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Late Summer 2002

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**Front cover:** *The Red Arrows display team in pursuit of excellence during the Queen's Jubilee Year (Photo: A Campbell)*

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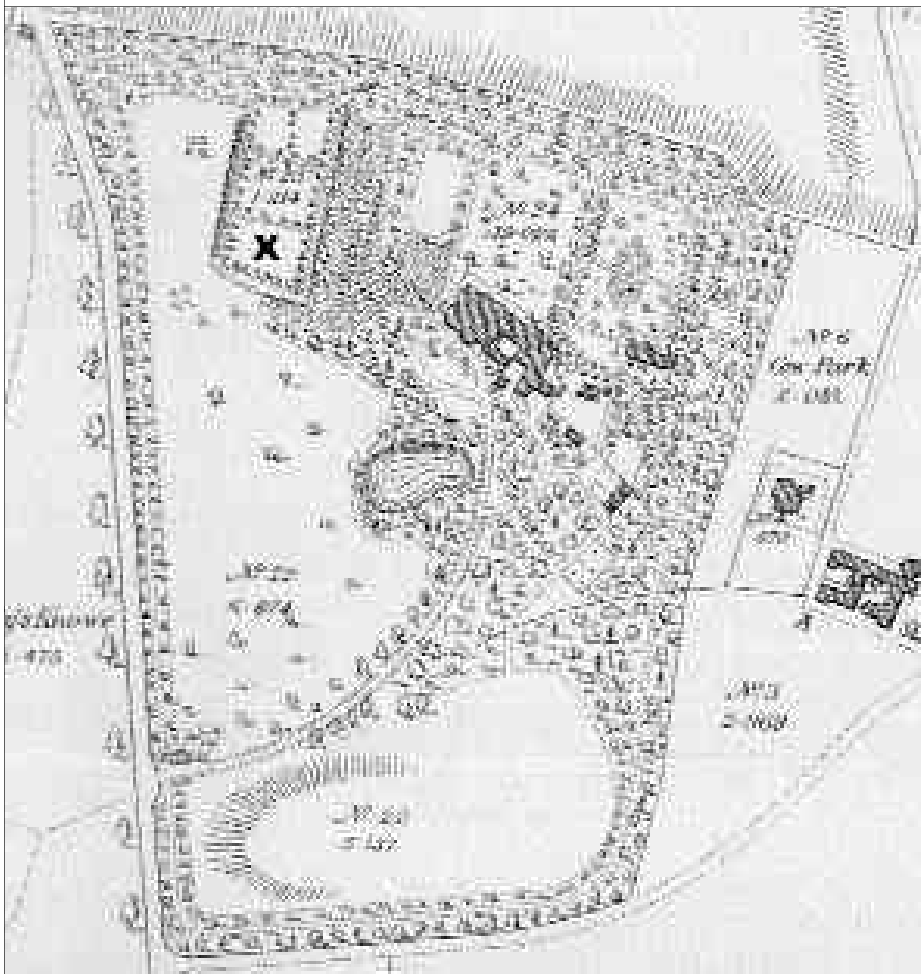
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# THE FRIENDSHIP GARDEN

Melissa K. Witney-Hunter

Detail from T. Carfrae's estate plan of Lauriston, 1855, showing the garden designed for Andrew Rutherford and the site (X) for the current landscaping development (adapted from: City of Edinburgh Council)



## Background

Lauriston Castle, with its remarkable view across the Firth of Forth and its nineteenth-century villa garden, is the perfect setting for the development of a new Japanese-style garden to mark the growing ties of friendship between Kyoto Prefecture (Kyoto city and surrounding townships) and Edinburgh.

One of a number of sites, in Edinburgh, considered for this garden, its excellent views over the Forth, highlighted by Playfair in the 19th century, undoubtedly influenced the judges when deciding on the designer to complete the garden.

