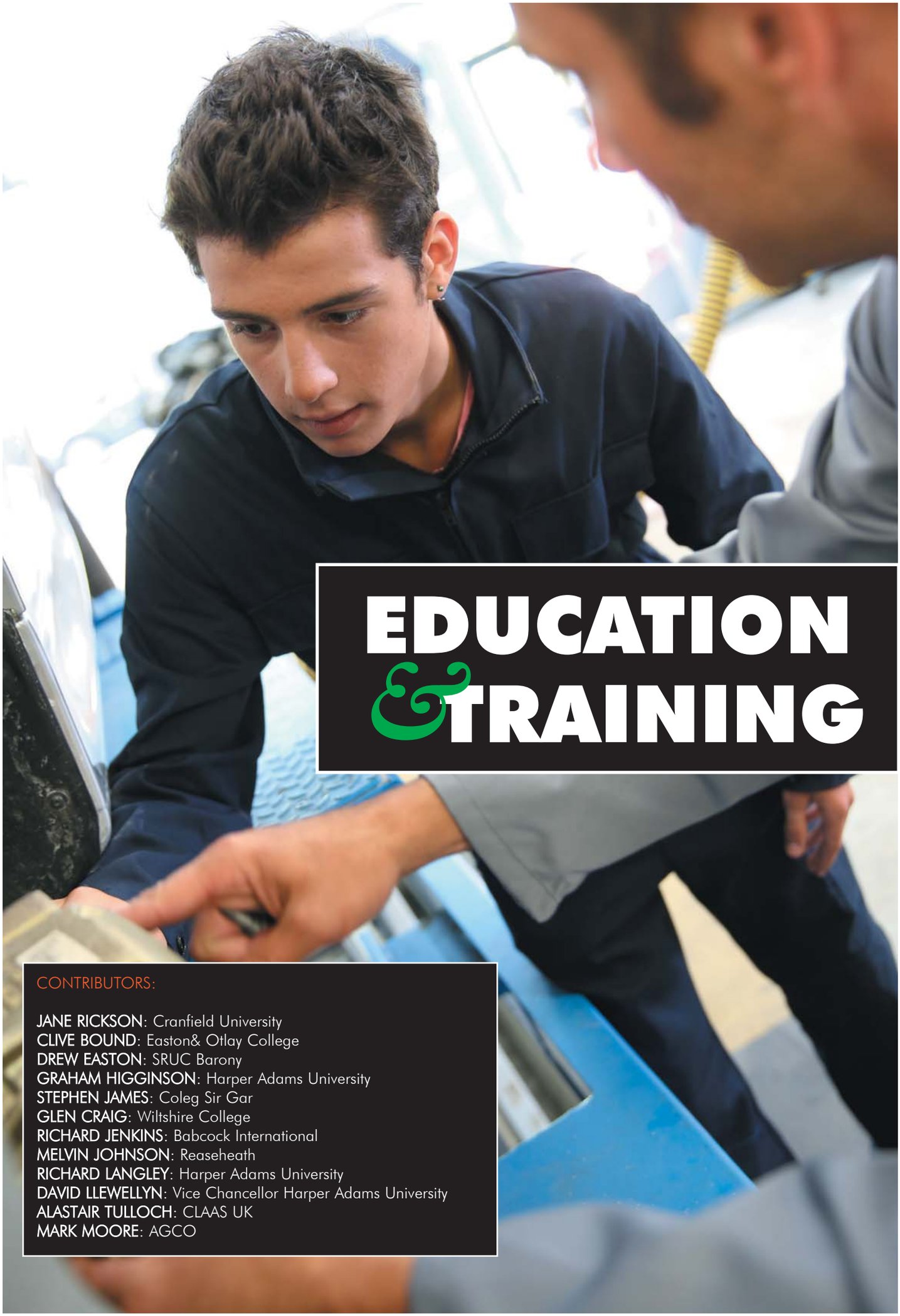
STUDENTSHIPS

Congratulations to two of our Douglas Bomford Trust sponsored under-graduate students at Harper Adams University for the 2013/14 academic year, Andrew Dawson and Cormac Flaherty, both of whom are to be awarded 1st Class Honours degrees. The degrees will be presented at a Graduation Ceremony on 19th September that will be attended by Paul Miller representing The Trust.

PRIZES

Very many congratulations also go to Alexandra Cooke who was awarded the Douglas Bomford prize for the best student on the Land Reclamation and Restoration course at Cranfield University. The award was presented at a Prize Giving Ceremony ahead of the main Graduation Event at Cranfield University on 5th June.

Alexandra Cooke and Paul Miller



EDUCATION & TRAINING

CONTRIBUTORS:

JANE RICKSON: Cranfield University
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GLEN CRAIG: Wiltshire College
RICHARD JENKINS: Babcock International
MELVIN JOHNSON: Reaseheath
RICHARD LANGLEY: Harper Adams University
DAVID LLEWELLYN: Vice Chancellor Harper Adams University
ALASTAIR TULLOCH: CLAAS UK
MARK MOORE: AGCO

VIEWS FROM THE EDUCATION SHARP-END

This special Education and Training feature is both timely and relevant **writes Editor Chris Biddle**

WE are witnessing a visible shift in educational strategy, with both encouraging and worrying aspects.

In a recent report ahead of this years 'A' level results the CBI said, "Although academic and vocational routes have always existed, in recent times a focus on 'A' levels followed by university as the 'best' route to a 'good' career has damaged perceptions of vocational routes, narrowing young people's options. "

For example, while 62% of young people surveyed had received careers guidance on traditional routes like A levels and university only 26% had information on apprenticeships and only 17% had received advice on vocational qualifications.

"There is still a way to go before the quality of vocational routes matches the quality of academic options," adds the CBI. "To address this the next government needs to focus on delivering an education system for 14 to 18 year olds which leads to a gold standard qualification for every young person, regardless of whether the route is academic or vocational and regardless of who provides the training - schools, colleges or employers.

"Each young person should then have an individual learning plan, aligned to their interests and strengths that leads them to that high quality qualification."

QUALIFICATION REFORM

THE Government Reform Plan for Vocational Qualifications published in March 2014 indicated the types of qualification that would be recognised in future student performance tables.

In June 2014 the DfE published further details about changes in the structure and examination of those qualifications. The essential changes are:

- There will be a clear distinction between vocational qualifications for 14-16 and 16-19 year olds
- Qualifications for 14-16 year olds at levels 1 and 2 will be called 'Technical Awards'
- Qualifications for 16-19 year olds at level 2 will be called 'Substantial Vocational Qualifications'
- Qualifications for 16-19 year olds at level 2 will be called 'Tech Level' (Level 3) or 'Applied General' Qualifications (Level 3)

Commenting, Chris Moody, Chief Executive of LANDEX *(Land Based Colleges Aspiring to Excellence)* said, "We anticipate that all land based qualifications at level 3 will be 'Tech level' qualifications, except Environmental Science qualifications that will fall into the 'Applied General' category.

"40% of a 'Tech level' qualification will form a mandatory core, and 30% of the qualification must be externally set, marked and assessed.

"These are fundamental changes and all Awarding Bodies will be required to seek approval for revised qualifications by 2017. It is important that both employers and providers seek to inform the content and assessment of the revised qualifications, to ensure that they are fit for purpose and meet the needs of industry."

CAREERS ADVICE

MILLIONS of people today work in jobs, and indeed industries, that simply did not exist when their parents left school. Changes in technology, markets and customer demand open constantly evolving careers opportunities.

However in another survey by the CBI the great majority of employers (77%) believe that the quality of careers advice for young people is simply not good enough, but there is a readiness amongst employers to play a great role in delivering careers advice.

> . . . the quality of careers advice for young people is simply not good enough
> CBI 2014

The task of getting its message across for a small, relatively unsung and specialist sector such as the Land Based industry is particularly challenging

ENGLISH AND MATHS

THE mandatory inclusion of English and Maths, working towards GCSE qualifications, in all publicly funded programmes for 16-18 learners will pose a particular challenge for all providers, says Chris Moody.

"Motivating young people who have not developed the necessary skills after 12 years of compulsory education is likely to prove particularly difficult unless much of the delivery is achieved by integration with vocational subjects."

STEM SKILLS SHORTAGE

WHILST graduate numbers are improving, it is at the technician level that businesses are most concerned.

A truly comprehensive STEM (Science, Technology, Engineering and Mathematics) agenda must address the demand for both highly educated STEM professionals and the skilled workers critical to the output, implementation, development and commercialisation of ideas and innovations. While the overall supply of university-level STEM professionals shows positive trends, other critical STEM workers are in short supply.

A large percentage of the workforce in industries and occupations that rely on STEM knowledge and skills are technicians, a field in which businesses report a significant shortage.

CBI data suggests that technicians and experienced STEM staff are expected to be particularly hard to recruit (20% and 17% respectively). Some 20% of employers requiring STEM skills expect to have difficulties recruiting technicians in the next three years - twice the proportion of those expecting difficulties with graduate recruitment. *www.stemnet.org.uk*

HIGHER EDUCATION

THE allocation of an additional 30,000 higher education places for entry this September coupled with the removal of number controls in 2015/16 will present an additional challenge for land based FE colleges, which currently deliver nearly 50% of all land based HE qualifications. (8% overall delivered by FE Colleges.

Chris Moody says, "Whilst the media reports record numbers of young people seeking to enter higher education this year, and colleges report strong intakes, the traditional universities once relieved of number controls may seek to increase their intakes still further which could perceivably have an effect upon recruitment to colleges providing the more applied qualifications from 2015."

JANE RICKSON CEnv FIAgrE

Professor of Soil Erosion and Conservation in Cranfield University's Soil and AgriFood Institute

I teach postgraduate students on our Masters courses, including Environmental Engineering, Land Reclamation and Restoration, Integrated Landscape Ecology and Environmental Water Management. I also teach on a number of 'continuing professional development' courses, dealing with all aspects of soil science, including those in the Advanced Training Partnerships AgriFood programme, which is sponsored by the BBSRC. I also teach on the Soil Matters NERC sponsored training course for early career soil science researchers.

In contrast to my postgraduate and short course teaching, I go into my local primary school and teach schoolchildren from Key Stage 1 all about rocks and soil. I also supervise postgraduate research students at MSc and PhD level, which involves students undertaking training components, as well as carrying out the research itself.

I have a first degree from Kings College, University of London, where I specialised in geomorphology - the study of landscape forms and processes. I then took a Master's degree in Agricultural Engineering at Silsoe College, focussing on land resource management. My Master's thesis was on soil erosion and I have stayed in that subject area ever since! I started my teaching career as a Teaching Assistant at Silsoe College, and became a Lecturer in 1986, followed by Senior Lecturer and then Professor in 2007.

My job is a mixture of research, training / teaching and consultancy. When I am teaching, I might start the day with a lecture that the students will have accessed in advance via our virtual learning platform, Blackboard. This allows them to prepare all the difficult questions! Then we might all go to the Soil and Water Management Facility, where we can put the theory of the classroom into practice with a series of demonstrations. For example, we can create field conditions in our 25m long soil bin to observe the effect of different tillage implements in disturbing soil, or use our rainfall simulators to create the effects of extreme weather on soils.

I might set a group practical assessment on what we have seen, possibly in a consultancy-style format, suitable to be sent to an external client. This gives the students a range of transferable skills far beyond only learning the technical aspects of the course. I might also see my research students and help them prepare their experimental work, organise a thesis committee meeting or submit their final thesis!

I love the variety of activities. Despite doing my job for a number of years now, no two days are ever the same. I particularly enjoy interacting with the students, finding out about their background, what they hope to get out of the courses they have taken, and how we can tailor our teaching to meet their needs. It's great to see them develop new skills and knowledge. And it's good to stay in touch too - I still have contact with students I taught over 25 years ago! Every year I find I learn a great deal from our students, so it's definitely not a one way street!

I value my membership of IAgrE very much. I see how agricultural engineering is trans- and multi-disciplinary, and can help address many of the world's toughest challenges. These include how to produce enough food and energy to meet increasing global demands; how to reverse the loss of natural ecosystems; and how to cope with climate change and extreme weather events. Also, being a member is a great way to stay in touch with fellow professionals, as well as making new contacts in the industry. Through the IAgrE I have gained Chartered Environmentalist status, which has helped in developing my career.

> "I can see how agricultural engineering can help address many of the world's problems"

I think the biggest issue in training and education in agricultural engineering is supporting high quality students from around the world to undertake postgraduate degrees. A skills gap at the interface between engineering and biological systems has been identified by a number of reports, which can be filled by well-trained agricultural engineers.

We need to secure sustained funding of education and training from the Government, NGOs and industrial sources. The reputation of the UK for agricultural engineering training and education is still high around the world, despite the recent decline in provision. Training overseas students can establish major relationships with many developing countries, and there is a real opportunity to rebuild this bridge, to the benefit of the UK's global development agenda.

Professor Jane Rickson at Red Tingle

CLIVE BOUND IEng MIAgE

Vice Principal Easton and Otley College

My role is the Vice Principal for Easton and Otley College a specialist landbased college with campuses in Suffolk and Norfolk.

I manage the curriculum and all of the teaching staff through a team of Directors and Curriculum Managers. Our courses span from apprenticeships through full time further education to higher education and degrees delivered in partnership with the University of East Anglia.

The focus of the college is employment and we work very closely with a large variety of employers to ensure that the courses we run fit with their employment needs in terms of content and mode of delivery.

Landbased education is an exciting place to be at the current time with significant labour shortages across the sector, employers of all types are looking to colleges to provide the next generation of technicians to drive the industry forward.

I have spent most of my working life in education. However, I started off as an apprentice agricultural engineer working for a company called George Oakleys in Shrewsbury. What a great job, a man with a van and a box of tools travelling the countryside, particularly in my native country Wales, repairing whatever was thrown at me.

Although the company was the main dealers for Ford and New Holland, we repaired most makes of tractor and harvesting machinery. In my final year as an apprentice I had the opportunity to work with the manufacturers' engineers investigating and modifying new machines which had developed faults soon after their release on the market. It was very different work to the repair side and this interested me enough to make enquiries into the job opportunities.

I soon found that an apprenticeship was not enough and I needed an HNC. Encouraged by my tutor at Shrewsbury Technical College, where I studied agricultural engineering one day per week, I left Oakleys and started a full time Agricultural Engineering Course at Lackham College of Agriculture in Wiltshire. As the one year course drew to a close one of my tutors pointed out a job in Lincolnshire, a Workshop Technician at what was called Lindsey College of Agriculture, it's had many names since and is currently University of Lincoln. Once in agricultural education I stayed in the business and in Lincolnshire until I moved to Norfolk in 2008.

Agricultural education is a great career to be in, we change people's lives, set them off on a career path and then, years later, have the pleasure of meeting them at shows and events and finding out what they have achieved. The harder part is when past students bring their sons and daughters into college and remind you of how old you actually are and how long you have been in education.

> "Landbased education is an exciting place to be at the current time"

In my role I support all of the subject areas across the college. My passion is still agricultural engineering which we deliver at the Easton Campus to full-time and part-time apprentices. However, I don't get the opportunity to get my overalls on and teach which may be a good thing!

All of my students are encouraged to join the Institution. I believe it gives them a broader insight into the industry and raises their aspirations. This year they won the electric vehicle challenge, so I was very proud of them. However, finding good engineers to teach is probably my biggest challenge and could in the future have a major impact on our ability to deliver high quality courses. To try to overcome this problem we have started an Intern Programme to enable us to train our own teachers for the future.

DREW EASTON IEng MIAgE

Senior Tutor and Dean for the SRUC Barony Campus

My current job is Senior Tutor and Dean for SRUC's Barony Campus, Parkgate, Dumfries; I have a responsibility for the campus and its staff to ensure we remain fully operational and deliver effective education and training to students studying Agriculture, Animal Care, Aquaculture, Engineering, Equine Studies, Forestry and Arboriculture, Horticulture and Veterinary Studies.

I started my working life as an apprentice agricultural engineer for William Elder and Sons, Newtown St Boswells, in the Scottish Borders who were Massey Ferguson agents. As part of the apprenticeship programme I attended the local Technical College in Galashiels and studied for my City and Guilds qualifications. If I am honest this is what got me 'hooked' on learning.

I then went to work as a technician for John Rutherford and Sons, Earlston, in the Scottish Borders who were agents for International Harvester and CLAAS. During my time with Rutherford's I was involved in demonstrating some of the first Axial Flow Combines to come into the country and enjoyed the development aspect and close working with the manufacturers which was required to make the combines work to their potential.

I left the industry to come to Barony College on a one year contract to help support the Engineering and Agriculture programmes and to establish a new Introductory Level Agricultural Engineering course, working as a lecturer with a small established team. I left Barony after 18 months to study for higher level

qualifications in Agricultural Engineering and was fortunate enough to have the opportunity to re-join the college when I completed my studies, the rest as they say is history.

At that time as a lecturer at Barony you had to deliver engineering subjects to a range of courses from introductory level to HND, as well as the theoretical aspect of the topic we were also required to undertake a significant amount of practical work with the groups, which I enjoyed. I have been fortunate in that Barony has developed a lot since I have been at the campus and this afforded me the opportunity in due course to head up the Engineering and Agricultural provision, and following further growth and restructuring Engineering on its own from 2006 until 2013. Since then I have had cross campus responsibilities as Senior Tutor and Dean, although I still manage to have some involvement in teaching and with the industry groups which I find enjoyable.

A typical day would see me touch base with staff to get a feel for what is happening that day. There is always a large number of e-mails to respond to and I would have my own diary for the day that would invariably have a number of meetings scheduled, either on or off the campus, I may get involved in some teaching to assist delivery teams although my student contact hours are less now than they used to be.

I enjoy helping people, whether it is students, staff, industry representatives or the general public. I am interested in technology and this job enables me to keep in touch with developments through the relationships we have with dealers and manufacturers. IAgrE promotes professional and educational standards within the industry, as a body it represents members interests at all levels and facilitates CPD!

The biggest issues facing training and education for agricultural engineering are ensuring we retain an infrastructure to support training and education at all levels and encouraging young people to consider Agricultural Engineering as a career choice.

I enjoy helping people, whether it is students, staff, industry representatives or the general public

- Drew Easton

It is essential to recognise that the students bring experiences and knowledge too

GRAHAM HIGGINSON IEng MIAgE

Lecturer at Harper Adams University

I am currently a Lecturer at Harper Adams University, lecturing on topics including vehicle technology, hydraulic and electrical principles and agricultural mechanisation to FdSc, BSc, BEng and MSc students. All Harper Adams University undergraduate courses include a placement year; therefore my role includes visiting students whilst they are out on placement.

A typical working day includes enhancing my knowledge base by researching latest technologies using professional publications such as *Farmers Weekly*, *Landwards*, *Profi* and social media relating to the subjects taught ensuring my lecture notes and presentations are current. Teaching is workshop based as well as the in the Douglas Bomford lecture theatre in the Agricultural Engineering Innovation Centre.

From a farming family, I learned engineering skills from my late father, which sowed the seed for my engineering career. Graduating from Writtle College in 1992 with a HND in Agricultural Engineering, which led to employment within the agricultural engineering sector, for example with Coleman Engineering and Rayner JCB; where I was a service engineer visiting customers on site to perform service and maintenance activities. Whilst at Rayner JCB, I was the first JCB service engineer who was trained on the then new 2000 and 3000 series Fastrac products - I always insist this is my claim to fame.

Late 2000, I embarked on my teaching career, being appointed as a lecturer at the then Walford College, Shropshire, where additionally I studied for my Cert Ed as well as D32/D33 NVQ assessor qualifications. I was later promoted to Head of Department.

2005 saw me join Reaseheath College to deliver maths and science to National Diploma Land-based Technology students. In addition to this role, I developed the FdSc Machinery Dealership Management course, validated by Harper Adams University. Prior to my move to Harper Adams in 2013, I was fortunate to meet with Roger Lane-Nott and MEA members to develop and launch the Parlour Safe scheme to the milking equipment industry.

continues over

I enjoy keeping up to date with agricultural and land-based machinery through IAgrE branch meetings, visits to manufacturers amongst others and then sharing this new knowledge with colleagues and students. However, it is essential to recognise that the students bring experiences and knowledge too. The value of education is being able to learn from others.

IAgrE is important to me as it recognises professionalism within the industry at all levels, from Engineering Technicians typically at dealerships, through to Chartered Engineers working within manufacturing. IAgrE branch meetings recognise the diversity of agricultural engineering, including livestock, forestry, arable and professional groundskeeping, amongst many others. An essential role of IAgrE, I feel, is their commitment to young engineers through the annual Young Engineers Competition with innovation from fresh and inspiring young eyes.

On a recent IAgrE visit to IBERS Research Centre at Aberystwyth University, I learned more about plants being investigated for traits that would allow them to be cultivated in both arid and wet climates to help feed the world's increasing population. Therefore, I feel one of the biggest issues facing training and education for agricultural engineering is to keep up to date with latest research, and enabling the constant forward thinking as to how engineers can use new technologies to complement the fundamentals of engineering.

STEPHEN JAMES AIAgrE

Lecturer in Agricultural Engineering at Coleg Sir Gar

I'm currently a Lecturer in Agricultural Engineering (or in modern terms Land based Technology), working for Coleg Sir Gar, (Carmarthenshire college) in South West wales, based at the Gelli Aur (Golden Grove) campus near Llandeilo. I teach students at Level 1 foundation stage, Level 2 intermediate full time and part time work based learning apprentices, Level 3 extended diploma full time students and level 3 part time apprentices. I am currently course tutor for all Level 2 students and also Learning Programme Leader for BTEC qualifications.

To give you a brief insight into my background and how I have got to where I am today, it all started many years ago when I left school. Being a farmer's son and interested in all things agricultural, but not so keen on the long hours and seven day week of a dairy farmer, I enrolled on an Agricultural Engineering C&G 030 Technicians course at Carmarthenshire college, and then moved on to Lackham College in Wiltshire to complete the course.

After completing college I started working as a mechanic in a local Ford tractor dealership and gained my working experience along with manufacturer's training. When this company ceased trading I was fortunate enough to secure a job with Gwili Jones and Sons as a fitter / foreman working on many different machines and brands with a very diverse range of training including New Holland, Matbro, Taarup, Welger, and many more.

With the retail work increasing I soon became service manager, running the workshop and dealing with customers and warranty claims, training etc.

After thirteen years with the company I decided to start up my own business and became a self-employed Agricultural Engineer and started working part time as a lecturer at Carmarthenshire College. This gave me the benefit of passing on my knowledge to the younger generation and helping them on their career ladder, whilst still keeping in touch with the engineering side of repairs and fault diagnosis.

In 2008 a full time lecturing post in Agricultural Engineering became available at Coleg Sir Gar and I successfully got the job. I have gained my teacher training PGCE degree and an internal verifier qualification, plus many other CPD activities since then. In recent years I have become a member of IAgrE and the Association of Lecturers in Agricultural Machinery (ALAM) and I have been elected onto committees for both which I feel honoured.