The winning designer was Takashi Sawano, originally from Japan but based in Britain for over 20 years. He has worked with Japanese and British landscapers alike to ensure the authenticity wherever possible of Edinburgh's Japanese garden, one of which the people can be proud. For each of his clients, he creates a garden

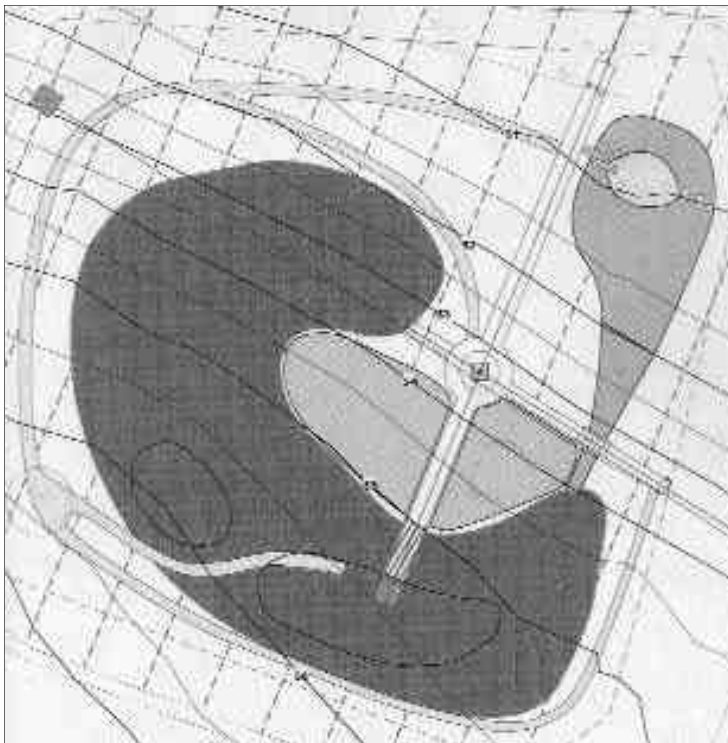
suited to its environment, an extension of nature blended in with the local conditions in preference to a piece of 'Old Japan' transposed onto foreign soil. Having made his home in England twenty-five years ago, he has absorbed the culture of the West into his rich oriental background which he sets out to share with clients.

The attractively landscaped Japanese garden has been created from the gently sloping site of the castle's 1840's kitchen garden, which, along with an enclosed 'secret' garden of the 1820's, was removed in the early twentieth century. This new garden feature helps to re-establish the balance of the nineteenth century garden designs while respecting the Edwardian modifications made by the castle's last private owners, Mr and Mrs W.R. Reid, who lived in the castle from 1903 to 1926.

Work on the Japanese garden began during summer 2001, with germination of the idea getting underway some five years earlier. The garden was completed and officially opened in July 2002.

## Design

The winning design incorporated not only existing antiquities within the castle's grounds which could not be removed but also extended beyond the castle grounds to identify with landmarks as a continuation of the all important spiritual axes, a strong feature of Japanese gardens. Recognised as a design fitting well into the surrounding landscape, considera-



Plan detailing original contours of gently sloping site selected for the Friendship Garden and showing Japanese garden design

tion had been given to access and future maintenance of the site.

Wherever possible the inspired design of Takashi Sawano has been followed, however health and safety issues, in addition to cost factors, have required that the designs be modified in certain areas. It has subsequently been

necessary to reverse some of the minor alterations made to the original designs as, in practice, changes made have not proved workable using alternative solutions.

In the direction of south to north, the axis of the garden runs from a summerhouse situated at the top of the stone steps feature, down to the main entrance near the north boundary. It then projects beyond the boundary northwards to focus on Cramond Island and Inchcolm Island, home to St. Colm's Abbey. This line incorporates the steps themselves and the central stone pillar, removed from the porch of the old headquar-

ters of the Free Church, gifted and re-erected, circa 1852, for the then owner of Lauriston Castle, Lord Andrew Rutherford. The line then completes by incorporating a path, with magnificent presence, made using reclaimed Edinburgh cobblestones, which runs from the central pillar down to the main (north) entrance of the garden.