As an industry that has given me such a good and varied career I feel very excited to encourage young people into our industry and help them develop themselves into one of the many diverse avenues that they can follow, and try to discourage the old myth that it is all about dust, grease and cow muck! (Which it was back in my day).

The industry is evolving at such a great pace that even the manufacturers are finding it difficult to keep up with the new technology, and so this is why we need to get out there and encourage young people to join the agricultural engineering industry, and I believe even going into primary schools to educate and involve them early on in their lives, so that they can start building their aspirations and have an exciting career to aspire to in agricultural engineering.

I also think that belonging to an Institution like IAgrE has many advantages and I encourage all my students to join every year (free of course) to be able to access the vast amount of experience and expertise available to them via email, publications or mentors, to help them in their chosen career path through meetings, seminars and workshops designed specifically for their industry.

Also the LTA is an important step forward to recognise a technician's achievement and status through training and qualifications which is part of most manufacturers' commitment to quality engineering technicians.

GLEN CRAIG EngTech MIAgRE

Programme Manager for Agricultural Engineering, Wiltshire College

My current role is that of Programme Manager at Wiltshire College Lackham. That means I have the responsibility for the running of the Land Based Technology and Farm Mechanisation programmes within the Agricultural Engineering department, along with being the internal quality assurance for Agricultural and Construction Plant apprenticeships.

However, I do still teach in the week which is why I came into education in the first place, that is to give some of my knowledge and experience to our up and coming technicians.

In a previous working life I did nine years with the Royal Electrical Mechanical Engineers and then worked for many years in industry, latterly as Plant Manager for the largest plant hire company in the country, Hewden Plant Hire. It was from that role that I came into teaching. I had apprentices training at Lackham and was asked if I 'fancied a bit of part time teaching', and like many others, that part time work turned into a full time position many years ago. I enjoy every part of my job that involves teaching students, be they on full time programmes or Apprenticeship Programmes. That, as I said earlier is the

reason why I came into teaching.

There are aspects that are not so good when we start talking about all of the funding issues and the cutting of course hours so that the books balance. But if you look at the bigger picture, teaching here at Lackham is the best job I have ever had. People give youngsters a lot of bad press these days but I don't see any of it; show them some respect and they give it back to you in bucket loads. We still have a lot of banter though!

Belonging to the IAgrE is very important to me. If we need to make changes within our industry one lone voice is not heard. With the many voices all coming together through the Institution you get heard and listened to, and many voices will have a positive effect on shaping the industy's future. I recently joined the IAgrE Education and Training Committee and look forward to getting involved further.

The biggest issues we face regarding training and education is one of funding but I am not going to get on my soap box here. I also think that the education and training within colleges and beyond needs to be streamlined with perhaps one awarding body. This will standardise the training for the whole industry and regardless of which college you go to everyone will have done the same course to the same standards of assessment.

RICHARD JENKINS

Technical Trainer at Babcock International Group

I am based in Nottingham and am a Technical Trainer at Babcock International Group working on the John Deere Advanced Apprenticeship Programme. I deliver knowledge and practical sessions to land based engineering apprentices who are starting out in their career.

Upon leaving college I worked in the agricultural industry as an operator and technician for a period of around ten years. This saw me work across two farms; one arable, the other, mixed arable and livestock. In order to gain some wider experience I then spent five years in arboriculture and forestry, it was during this time that I decided to seek opportunities to pass on the knowledge and skills I had gained over the years. I saw an advertisement for a technical trainer working alongside John Deere and knew that this was the natural next step in my career.

On a typical day, I arrive at work and ensure that everything is ready for a busy day of training, run through emails and print out any training notes that will be needed. At nine o'clock in the morning I greet the group of learners and discuss their evening at the hotel to ensure that there are no issues or concerns.

We tend to run a theory based session in the morning followed by a practical session in the afternoon. This helps to reinforce the theory content that we have delivered and helps maintain an interest from the learners. Training ends at four thirty in the afternoon with the learners getting transported back to their accommodation, this is where I set up any notes or tools needed for the following day's training.

I really enjoy de-mystifying subjects or systems; this element of my job is by far the most rewarding as I get huge satisfaction from seeing learners grasp a concept that was completely alien to them. My role sees me deliver to the same groups of learners over three years, the satisfaction gained from seeing them progress into competent engineers makes this one of the most satisfying jobs available.

I see IAgrE like a magnet that pulls all people from our industry together, it enables like minded individuals to share their experience and knowledge. It gives the industry a voice and promotes all that is good in the agricultural engineering community.

I get huge satisfaction from seeing learners grasp a concept that was completely alien to them

I believe that the same issues that we are experiencing in agriculture in general are shared by engineering. There seems to be a shortage of new entrants, keen and willing to put in the effort required to succeed. In this modern age, the image of agricultural engineering is not as good as it could be. This is a shame, as the technology we are dealing with is now so advanced that we are in some ways far ahead of other industries.

MELVIN JOHNSON EngTech MIAgRE

Head of Reaseheath Training

Melvin has been employed full time in Agricultural engineering since 1977. His first role was as a Service engineer working for a Massey Ferguson (MF) Distributor covering Shropshire and Mid-Wales where duties included maintenance and repair of MF tractors, Combines and Balers. Training for the role was in the form of a well-structured 4 year Apprenticeship and numerous MF product training courses.

He moved into Agricultural Engineering Education in 1988 as a lecturer in Agricultural Engineering at Reaseheath College, and has been employed at Reaseheath in a number of roles ever since, in the last 15 years as Head of Engineering and Head of Apprenticeships. Melvin's hobbies include, playing and watching Football & Golf, growing his own vegetables, restoring classic tractors and farm machinery and competing in vintage ploughing matches.

For the past 2 years Melvin has headed up Reaseheath's Apprenticeship department (Reaseheath Training). This offers Apprenticeship Frameworks to 500+ Apprentices, plus a small number of work based diplomas and Skills for Life qualifications (English for the speakers of other languages, ESOL) mainly in the Cheshire and surrounding counties. However the college does offer some significant nationally based Apprenticeship programmes in Agricultural Engineering, Parts supply and sales, Horticulture and Agriculture.

This role leads and supports the 25+ staff in this department, in a 'quality' and 'financial improvement' capacity. By the

continues over

time *Landwards* has gone to press the role will have been handed over to a colleague during the summer of 2014, as Melvin has moved into an H&S officer and quality improvement role for Reaseheath this month (September 2014).

He is a part time 'Ofsted Additional Inspector' and will bring this experience to the college in his new quality improvement role.

Melvin is very proud to be a member of the IAgrE, fully appreciating the value of the contacts and networking within the Institution in demonstrating integrity and a culture of 'continual improvement' in all aspects of the work he undertakes. The CPD gained through the Wrekin branch has helped him keep abreast of strategic Engineering developments in the industry over recent years as his role at Reaseheath is increasingly more of an educational management one rather than an Engineering one.

We are in an excellent position to respond to the training and education that will be needed to meet the future demands of food production

"Interestingly, the more I move away from an Engineering role the more I rely on the values of the Institution, the thought processes developed as an Engineer and support from members to achieve positive outcomes in the challenges I face," he says. Pleased to be able to give something back to the Institution, Melvin Chairs the 'Training and Education Committee', represents the Institution on the 'Land-based Education & Training Committee' (LE-TEC) and is a committee member of the Wrekin branch.

"We are in exciting times in terms of Ag Eng 'after sales' training and education; new apprenticeships coming on line, qualification up-dates, further growth of the LTA scheme all steered by the combined forces of the LE-TEC. Who knows what the machinery will look like to produce food for the increasing world population in the next 20 or even 10 years, but what the Agricultural Engineering community can be sure of is, as a result of all the work done and future work planned by the IAgrE and LE-TEC keeping fully abreast of strategic developments in our industry we are in an excellent position to respond to the training and education that will be needed to meet the future demands of mechanised food production," he says.

"The Agricultural Engineering community is something special. I have met (and still hope to meet more!) fantastic people through the Institution, and it is this professional support and friendship that I value most. The future for Ag Eng education is bright. Be assured we can respond to the changes we will face in a measured way. We still attract many great young people into our profession. The work of the IAgrE must continue to secure the future of these young people and subsequently our premiership Education and Training status in the wider Engineering community."

RICHARD LANGLEY CEng MIAgrE

Senior lecturer at Harper Adams University

My current job is a senior lecturer at Harper Adams University. This involves not only doing various teaching on topics such as farm buildings, potato and grain storage, tractor and machinery operation, but also coordinating the engineering placements at the University. This includes sourcing various jobs, encouraging the students to apply for them, and ensuring that the year-long jobs run as smoothly as possible.

I have been in education for quite a while; previously I was at Writtle College in Essex for many years, and before that, at Oaklands College, Hertfordshire. I was brought up on a dairy farm, and my brother farms this now; I still return to do some weekend farming whenever I can. Previously I worked for an agricultural contractor and worked as a self-employed trainer / assessor too.

A typical day in my life is very difficult to predict! Perhaps after arriving at work, I may be involved in half a day's teaching, on say, building construction. The other half of the day might be interviewing students to find out a little about them, in readiness for getting them to apply for a placement job. This will be dispersed with various phone calls, emails, informal chats with colleagues, and maybe a little time for a break or two.

I guess one of the most enjoyable parts of the job to me, is the variation of it. I particularly like speaking with different employers and then visiting them to see how the students are fitting in and creating a useful role for themselves. To see the students develop into valued 'employees' is particularly gratifying.

I think the IAgrE as an Institution is important to me; not only is it an industry-recognised organisation that provides me with all the technical backing that I need for my job, but it also gives me a body of highly qualified people who are highly approachable and friendly too.

As far as current issues facing training and education, indeed there are many. Where do I start?! For example, getting students to write placement reports can be a challenge sometimes but is a necessary skill to learn for future employment; then I have to read and mark them - perhaps 50 or more at a time! Then as soon as they are handed in of course they want them back.

"To see students develop into valued employees is particularly gratifying"

DAVID LLEWELLYN FIAgrE

Vice-Chancellor, Harper Adams University

The Vice-Chancellor is the academic and administrative head of a university and, as such, is responsible to the university's Governing Body for leading its operations, devising its strategic direction and promoting its values as an academic community.

But, those responsibilities encompass much more; from forging effective working relationships with the student body to engaging with academic staff with a wide array of disciplinary expertise; working with external bodies at local, regional, national and even international level; and, importantly, helping secure the resources necessary for the university to thrive. When he retired as Vice-Chancellor of Kingston University, Professor Sir Peter Scott said that, "The role is an intellectual one, with strong social and cultural responsibilities". I agree with this sentiment, not least because of the long-term contribution that universities make to their locality and region (and sometimes to the nation) as well as to the communities of practice represented in their subject areas.

Harper Adams, unlike many other universities, has a strong focus on rural industries and the rural economy, but my career background is mainly in university management, and has been largely based in cities!

My university career began in the early 1980s with administrative posts at Queen Mary College and King's College in London, from which I went on to become the Secretary of the Institute of Psychiatry, a postgraduate medical school based at the famous Maudsley Hospital.

In 1998 I joined Harper Adams as its Director of Corporate Affairs, and I became the head of institution in 2009. I can safely say that my administrative and management experience across a range of institutions has helped enormously with the many changes and challenges facing the higher education sector over the last few years.

My job is extremely varied. In addition to leading a senior team of staff I have to keep a watch on our student recruitment, the financial position of the University, our PR activities, our research portfolio and a wide variety of matters involving our students, at the same time as considering the strategic issues facing the organisation. I travel frequently, representing the University on national higher education bodies, as well as on rural matters, including, in particular, those associated with higher skills development in the agri-food sector.