In the west to east direction, again the axis starts at a summerhouse, a bamboo structure draped with Wisteria, both of which are design features of Japanese gardens. The path to the summerhouse incorporates the large wooden tree trunk circles, taken from a fallen tree in the grounds. This line flows

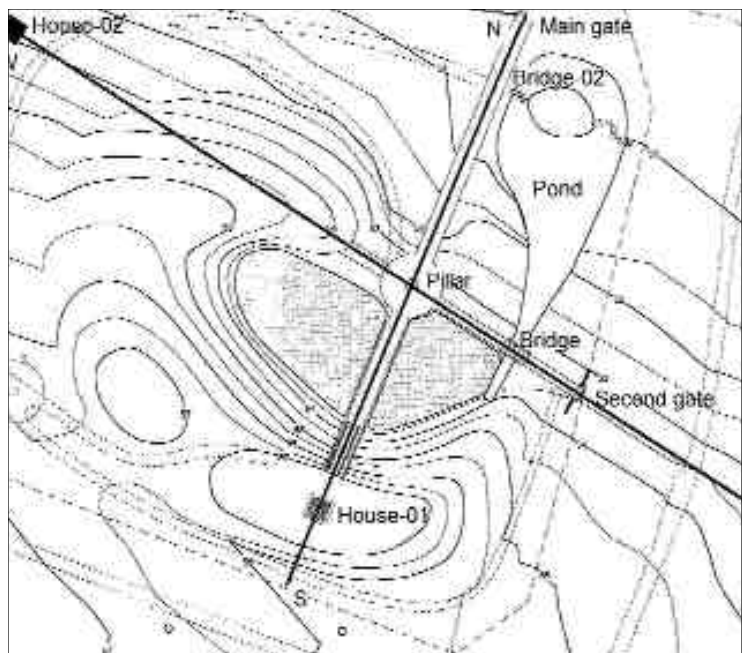
through to the central pillar, over the bridge spanning the water feature, to the side entrance and beyond to the second Free Church pillar culminating at the west entrance of the castle.

A large pumped water feature has been included in the garden. This consists of a high, proud ('male') waterfall in the top end (south) of the garden, flowing down underneath the footbridge to a low ('female') waterfall, culminating at a pond feature in the north area which is set back from the main entrance. This large pond feature is home to an island which is accessed using large stepping stones. Water noise and water power are very significant to the art of gardening in Japan. Two gardeners from Kyoto who specialise in stone placement, placed the stones around the water feature area and throughout the garden both symbolically and skilfully. The gravel garden, situated adjacent to the waterfall and pond features and with its minimal planting is another feature of Japanese garden design.



#### BIO NOTE

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Plan detailing contours of the attractively landscaped Friendship Garden, including main Japanese features.



An impressive number of machines were used for the groundworks of the garden. A clam crane was selected to help place all of the stones in the garden (Photo: Land Technology Ltd)

Placement of stone in this area is a fundamental component, with faces and sizes of stone representing different genders and moods. Normally a water feature and gravel path area would not be found together in this way, as gravel areas are considered contemplative areas of calm and tranquillity. This is, however, a good example of a Japanese garden built using traditional features while incorporating Western influences.

The access gates, bridges and pathways form part of the 'stroll' garden, designed to encourage visitors to walk around and enjoy the distinctly different features of the garden. While moving around the garden, certain areas hide the water feature whereas others open up views of the gravel garden. The placement of the two summerhouses, south and west, are also carefully positioned to consider different views of the garden.

Every opportunity has been taken to both use and recycle local materials, where their use was deemed appropriate. The tree trunk circles laid into the path flooring to the summerhouse to the west of the garden and also on the path at the top of the main

stone steps, were taken from a tree which fell in the grounds, during heavy winter storms. Other such examples are the Edinburgh cobblestones used in the main path running north to south in the garden which were originally reclaimed from old roads in Edinburgh's town centre. The rough-hewn boulders placed throughout the garden came from the Ravelrigg quarry on the City outskirts and are a good example of the use of local materials which still produces an authentic Japanese look and feel, in-keeping with the design.

### Garden landscaping

The perimeter path, sweeping round from the main (north) entrance past the west summerhouse and up to the top

of the main steps, weaves its way through avenues of cherry trees which will be trained to arch over the walkways.