It is a demanding job, but hugely enjoyable. It provides tremendous opportunities to work with exceptional people across industry and in the university sector, and it can also provide access to activities, events and places, including those in politics and national policy-making, that are not afforded to many people.

At Harper Adams we have a unique group of engineering academics, students and alumni who are making a major contribution to the field of agricultural engineering. We can only do this with industry support, for which we are extremely grateful.

Agricultural engineering needs more new entrants to meet industry demand

The IAgrE has also been instrumental in helping to challenge our thinking; in fostering links with industry; and in ensuring that our educational standards are maintained and enhanced. The Institution plays a vital role in a subject area which is being increasingly recognised for its potential to make a significant contribution to achieving global food security.

Like many engineering sectors, agricultural engineering needs more new entrants to meet industry demand; people who can be equipped to play leadership roles in the sector and who will continue to innovate to find new engineering solutions to the challenges that lie ahead. We hope to continue to work closely with industry to address these issues.

ALASTAIR TULLOCH MIAgrE

CLAAS UK After-Sales Director

My involvement in Agricultural Engineering started a long time ago! In growing up on a family farm, with an early interest in anything to do with engineering, I guess I was always going to be involved in a combination of these two functions.

I studied for two Engineering Diplomas and took industry placements in between, before starting with Manns as it was in the early 70s, which became CLAAS UK, as the Marketing Company for the product distribution in UK.

My initial role was as a Training Instructor and Demonstrator, with a move later into Area Service, followed by the National Service responsibility and then all the other After-Sales functions, of Warranty, Technical Support, Training and Service Parts, to become the After-Sales Director.

In Agriculture the seasons are always different and the challenges vary widely from year to year, but this is the interesting aspect of the job, because life is never boring or predictably repetitive! Being a small part of the evolution and development of agricultural machinery is very rewarding; in achieving the desired functions over a varied range of conditions to present successful products to the market.

This product development is on an exponential curve, with ever more complex technology involving a lot of 'mechatronics', for automated function controls, greater efficiency, telemetry, and various aspects of modern precision farming.

With this technology in the field every day, there is a never ending requirement for quality training, to ensure dealer Technicians as well as Sales and Parts staff, are able to support the products with confidence in a professional manner, as expected by today's customers.

It has been rewarding to be able to work with the IAgrE as well as other industry bodies, in a combined effort to address the common requirements for our modern world in Agricultural Engineering. There are a lot of dedicated people in our industry who work each day with a great deal of passion for development and progress in all aspects of this important function.

I would contend that there can be little else more important in life than the efficient production of food and energy, since we would be somewhat inconvenienced without these vital inputs! While these commodities are readily available, most people will take them for granted. Our challenge is to help maintain that situation for the future.

MARK MOORE FIAgrE

AGCO's Agricultural Development Manager for Africa and Middle East (AME)

Mark Moore is directly responsible for introducing mechanised solutions to farmers and is deeply involved in AGCO's Future Farm in Zambia

AGCO's Future Farm programme based near Lusaka is developing and transferring agricultural knowledge to both the commercial and emerging farming sectors in Africa. (Details can be downloaded from the IAgrE website).

The programme is an industry-led effort to help solve the issues African farmers face in becoming more efficient in food production. We don't pretend to have all the answers but we have a strong team covering all aspects of the supply and value chain. Our intention is to use teamwork to generate and disseminate education and knowledge. In essence, the concept is to bring expertise and know-how from around the world to Africa and see if it works. The project already has links to Harper Adams University in the UK and we have established a training programme on Controlled Traffic Systems.

I am responsible for educating and training farmers in Africa on good farm practice and agriculture issues. To facilitate this, we work with many governments, NGOs, R&D organisations and private sector companies. At the Future Farm for example, AGCO is aligned with a range of strategic partners who offer related training and support services in areas such as crop protection, precision farming and seed and fertiliser solutions. Our educational programmes do not just focus on a single element of the food production process. We take a systems approach. For example, one cannot simply educate on the operation of a planter unless the student understands the basics of crop establishment.

I have been involved with agricultural mechanisation for many years. I joined Massey Ferguson, now part of AGCO, in 1990 as a technical training instructor, teaching dealers on all aspects of the service and repair of MF machines. I quickly got involved in precision farming and helped develop the technology and its application in agriculture. This included the automatic varying of inputs (seed, fertiliser and chemicals) as well as yield mapping. Massey Ferguson introduced precision farming in 1991 and this formed the basis of my PhD which I completed in 1997. Since then, I have been directly responsible for helping farmers obtain value from precision farming technology. With AGCO's strong focus on Africa, I was asked to run the Future Farm programme and now get involved in the complete supply and value chain.

Precision farming is still a key area for me but it's only part of what I do. Today, the job is a mixture of managing projects, pulling together mechanised solutions for programmes in Africa and ensuring the Future Farm project runs smoothly.

AGCO's Future Farm is extremely practical and we grow a range of crops using modern agricultural practices. 2014 saw our second successful harvest of maize and soya beans. There is no doubt that the best way to demonstrate the value of a new practice to farmers is to take them into the field and show them first hand just what can be achieved. Our 150ha at Chalimbana had been neglected for many years but here is proof positive that mechanisation and appropriate technology can transform the land within a season.

For me, the most enjoyable aspect of my job is being able to make a difference. One constantly hears that, by 2050, 9 billion people will need to be fed but that we are running out of land. This is not true - there is tremendous opportunity in Africa. The FAO estimates that 15% of the world's arable land lies in Africa, yet 86% of it remains unused. AGCO's Future Farm project will be one of many initiatives which demonstrates how this natural resource can be employed in a sustainable way to feed the growing population. Politicians need to stop talking about it and start doing something - they are part of the solution just like the Future Farm project. We need to understand and work out how our industry can come together to feed the world.

IAgrE is an important part of my working life because it gives me the ability to network with likeminded professionals, discuss issues and brainstorm. Teamwork is definitely the order of the day. Clearly, there is a requirement for more people with a range of skills to teach agriculture and mechanisation at the sharp end. Furthermore, it is vital to develop new methods to deliver training education. By this I mean the use of modern technology and media. In Africa for example, it can be very difficult to get around, but the cellular networks are excellent (generally!!). In addition, we need a joined-up way to develop training programmes which take a systems approach to agriculture.

Established in mid 2012, AGCO's Future Farm is an exciting project to be part of. It has been a challenging two years but the investment and commitment of everyone involved is already reaping rewards. Training and knowledge transfer are fundamental to educate and ignite the interest of the new generation of farmers, farm workers and agribusiness entrepreneurs.

AGCO's Future Farm Project is an exciting project to be part of

Simplification not sophistication

A PLEA FROM THE HEART

Nigel Finch FIAgrE

Oops!

The dash board says stop and a buzzer suddenly wakes me up (I have been baling for 4 hours in a comfortable air conditioned cab listening to the radio).

"Oh hell, what's wrong now?"

Tractor sounds OK, baler sounds and looks OK, better check the instruction book on what the funny flashing symbol means. 10 minutes later none the wiser.

Its 4pm with six hours work left to do, weather forecast very poor, decide to go on and damn the consequences. Lights flash, incessant buzzer noise (must be more than 90 decibels), arrive back at buildings 8pm, job done, mentally worn out.

Next day trained engineer arrives plugs in his laptop. 2 hours later still unable to find fault, rings up manufacturer who advises that as the machine appears OK. Carry on and they will advise.

Next day manufacturer advises must be a sensor in the circuit board. To replace whole board £475, plus fitting estimate £250. We decide to ignore, tape over sign and cut wire to buzzer. Machine completes season without further disruption.

Tractor ploughing for 3 hours stops. The stop start switch OK but engine will not start again. "Ah," faulty fuel gauge, run out of fuel. "No," half full. "Ah, well fill up." Still spins but no go. Try injector pipe, no fuel, must be the injector pump. Call engineer.

He finds solenoid on pump will not work on less than full. 12 volts jump starts OK, replaces solenoid £150. We used to stop diesel engines with a knob to pull, I do not recall ever having a problem!

A few weeks ago we had a transmission break down on an otherwise sound tractor - estimate for repair £8,000. Value if OK £2,000. Dealer advises, "Scrap it." But just think of the energy that we are supposed to be saving.

If the tractor or any machine is recycled, crushing, melting, casting, machining, forming and fitting the reclaimed scrap to produce another one, just how much energy does this involve? Surely it would be better to build a better machine in the first place. The original cost and replacement of parts not particularly suited to agricultural conditions is not advisable or indeed necessary in many cases.

Those of us at the user end do not want or need many of the sophisticated often unreliable bits, pieces and gizmos manufacturers give us no option but to buy today.

We need unsophisticated machines, utterly reliable and long lasting, built with easy access for maintenance, and servicing. We do not want machines which take days to strip down to replace an unneeded part and days to reassemble. Crops can't wait.

In addition subsequent ability to rebuild should be taken into account at the design stage as we can rarely achieve economical trade in figures for exchange machinery. I see many rotting machines on farms.

Manufacturers are producing bigger, heavier, more and more complicated and hugely expensive machines. Most of which can only be purchased by contractors, and big corporations owned or sponsored by Global Companies who are often exploiting under developed countries, by buying up the best land and expanding for their own benefit and profit, not that of the indigenous people.

Those people who are losing not only the best land have no way of making use of the present machinery, and the sophisticated technological developments they contain. They are in need of the machinery and help to produce the food that's needed both in their own home country and perhaps abroad. Small to medium sized farms must be provided with simple reliable easy to fix equipment that many of us in the developed world would also find acceptable.

Some of these problems have been highlighted in a recent U.N. report on large and small farm output, the latter signaled as producing 70% of the world's food.

I understand manufacturers are setting up construction plants in developing countries to provide simpler machines for local needs? That's good but why not here? Will this help our balance of payments?

I suggest we will import more simpler machines than any sophisticated ones we export, and those we bring in will probably not last very long. Please fellow engineers and designers let us use a new word - *Simplelasting* not *Sophisticated*.

What's trending?

IAgrE and Social Media

by
ALASTAIR TAYLOR,
IEng CEnv MIAgrE
CEO IAgrE

Talk of 'Social Media' elicits a range of responses.

"A waste of time" say some, "just over self-interested politicians and celebrities with nothing useful to say". Others are a little more positive and talk about how they use Facebook to keep in touch with their children and to find out what they are up to. A college principal recently said, "We had to close the college due to snow and the best way of letting everyone know was through social media."

At the recent IAgrE conference '*Reimagining Agriculture - Engineering as the Strategic Enabler*' the first question one of the speakers asked was "Does the conference have a Twitter Feed and what is the hash tag". All of this is new language, new concepts, and a new opportunity. We will say more about this later.

Most organisations have some level of social media presence and in this respect the IAgrE is not alone. Many organisations employ, often as part of the marketing team, people whose sole job is to manage the online presence. All of this adds to the expense of running an organisation although it is probable that the marketing cost remains neutral since attendance by companies and organisations at shows and events is on the decline.

In this article, we will explain what the IAgrE is doing to maintain an online presence and harness the power of social media. Our online presence, beyond the IAgrE website, is the use of Facebook, Twitter, YouTube and LinkedIn.

TWITTER

If you can say it in less than 140 characters then Twitter is for you!

If it isn't worth saying then don't say or 'tweet' it! IAgrE uses Twitter to make announcements or comment on matters current and topical. The general premise is simple, that is if you have something good to say then other Twitter users will want to read it and choose to 'follow you'. There is a whole new language to understand here:

Figure 1 - A selection of IAgrE Tweets from Friday 1 August 2014

- **Tweet** - A message comprising no more than 140 characters. This might include a photograph or a link to another website. You have to be a good wordsmith to say what you want to say in just 140 characters!
- **Followers** - IAgrE has getting on for 500. These are a range of organisations and people who like what we have to say and choose to follow IAgrE. We are always looking for more followers
- **Following** - The people who you choose to keep an eye on. IAgrE follows some 104 organisations including the likes of the Engineering Council, Society for the Environment and Rothamsted Research as well as people such as Adam Henson, Simon Blackmore and Sir John Beddington.
- **Retweets** - We look to see what people are saying and what is 'trending' on Twitter. If we think the tweet is interesting and useful, we 'Retweet' the tweet. If people like what we are saying, then they might choose to 'Retweet' IAgrE news and comments. It is a measure of success if your tweet is retweeted!
- **Hashtags** - For example *#agriculturalengineering* are used to mark keywords or topics in a Tweet. It was created organically by Twitter users as a way to categorise messages. Once a subject starts to'trend' on Twitter, all users will use a hashtag

Twitter has many uses. IAgrE is typical of many organisations who use it to convey messages and points of interest to the community they represent. At the moment, this is the limit of our usage but there is much more we could do. For example, if you were to look back to the date of the 2014 annual conference you would see a number of tweets sent by the IAgrE as well as some for those who attended.

Another example of how we could use Twitter is the annual competition for our young members. A frequent relay of tweets could be used to show the progress being made by each team, the results as they come in, the winners, etc. This will permit those who cannot attend to keep in touch with the event and how their favourite team is progressing.

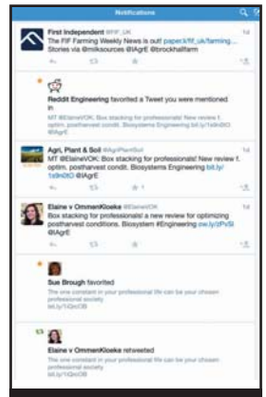

Figure 2 - Notifications page from Twitter

In *Figure 2*, a page of notifications can be viewed. For the most part these are the tweets from the various people who IAgrE follows and here we can see our Elsevier contact, Elaine van OmmenKloeke tweeting about a paper in the IAgrE's own journal *Biosytems*

Engineering. On the same page we can see that Sue Brough from the Engineering Council marked the IAgrE tweet, "The one constant in your professional life can be your chosen professional society". The same IAgrE tweet was also retweeted by Elaine van OmmenKloeke.

If you haven't joined Twitter to follow *@IAgrE* perhaps now is the time. You don't have to tweet if you don't want to!

FACEBOOK

Figure 3 - IAgrE's Facebook page

Facebook users fall into two broad categories - those who use it for personal matters, keeping contact with friends and family, keeping their community up to date on what they are up to. IAgrE, like many other organisations uses Facebook for commercial reasons but with the same general objective of keeping their community up to date on what they are up to.

A quick look at the Websites of most key players in agricultural engineering will show a link to their Facebook page where there is a plethora of information on current and new products as well as discussions and feedback. There is no doubt that these pages are a great benefit to these companies as they market their products and services.

With Facebook, the important aim is to generate a good number of friends who follow what you are up to and contribute to the discussion. For the IAgrE, it is the younger members, students and technicians following the Land-based Technician Accreditation (LTA) Scheme who we view as our target audience.

So be our friend! Sign up to Facebook and hunt us down. You will be amazed what you find particularly as with Facebook the word count is not limited and there is plenty of space for photographs and video clips.

YOUTUBE

YouTube is a powerful source of information. IAgrE has set up a dedicated channel where we upload information relevant to our subject.

Whilst we haven't harnessed this as much as we could, we did film a short interview between Peter Redman and

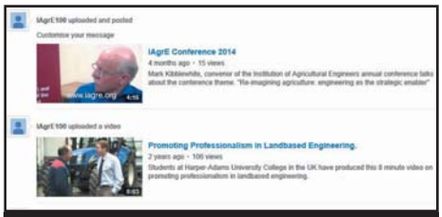

Figure 4 - An image of what you will find if you look up IAgrE100 on YouTube

Mark Kibblewhite in advance of the 2014 conference. It is amazing the quality you get from a compact camera or mobile phone these days. Some 150 people viewed this video - a tremendous way of promoting the conference and definitely something we will do again.

The next step is to pull together, in one place, as much as we can which shows the best of agricultural engineering and all of its various specialisms. There is no doubt that YouTube includes a very broad range of information from a diverse range of sources and the IAgrE has a role in making this accessible for our members - particularly those involved with training and education.

As for authoring more of our own media for up-loading to YouTube, it seems that all you need is a simple camera and simple editing software so we are likely to develop a few more video clips, particularly if we have something good to say, or want to make a point. So watch this space (or log on to You Tube) to see what is 'trending' or even 'going viral'.

Figure 5 - A past IAgrE President interviews the current IAgrE President

LINKEDIN

LinkedIn receives a mixed response. It is mostly used by individuals as a way of promoting their business services and background.

Many 'head hunting' companies will use LinkedIn to track down suitable candidates and if you are looking for an IT Consultant, LinkedIn is a good place to look. Some corporates will have a LinkedIn presence although the IAgrE has not chosen this route.

However, many IAgrE members including myself have a LinkedIn presence. This service gives its members similar facilities to Facebook and Twitter but one particularly useful facility is the ability to set up 'Groups'. I have established two on behalf of the IAgrE. One of these is a Parloursafe group for those involved in this part of the Land-based Technician Accreditation Scheme and the other 'UK Precision Engineering for Livestock Production' for those with an interest in this new and emerging area. Early days but a few other LinkedIn members have joined this group.

Figure 6 - LinkedIn discussion initiated by Mark Kibblewhite

More successful has been a group set up by Mark Kibblewhite following the 2014 Conference. With the simple name 'Reimagining Agriculture' this group was set up to give those who attended the conference, plus a few invited friends, the opportunity to continue discussion of the themes covered on the day. There are already over 60 group members and a very good range of discussion topics, with teaser questions posed by Mark. If you are a LinkedIn member, go and have a look and join in the debate. The image above shows a taste of what you will find.

There is no doubt the social media, like it or like it not is here to stay.

Whether you use a desktop computer, iPad or android phone, this form of communication is available twenty four seven. IAgrE has no choice but to get involved and we hope that our members see the benefit of this important tool.

If the focus of this issue of *Landwards* is around the importance of Education and Training then there is no doubt that social media, whatever form it takes, is a powerful tool in developing our knowledge and understanding of the industry we enjoy.

MEMBERSHIP ENQUIRIES
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Issue 69 Number 3 Autumn 2014

BRANCH REPORTS

PIONEERING TECHNOLOGY SPECIALIST INTEREST GROUP

VISIT TO CHEDHAM'S YARD

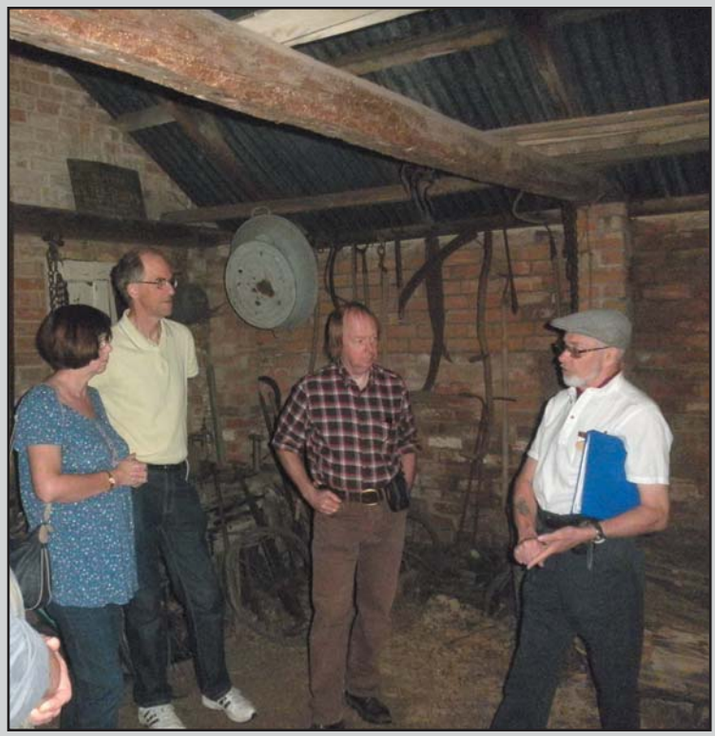
Historically, Wellesbourne in Warwickshire was a rural agricultural based village noted for things like the place where Joseph Arch founded the National Agricultural Labourers Union.

In the past it had a small family run blacksmith and wheelwrights workshop. However at the start of the First World War they took the farm horses away and along with the introduction of pneumatic tyres and the internal combustion engine the need for the skill of the wheelwright diminished. Later the need for a blacksmith also declined. The Chedham's family business adapted, doing general farm related maintenance work.

In the late 1960s the gate was finally closed never even having a mains electricity supply, to become a time capsule of the past and sealing 150 years of a family business. The whole yard was left in the state it was at the end of the last job. Bill Chedham continued to work elsewhere repairing vehicles until his proper retirement in 1993.

This very much overgrown time capsule was recognised by some local people as important and was bought by the parish council. With the help of English Heritage it won the BBC's Restoration Village competition in 2006. The Yard is now open to the public as an award winning heritage site.

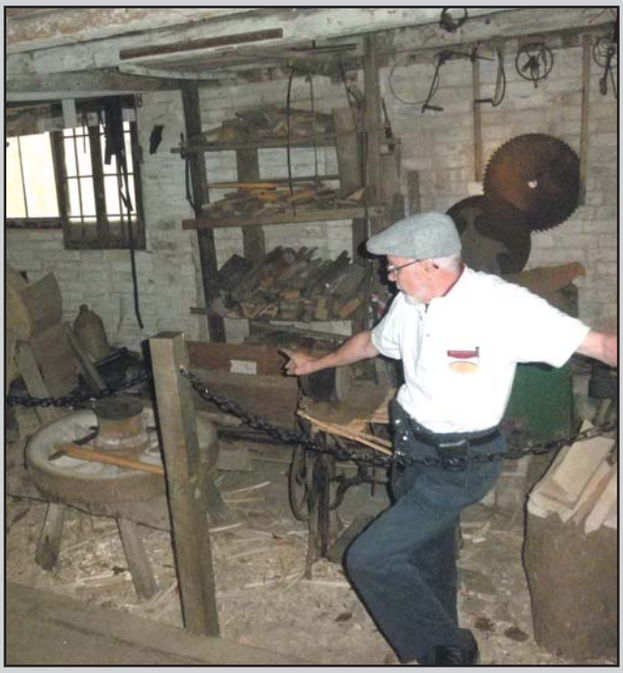
On our visit we appreciated the enthusiastic inputs of the volunteer team that run it and were appointed our own visit guide, who, after letting us sample the excellent cakes and coffee, showed us round the wheelwrights shop and the blacksmith shop - although I suspect some of our party had spent longer working metal than our guide!

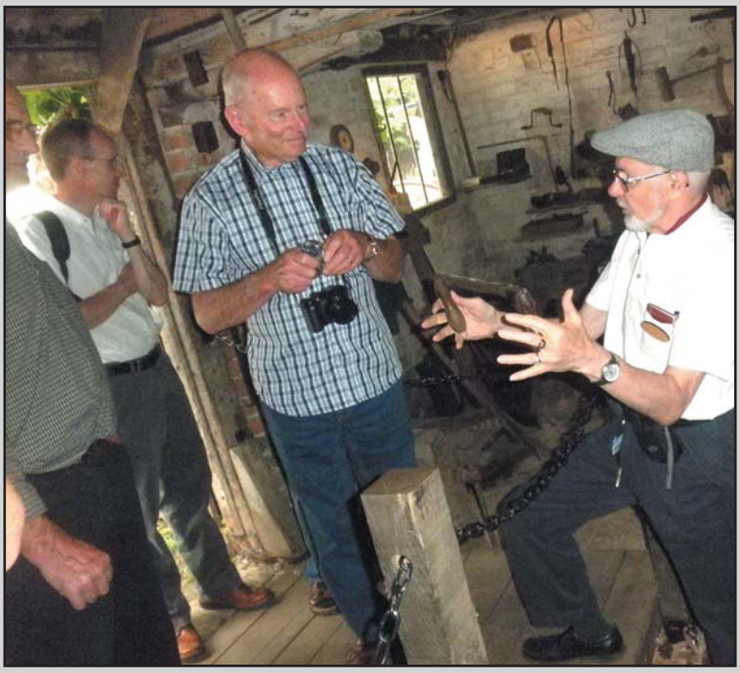


The special attraction was the continuing work on the horse drawn tip cart where they were fitting the refurbished wheels and grafting on new shafts. The steel wheel bands had been fitted on previous weekends.

After the visit we retired to the Stags Head for lunch and to toast the legacy of Joseph Arch with a special brew of Chedham's Ale.

William Waddilove





IRELAND BRANCH

MUCK & GRASS EVENT, GURTEEN COLLEGE

We were in a 3m x 3m unit which was part of a marquee, well placed being opposite to the main food/catering centre - a central location.

There was a lot of interest in Ag Eng. In particular, by a number of school and college career guidance teachers, individual perspective students, and parents.

We fielded a lot of the normal questions of 'where do we go / get jobs after leaving College?' This is where the display board of student profiles was very useful, especially when a number of former students were on site at their respective employer's demo areas, or on their stands.

As you can see from the photo, the stand was advertised as Agr .Eng. Education & Training. All colleges and places of training concerned with Agricultural Engineering, should have had a representative on the stand or, at least leaflets and details of their courses on offer.

There was a 'limited' interest in IAgrE, however the colour booklet giving details of a career in Agr Eng went like 'hot cakes' to perspective students and career guidance teachers. Perhaps it was the attractive presentation or possibly the fact that one was surrounded by high-power / state of the art farm machinery all 'bellowing for attention'!

On a more serious note, could something similar not be produced for Agr. Eng. in Ireland? After all we have plenty of 'home grown' manufacturers such as Dairymaster, McHales, Keenans, to name but a few ,who are all now significant players on the international market?

We have plenty of examples of former students who have either started their own business or are currently holding down good jobs in large farm machinery manufacturing companies. While not dismissing

the essential qualities of technical ability, aptitude and hard graft, it is something worth thinking about, for we must remember that good promotion and appropriate examples are essential to attracting a generation brought up on the internet and instant communication.

David Frizelle

Landwards e-Xtra

Ardent readers of Landwards may remember '*Gleanings*'?

They were useful, interesting and sometimes amusing articles or publications relating to the world of agricultural engineering. Often too long to appear in total in *Landwards* they were posted on the web and accompanied by relevant technical data.

We love to print IAgrE Branch reports but sometimes it's a challenge to fit all the material sent in by members into *Landwards*, so the editorial team has decided to promote *Landwards e-Xtra* as a way of making sure these excellent stories can appear in full accompanied by technical data, video links and speaker presentations, if appropriate.

Branches might want to use *e-Xtra* for more detailed reports on Branch meetings together with photographs, PowerPoint presentations and links to websites, video clips and the like. This will enable the extensive and useful information presented at meetings etc. to be captured and shared more widely.

RENEWABLE ENERGY - MORE FOOD FOR THOUGHT

The first *e-Xtra* article to appear in its entirety is Alan Plom's first-rate report of the South East Midlands branch tour of on-farm renewable energy facilities in Northants and Cambridgeshire entitled '*Renewable Energy - More Food for Thought*'.

We have extracted a few key points:

WASTE NOT, WANT NOT (ANAEROBIC DIGESTION)

First stop on the tour was Biogen's AD plant at Westwood,near Rushden, Northants. This is the largest AD plant in the country processing food waste and generates 2.9MWe. Andrew Needham (Biogen's Commercial Director) explained the process and history of AD (and Biogen).

Biogen design, build, own and operate commercial-scale AD plants recycling food waste from the UK food chain and now employ 80 of the Group's 400 staff. The company recognised that food waste is a serious problem, with some 18 million tonnes being produced in the UK every year. Disposing of it via landfill is no longer acceptable because of the damage it causes to the environment and its contribution to climate change.

WHEN THE SUN SHINES? (SOLAR POWER)

The sun came out for us just in time for our next visit - a 16ha photovoltaic solar panel farm 'planted' on a brown field site - a farm on a former airfield at Stow Longa, just in Cambs. The annual output of the solar farm is ~5,109 MWh, which is equivalent to the annual average electricity consumption of 1176 households.

The company claim this will also result in annual offsetting reductions in carbon dioxide emissions associated with conventional power generation equivalent to approximately 3,065 tonnes per year.

A FAIR WIND? (WIND TURBINES)

The final stop on our 'Grand Tour' was to see two wind turbines on James Hunter's farm at Tilbrook, Cambs.

James (our Branch Vice-Chair) described the trials and tribulations of installing their first 11 kW turbine (for powering the farm and farm houses). Undeterred they soon set about the even more challenging process of installing their more ambitious 50 kW 'Endurance' unit. James explained, from a farmer's perspective and with plenty of technical detail, why they went for these particular turbines and their location. He also described the planning, installation and commissioning process, costings,pay-back periods and, of course, carbon saved!

SO WHAT DID WE LEARN?

We certainly learned about the three systems in great depth, as well as the pitfalls of keeping each of them running.

It was also very useful to see how each one integrated with the agricultural industry in general as well as at each farm. It is also projected that there will be £100 billion worth of investment opportunities and up to half a million jobs in the renewable energy sector by 2020. Not to be sniffed at?

Visit www.iagre.org/publications/e-xtra for more details

WREKIN BRANCH

SUMMER VISIT TO THE NATIONAL PLANT PHENOMICS CENTRE AT ABERYSTWYTH UNIVERSITY

The Phenomics Centre is home to the automated greenhouse based in the Institute of Biological, Environmental & Rural Science (IBERS) of Aberystwyth University located on the outskirts of the town.

An introduction was given by **Alan Gay** giving us a potted history of IBERS which was formed back in 1919 as part of the university before becoming an independent centre for research in land-based sciences.

Five years ago, IBERS once again became subsumed back into the university and the Phenomics Centre was born with the remit to improve grassland by the use of gene mapping where globally resources are limited; an example of which would be developing grasses with deep roots for soil stabilization & drought resistance.

IBERS has a strong focus on the phenomics (the measurement of the physical and biological characteristics) of grasses, oats and miscanthus. Traditionally this has been done outdoors, the difficulty with which is the variability of the weather and soil conditions and the labour intensive nature of measuring the plants. This is where the automated greenhouse comes in.

Firstly the environment within the green house can be controlled. The soil properties can be selected and measured at the time of planting. As the plants are individually potted, the moisture content of the soil in each pot can be controlled and the water uptake of each plant monitored. Finally each plant can be individually measured using imaging systems.

A view of one the main automated greenhouse sections

The Greenhouse is split into nine sections. Two sections are fitted with a conveyor system (the main body of the robotic greenhouse), linked to a third area containing the imaging centre. At the time of the visit a fourth section was being fitted out with one hundred and twenty individual weighing and watering stations.

The main body of the Robotic Greenhouse was introduced by **Dr Fiona Corke** who is in charge of this area, and explained the main purpose is to allow the high throughput analysis of growing plants; mainly Miscanthus at the time of our visit but can be oats, wheat, rye, maize or oilseed rape.

She explained how by changing environmental factors such as temperature, watering & nutrient intake, plant growth can be carefully controlled and monitored even to the point of putting batches of plants under stress to see how they respond under various global conditions.

Batches of plants are carried around on a complex conveyor system following each other around with some batches being diverted to weighting and watering 'sidings' when required whilst others stayed on the 'main line'. Each plant was transported in a

A weighing and water station

The imaging centre with conveyor links to the main automated greenhouse sections

RFID tagged 'carriage' which could be scanned by a reader. At the weighing and watering stations a plant is automatically weighed and received a prescribed amount of water before continuing on its way.

As previously mentioned, the main body of the greenhouse is linked to the Imaging Centrevia the conveyor system. This allows plants to be automatically moved to the imaging centre where image analysis of plants can take place. Our host was Alan Gay; responsible for the cameras, imaging and analysis.

Here five booths or Imaging Chambers existed which, between them almost every conceivable aspect of a plant could be measured! These include thermal IR, visual (RGB), for plant height & biomass; fluorescence; infra-red for roots; near infra-red for water content and a laser scanner for 3D imaging analysis, with all data stored in a huge database for data analysis and hypothesis. Typically ten images are taken of each plant at a time in a matter of seconds, with several thousand images being taken each day.

The fourth section under development was explained by **Andrew Rawlings**.

Andrew is responsible for IT and data management, and is developing the weighing and watering system in this area of the greenhouse. Commercially available digital scales with an RS232 output are being used to measure the weight of the plant and monitor evapo-transpiration. Each scale is linked to a Raspberry Pi microcontroller and then to a central database and controller, which can then control the watering of each plant. The Pearl software control was written in-house.

The imaging centre with conveyor links to the main automated greenhouse sections

The tour concluded by a cup of tea and biscuits back in the main building followed by a vote of thanks and depart.

Neal Dodd

NEWS OF INTEREST TO MEMBERS

12th International Congress on Precision Agriculture

After his two year period as President of ISPA, John Stafford (left) handed the presidential gavel to the incoming President, Ken Sudduth of USDA-ARS (Missouri).

The ceremony took place at the end of a very successful 12th International Conference on Precision Agriculture held in July in Sacramento, California with over 400 delegates from 30 countries.

Also in the photo (right) is the new President-Elect, Nicolas Tremblay of Agriculture-Canada.

John says he can now concentrate again on his role as co-Editor of Precision Agriculture journal which now has an Impact Factor of 2.01!

AEA announce course programme

The AEA Training for Business initiative has been developing over the last 10 months with training needs analysis of members, careful selection of industry specific training providers, preparation of training facilities and pilot sessions.

Based on all of this the full programme of courses designed specifically for the land based industry has been prepared and published.

This programme consists of 23 different soft skills subjects scheduled for delivery at the Peterborough Training Centre from September 2014 through to March 2015 with ample spaces in the programme to schedule additional sessions if required.

The programme has been sent to all contacts within the land based industries be they AEA members or not and training is open to all with no restrictions.

For further details visit the www.aea.uk.com or contact Angela Barnatt on 01733 207602 or ab@aea.uk.com

NEWS OF INTEREST TO MEMBERS

Landwards is looking good, but . . .

Results of our reader questionnaire

A big thank you to all members who returned the recent Landwards questionnaire which asked for feedback on the recent make-over to the journal.

Readers were asked to rate the journal in a number of areas with over 70% liking the journal, 20% hadn't realised it had changed and only 6% didn't like it at all.

Positive comments included -

- "Excellent for the industry and performs well despite resource and for a small Institute, punches above its weight."
- "Keep up the good work in the challenging environment of our complex remit."
- "Editor's and CEO's comments are interesting and thought provoking".

Comments about how the content could be improved included:

- Include a few more technical papers or research write-ups
- A little more R & D in relevant engineering and physical sciences should be sought and covered
- *Wakeham's World* sorely missed
- "I fear on the whole articles are 'light weight' without any real meat, not entirely fair I know, but very few articles have any deep technical content.".
- "Too much back-scratching and promotion of the professors and technicians and far less input from farmers."

"Members should view Landwards in relation to the learned journal *Biosystems Engineering* - that is where they will find deep technical content. However, there is scope to do more to develop a source of technical briefings on applications of technology similar to those found on the IAgrE e-Xtra website," said CEO Alastair Taylor.

Readers were also asked about their use of social media channels, which produced some interesting results.

Only 8% of members use Twitter, 58% Facebook with the majority engaging with Linked In at 75%. Hopefully you have read the very interesting article in this edition about social media and how IAgrE is using it to get our messages across.

IAgrE's communication officer Marion King commented, "Because of the diverse IAgrE membership it is quite a challenge for the Editor to pull together a publication that is stimulating, interesting, educational and has just the right balance.

"Landwards is the voice of the membership, an opportunity for members to get involved, providing articles and comment - so keep them coming!"

MEMBERS MEMORIES

Frank Moore FIAgrE - 60 years membership

After a six-year (wartime) spell in the army (North Africa, Italy, Arnhem, Norway and Palestine in the Airborne Light Artillery and Parachute Regiment, and instructor at both the division's battle school and a return to the Gunners to instruct at their OCTU), I got my first job selling the renowned Rotary Hoe Gem for a local distributor.

I thought the world of that machine and worked hard at it. At the end of the year I was called in and told I was earning too much money (I received five pounds a week and two-and-a-half percent commission on a machine which cost one hundred and sixty pounds). In fact I earned six hundred and two pounds that year, so I left the company and accepted an offer from the historian Sir Arthur Bryant to convert part of an army range into a small farm in Dorset.

Since this was at the height of petrol rationing, my wife and I met virtually no-one as the situation was near the cliffs on the Isle of Purbeck, so we decided to return to the cottage in Surrey which we had let during our absence.

There I joined a firm of agricultural contractors, the joining fee being a piece of machinery that they required. As directors, we were paid five pounds per week plus profits (which never materialised), so after some months I set up my own contracting business, concentrating on rotavating and muck-spreading.

One interesting machine which I bought second-hand (I believe only sixteen were made and eight shipped to India), was the Howard Dungledozer which could shred and load farmyard manure from a heap at a ton a minute. The spreaders of those days, which were based on the horse-drawn type, were hardly man enough for the job and after digging out the remains of battery chicken manure from a broken down spreader, my wife made me take off my clothes and put them in the stream before she allowed me in the house!

However, during this period I got to know Rotary Hoes (later Howard Rotavator and Howard Machinery), and was invited to become their first permanent overseas representative. This entailed teaching recently appointed distributors how to sell rotavators. I worked in that job for seven years, but I found that I was abroad up to eight months of the year in stretches, and my wife and I decided that this was no permanent life for us.

The company kindly transferred me to another interesting job, and then I was approached by Webb's of Exning to join them as Sales Manager, which I did for four years until I was invited back to Howards as Home Sales Manager and later Sales Director.

During my time with Howards, I visited nearly eighty countries including most of Latin America, much of the Far East, most of Europe, and the northern fringes of Africa. At that time Howards were exporting to one hundred and fifty three countries.

The job in those days was very different to today. There were no mobile phones, sending telegrams was difficult and expensive, and so if you found a problem you had to sort it out yourself. During that time I met so many friendly people from Yugoslavia to Argentina and South Korea to Canada, as well as nearly all of the European countries.

Howards at that time had some seven overseas companies, particularly in America and Australia (later, I believe, twelve) and I went for short visits to those countries but did not do particular work there except to introduce a new product occasionally.

I served on the committee for agricultural mechanisation of the FAO and made a very good friend of its Chief Executive, Hartmut von Hulst, who served in the German Panzer Corp during the war.

I led the first British agricultural engineering mission to China in 1977, and in 1978 headed the British Farm Machinery delegation to the Peking show where I escorted Chairman Hua, who had taken over from Mao.

I was elected President of the Agricultural Engineers' Association in 1985 before the sad collapse of Howards. At the time I was also doing some work for Griffith Elder to continue making use of my experience in the trade.

After my complete retirement I developed a concept of a mower which I could not find elsewhere. I sold the rights to a leading company but after two years in which nothing had happened they appeared to be in considerable difficulty and were not able to take it on. A neighbour of mine put up some money and we decided to do it ourselves. I was an amateur engineer and although all my five original prototypes worked well, by the time I made them they were all slightly crooked! I then employed a highly qualified engineer to productionise them.


Dungledozer


Rotary Hoe


Moore Mower

My partner who was Chairman of the company, and I as Managing Director, were the only employed people, and we were in our eighties when things were going quite well. However, I was found to have macular eye degeneration and had to give up driving and consequently my ambitions folded.

At the age of ninety I look back on my career with great interest and pleasure, and the making of many friends all over the world.

Looking back, I am sad to see that the AEA which when I was first involved represented only British manufacturers, has now lost so many of them.

Membership changes

Admissions

A warm welcome to the following new members:

Member
Wain B K (Suffolk)

Associate Member
Brennan D (West Midlands)
Heggadon S A (Somerset)
Hutty J E A (Devon)
Lerwill N D (Devon)
March N (Somerset)
Osment P J (Devon)
Simpson J (Yorkshie)

Associate
Griffiths A (Northern Ireland)
Hamblyn S (Cambridgeshire)
Martlew J P (Shropshire)
Palairet E (Avon)
Perry B (Northern Ireland)

Student

Brooksby Melton College
Bowen L
Christie A
Elson H J
Frost J
Jordan H
Luker C
Maplethorpe J
Marshall M
Rogers S
Saer J R
Smith J P
Southgate M
Stynes R J
Thornalley T J
Wenham D

Greenmount College
Magee M
Allister D
Black E
Elliott P
Gregg R
Hannigan B J
Jaaffe R
Malcomson C
McEldowney F
Nelson K
Parke J
Quinn M
Scraggie A
Scott D

Harper Adams University
Jongbo A O

Plumpton College
Birch J R
Clifton E J
Filtness B R
Hawward R R R
Sutton E
Withers R
Yates D

Institute of Technology, Limerick
O'Leary P

Readmission

Associate Member
Wright J M (Norfolk)

Transfers

Fellow
Hawken K J (Lincolnshire)

Member
Gittins J T (Staffs)
Morahan A G (Dublin)

Associate Member
Hamblyn S R (Cambridgeshire)
Palairet E (Avon)

Associate
Waddington S (Yorkshire)

Deaths

We have recently learned of the death of the following member and we send our condolences to their family and friends

Mr Harry James Nation
(CEng FIAgrE) (Bristol) - a member since 1962

Engineering Council

Congratulations to the following members who have qualified as Incorporated Engineers and Engineering Technicians entitling them to use the designatory letters IEng and EngTech after their names.

Registrations

IEng
Grant C D (Scotland)

EngTech
Heggadon S A (Somerset)
Hutty J E A (Somerset)
Lerwill N D (Devon)
March N (Somerset)
Wallace S A (NI)

Long service certificates

Name	*Grade*	*Date of anniversay*
60 years		
Daniel Stevenson **Boyce**	CEng FIAgrE	31/8/14
Robert Vine **Falkingham**	MIAgrE	31/8/14
James **Wallace**	AIAgrE	31/8/14
Alan Edward **Whitehouse**	CEng FIAgrE	31/8/14
50 years		
Colin Ralph **Willcocks**	MIAgrE	27/8/14
35 years		
James Stuart **Martin**	CEng FIAgrE	2/7/14
Peter David **Rogers**	IEng MIAgrE	27/9/14
25 years		
Alan Walter **Moore**	CEng MIAgrE	20/7/14
John Barrie **Hudson**	MIAgrE	20/7/14
David Errol **Williams**	AMIAgrE	20/7/14
Stephen John **Twomlow**	MIAgrE	17/8/14

Academic members

Babcock Training Ltd
Babcock
Ruddington Fields Business Park
Ruddington
Nottingham
NG11 6JZ

Bicton College
East Budleigh
Budleigh Salterton
Devon
EX9 7BY

Bishop Burton College
York Road
Bishop Burton
Beverley
HU17 8QG

Brooksby Melton College
Asfordby Road
Melton Mowbray
Leics
LE13 0HJ

Coleg sir Gar
Pibwrlwyd Campus
Pibwrlwyd
Carmarthen
SA31 2NH

Cranfield University
Cranfield
Bedfordshire
MK43 0AL

Easton & Otley College
Easton
Norwich
Norfolk, NR9 5DX

Greenmount Campus
CAFRE
22 Greenmount Road
Antrim, Northern Ireland
BT41 4PU

Harper Adams University
Newport
Shropshire,
TF10 8NB

Institute of Technology
Tralee
Clash, Tralee
Co Kerry, Ireland

Pallaskenry Agricultural College
Co Limerick
Ireland

Plumpton College
Ditchling Road
Lewes
East Sussex
BN7 3AE

Reaseheath College
Reaseheath,
Nantwich
Cheshire,
CW5 6DF

Royal Agricultural University
Cirencester
Gloucester, GL7 6JS

Riseholme College
Riseholme Park
Lincoln
LN2 2LG

SRUC - Auchincruive
Auchincruive Estate
Ayr
KA6 5HW

Wiltshire College - Lackham
Lacock
Chippenham
Wiltshire
SN15 2NY

Commercial members

Agricultural Engineers Association (AEA)
Samuelson House,
62 Forder Way,
Hampton
Peterborough,
PE7 8JB

AGCO Ltd
Stoneleigh,
Abbey Park,
Kenilworth,
Warwickshire,
CV8 2TQ

Autoguide Equipment Ltd
Stockley Road
Heddington
Calne,
Wiltshire,
SN11 0PS

BAGMA
Middleton House,
2 Main Road,
Middleton Cheney,
Banbury,
Oxon,
OX17 2TN

Bomford Turner Limited
Salford Priors
Evesham
Worcestershire
WR11 5SW

David Ritchie (Implements) Ltd
Carseview Road
Suttieside
Forfar,
Angus,
DD8 3EE

Douglas Bomford Trust
The Bullock Building
University Way, Cranfield
Bedford, MK43 0GH

FEC Services
Stoneleigh Park
Kenilworth
Warwickshire, CV8 2LS

Huntaway Consulting
Ivy Cottage
Torlundy
Fort William
Inverness-shire
PH33 6SW

John Deere Ltd
Harby Road
Langar
Nottinghamshire
NG13 9HT

Shelbourne Reynolds
Shepherds Grove Ind. Est.
Stanton
Bury St Edmunds
Suffolk,
IP31 2AR

SSAB Swedish Steel Ltd
Narrowboat Way
Hurst Business Park
Brierley Hill
West Midlands
DY5 1UF

We want to hear from members

Send branch reports or correspondence to:
The Editor, Chris Biddle
Email: *chris.biddle@btinternet.com*
Or the IAgrE Communications Officer, Marion King on:
pressroom@iagre.org

Landwards

EVENTS

IAgrE Branch Meetings and Events

West Midlands Branch
Tuesday 7 October 2014, 19.15
DESIGNER'S ROLE IN ENSURING HEALTH AND SAFETY TO THE END USER
Speaker: Andrew Turner, Health & Safety Executive
Venue: Greenmech Engineering, Mill Industrial Estate, Kings Coughton, Alcester, Warwickshire B49 5QG
If you intend to attend this event please contact the Branch Chairman, Ian Moore (Tel: 0121 704 5700 ianm@whale.co.uk) or Branch Secretary, Michael Sheldon so that your name can be added to the attendance list and so you can check the status of the event.
Tel: 01926 498900 Email: michaelcsheldon@yahoo.com

Wrekin Branch
Wednesday 8 October 2014, time tbc
VISIT TO SHROPSHIRE PETALS - TBC
For information on this and other Wrekin Branch meetings, please contact the Branch Secretary, David Clare.
Tel: 01952 815087 Email: dclare@harper-adams.ac.uk

South East Midlands Branch
Monday 13 October 2014, 19.30
AUTO-GUIDANCE (JOINT MEETING WITH IMechE AUTOMOBILE DIVISION EASTERN CENTRE)
Speaker: Will Mumford, AS Communications
Venue: The Auditorium, The Vincent Bldg, Cranfield University, Cranfield, Bedfordshire MK43 0AL
Will Mumford of AS Communications will provide an overview of present GNSS technology and how it can deliver cost effective and significant improvements in field operation efficiency. He will also consider the integration of this technology with field mapping and vehicle management and provide us with an overview of the prospects for GNSS as well as his personal view of how on-farm systems will further develop.
This is a joint meeting with IMechE Automobile Division Eastern Centre.
For further information on this contact Dave Tinker 01525 750337 d.tinker@ntlworld.com or South East Midlands Branch Secretary, John Stafford.
Tel: 01525 402229
Email: john.stafford@silsoe-solutions.co.uk
Web: www.ascommunications.co.uk/

East Midlands Branch
Tuesday 14 October 2014, 7.30pm
VISIT TO AMAZONE LTD
Venue: Amazone Ltd, Blythe Road, Horworth, Doncaster, Sth Yorks DN11 8NE
Further details to follow.
For more information on this or any East Midlands Branch Meetings contact Branch Secretary: Paul Skinner
Tel: 01205 353754
Email: paulskinner57@btinternet.com
Web: www.amazone.co.uk/

Western Branch
Wednesday 15 October 2014, 1900
42 YEARS OF JOHN DEERE AND LIFE AFTER DEERE
Speaker: Peter Leech
Venue: Biddeston Room, Wiltshire College Lackham, Lacock, Chippenham, Wiltshire, SN15 2NY
Peter Leech will talk about his career at John Deere.
For more details contact the Branch Secretary: Glen Craig
Tel: 07985 756001 Email: glencraig@btinternet.com

Wrekin Branch
Monday 20 October 2014, 7pm for 7.30pm
JCB FASTRAC PRODUCT DEVELOPMENTS
Speaker: Robin Carter, JCB Landpower
Venue: Agricultural Engineering Innovation Centre, Harper Adams University, Telford, Shropshire TF10 8NB
Robin Carter, Project Manager at JCB Landpower will be presenting the latest Fastrac developments.
For information on this and other Wrekin Branch meetings, please contact the Branch Secretary, David Clare.
Tel: 01952 815087 Email: dclare@harper-adams.ac.uk
Web: agriculture.jcb.co.uk/Products/Machines/Agricultural-Tractors.aspx

South East Midlands Branch
Monday 10 November 2014, 19.30
MACHINERY AND TECHNOLOGICAL DEVELOPMENTS WITHIN AGRICULTURAL CONTRACTING, FOCUSING ON CROP PROTECTION
Speaker: Matt Redman, Matt Redman Agriculture
Venue: Maulden Church Hall, Maulden, Beds MK45 2AU
As a local farm contractor, 'farm sprayer operator of the year' 2014, and regular contributor to the Farmers Weekly, Matt is well placed to provide an interesting perspective on agricultural contracting, developments in technology and machinery, and how continual increases in legislation impact farming.
For further information on this and other South East Midlands Branch meetings contact Branch Secretary, John Stafford.
Tel: 01525 402229 Email: john.stafford@silsoe-solutions.co.uk
Web: www.mattredmanag.co.uk/

Wrekin Branch
Monday 10 November 2014, 7pm for 7.30pm
POSSIBLE VISIT TO JOHN DEERE DEALERSHIP - TBC
For information on this and other Wrekin Branch meetings, please contact the Branch Secretary, David Clare.
Tel: 01952 815087 Email: dclare@harper-adams.ac.uk

East Midlands Branch
Tuesday 11 November 2014, 7.30pm
VISIT TO SIEMENS OF LINCOLN - TBC
For more information on this or any East Midlands Branch Meetings contact Branch Secretary: Paul Skinner
Tel: 01205 353754 Email: paulskinner57@btinternet.com
Web: www.siemens.co.uk/answers/en/

West Midlands Branch
Tuesday 11 November 2014, 19.15
SITE SPECIFIC FERTILISATION USING PROXIMAL SOIL SENSING
Speaker: Dr Abdul Mouazen, Cranfield University
Venue: Friends Meeting House, Maidenhead Road, Stratford-upon-Avon, Warwickshire CV37 6XT
If you intend to attend this event please contact the Branch Chairman, Ian Moore (Tel: 0121 704 5700 ianm@whale.co.uk) or Branch Secretary, Michael Sheldon so that your name can be added to the attendance list and so you can check the status of the event.
Tel: 01926 498900 Email: michaelcsheldon@yahoo.com
Web: www.cranfield.ac.uk/about/people-and-resources/academic-profiles/sas-ac-profile/dr-abdul-am-mouazen.html

Northern Ireland Branch
Tuesday 18 November 2014
DEVELOPMENT IN TRACTORS AND MACHINERY MARKETS
Speaker: Michael Moroney, Irish Farmers Journal
Venue: AFBI Hillsborough
For further information contact Branch Secretary Ian Duff.
Tel: 028 8673 6977 Email: duffi@iagre.biz

Western Branch
Wednesday 12 November 2014, 1900
DESIGN AND APPLICATION OF MAN MARINE ENGINES
Speaker: Andrew Mellard (General Manager, MAN Engines)
Venue: Biddeston Room, Wiltshire College Lackham, Lacock, Chippenham, Wiltshire, SN15 2NY
More details to follow.
For more details contact the Branch Secretary: Glen Craig
Tel: 07985 756001 Email: glencraig@btinternet.com
Web: www.engines.man.eu/global/en/index.html

East Midlands Branch
Wednesday 26 November 2014, 7.30pm
EME & SP PRESTIGE LECTURE
Venue: Nottingham Albert Hall, Nottingham
Details of this lecture is to be confirmed but will be either a presentation by The Formula E Racing Co or Formula 1 Grand Prix Racing.
This meeting is in lieu of the EM Branch December Meeting.
For more information on this or any East Midlands Branch Meetings contact Branch Secretary: Paul Skinner
Tel: 01205 353754 Email: paulskinner57@btinternet.com

South East Midlands Branch
Monday 1 December 2014, 19.30
UNMANNED AERIAL VEHICLES AND REMOTE SENSING IN AGRICULTURE
Speaker: Dr Toby Waine, Cranfield University
Venue: Maulden Church Hall, Maulden, Beds MK45 2AU
For further information on this and other South East Midlands Branch meetings contact Branch Secretary, John Stafford.
Tel: 01525 402229 Email: john.stafford@silsoe-solutions.co.uk
Web2: www.cranfield.ac.uk/about/people-and-resources/academic-profiles/sas-ac-profile/dr-toby-tw-waine.html

Wrekin Branch
Monday 8 December 2014, 7pm for 7.30pm
TOPIC TBC
Venue: Agricultural Engineering Innovation Centre, Harper Adams University, Telford, Shropshire TF10 8NB
For information on this and other Wrekin Branch meetings, please contact the Branch Secretary, David Clare.
Tel: 01952 815087 Email: dclare@harper-adams.ac.uk

West Midlands Branch
Tuesday 9 December 2014, 19.15
COMBINE WORLD RECORD
Speaker: Dean Cottey, Claas UK, and Bill Basford, an Independent Machinery Consultant
Venue: Stoneleigh Village Hall, Stoneleigh, Nr Kenilworth, Warwickshire CV8 3DB
Dean will give a comprehensive review of combine development and Bill will introduce the independent nature of invigilation, looking at all the aspects of combine performance and parameters used in verification regarding claims for the world record.
If you intend to attend this event please contact the Branch Chairman, Ian Moore (Tel: 0121 704 5700 ianm@whale.co.uk) or Branch Secretary, Michael Sheldon so that your name can be added to the attendance list and so you can check the status of the event.
Tel: 01926 498900 Email: michaelcsheldon@yahoo.com
Web: www.claas.co.uk/

IAgrE
Tuesday 17 March 2015
2015 IAgrE'S YOUNG ENGINEERS COMPETITION
Venue: TBA
Annual competition for students with cash prizes as well as products from our sponsors. Visit the Young Engineers page of our website for more information.
Tel: 01234 750876 Email: secretary@iagre.org
Web: www.iagre.org/careers/devcareeryecomp

IAgrE
Wednesday 20 May 2015
LANDWARDS 2015: CLOUDS ON THE HORIZON? SOIL & WATER ENGINEERING FOR FARM PERFORMANCE
Details to follow
Tel: 01234 750876 Email: conferences@iagre.org

Other Events:

Wednesay 24 - Thursday 25 September 2014
Rethink Events
WORLD AGRI-TECH INVESTMENT SUMMIT 2014
Venue: London
With a specific focus on seed breeding, advanced agro-chemicals and software-driven precision farming, the summit will bring together global leaders in resource-efficient agriculture with the world's most innovative technology developers and the international cleantech investment community.
20% discount for IAgrE members.
Web: worldagritech.rethinkevents.com/

Tuesday 30 September - Wednesday 1 October 2014
GLOBAL AGRO-INVESTMENT FORUM
Venue: London
Focusing on agriculture and farmland investments the Global Agro Invest Forum will bring together CEO, CIO, Investment Managers and Trustees from major pension funds, family offices, sovereign wealth funds, endowments, insurance companies and charities to discuss the unique investment opportunities presented by agriculture.
For more information go to the Forum website (below).
Web: www.arena-international.com/alternativeinvest/global-agro-invest-forum/

Tuesday 7 - Wednesday 8 October 2014
EWWM
8TH EUROPEAN WASTE WATER MANAGEMENT CONFERENCE & EXHIBITION
Venue: Manchester Town Hall
Web: tinyurl.com/k7ohbc7

Thursday 23 October 2014, 0930
Institution of Occupational Safety and Health (IOSH)
MANAGING CATTLE SAFELY
Venue: Askham Bryan College Askham Bryan York York, YO23 3FR
This interactive workshop is convened by the IOSH Rural Industries Group on behalf of the Farm Safety Partnership (FSP). It will include a series of short practical demonstrations of cattle handling facilities and 'good practice' techniques. It will also discuss the influence of animal psychology on animal handling and the design of equipment and buildings.
IAgrE is a member of the Farm Safety Partnership and this event is therefore free to IAgrE members.
The programme and booking form is currently in the process of being finalised however to register your interest please contact Leanne Lowther.
Email: leanne.lowther@iosh.co.uk Web: bit.ly/1kyyPKh

Tuesday 6 - Thursday 8 January 2015
OXFORD FARMING CONFERENCE
Venue: Oxford Univerfsity Examination Schools, Oxford, UK
Web: www.ofc.org.uk/

Full details of forthcoming events can be found on www.iagre.org/events

Venue for next Council Meeting -
23 October 2014