The main species of cherry are *Prunus* 'Shirofugen' with pink flowers that form white flowers on drooping branches, with *Prunus* 'Yedoensis' also planted. The weeping cherries running alongside the steps are 'Subhirtella' and to the right of the main entrance, the 'Tai Haku' or 'Great White Cherry' has been planted. This was positioned as a tribute to one

The garden also incorporated several large specimen trees and shrubs, such as *Sequoia giganteum*, the umbrella pine (*Sciadopitys verticillata*), species of rhododendrons and azaleas, maidenhair tree (*Ginkgo biloba*) and beauty berry (*Callicarpa japonica*). Many of the plants have a Japanese feel to them and have been formatively pruned by Japanese gardeners to create the look and form required for the garden design. This pruning exercise will continue for two to three years after planting, to establish the required form, consisting of 'clouds' of lush growth on the plant, with areas of bare stem. The use of Japanese maples (*Acer*), cherry and pine trees, magnolias (*kobus*) and Chinese witch hazel (*Hamamelis*) are typical of Japanese garden design, as is the planting of bamboo (*Phyllostachys aurea*) around the water feature and the



Typical features of a Japanese garden: a water feature; an island; and stepping stone access. Edinburgh cobblestones have been used to create the path on the north to south spiritual axis of the garden (Photo: Land Technology Ltd)

of the Japanese gardeners, whose family have over 400 years of knowledge growing, selecting and more specifically placing cherry trees for Japanese gardens, an highly skilled art form.

Wisteria covered trellis incorporated into the west summerhouse.

In addition to taking into account the traditional Japanese design factors, the choice of many of the plants

for the garden has been made to take into account the exposed Firth of Forth location of Lauriston Castle and to strong easterly winds.

It is the intention that by siting the gardens at the location of Lauriston Castle, this will increase interest, from visitors, in the Castle and grounds. The Japanese garden and the incredible amount of work that has gone into its implementation, is an important contribution to Lauriston's legacy and its future in addition to being a symbol of increasingly good relations between Japan and Scotland.

Takashi Sawano has designed and created Japanese gardens for over twenty-five years, both in this country and abroad. Japanese Floral and Garden Design, 21

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In addition, for contributions to this article, we gratefully acknowledge: Mr Iain Park, Acting Parks Development Manager, Department of Culture & Leisure, City of Edinburgh Council, 49 York Place, EH1 3JD E-mail: iain.park@edinburgh.gov.uk, Mr David Scarratt, Keeper of Applied Arts, Museum of Edinburgh, Huntly House, 142 Canongate, Royal Mile, Edinburgh and The City of Edinburgh Council, for information taken from the Castle's guide book 'Lauriston Castle – An Edinburgh Villa' (£3.50 ISBN 0-905072-88-X).

Lauriston Castle is an Edwardian mansion set in extensive grounds, which commands a notable view of the Firth of Forth. The Castle is open for guided tours (approx. 50 mins) from Apr to Oct – Sat to Thurs & Nov to Mar – Sat & Sun only. Grounds are open daily: 9am to dusk and admission is free (small charge for entrance to Castle for tour). Lauriston Castle, Cramond Road South, Davidsons Mains, Edinburgh EH4 6AA Tel: 0131 336 2060, Web: www.cac.org.uk

## BOOK

# ENABLING INNOVATION

## A Practical Guide to Understanding and Fostering Technological Change Boru Douthwaite

We live in an age of increasingly rapid technological innovation and diffusion. Yet little is known about the social and human processes involved. Why do some technologies successfully spread while others do not? What are the consequences of top-down diffusion strategies? What is the effect of the private sector? Should the public sector not play a significant role? What are the disadvantages of instant patents and corporate-controlled intellectual property rights? And if users are democratically involved in technological adaptation and adoption, will the result often be both better technologies and their more rapid adoption?

This book is an engrossing account of some of the disaster, and success, stories around technological development and diffusion from both industrial and developing countries. It tells the story of widely divergent technologies agricultural appliances, wind turbines, Green Revolution high yielding seeds, the Linux computer operating system, and Local Economic Trading Systems. Douthwaite constructs a highly significant 'how to do it' guide to innovation management that runs counter to many of the

top-down, 'big is good', 'private sector is best' assumptions of our age.

### Contents

Foreword – Professor Niels Roling, Wageningen Agricultural University  
(1) Introduction: Why innovation approaches matter  
(2) The Palaeontology of Innovation: Lessons on Success and Failure from the paddy fields of Asia  
(3) Seeing Inside the Black Box: Modelling early adoption (with Darwin's help)  
(4) Blowing in the Wind: How 'bottom-up' beat 'top-down' for the billion dollar wind turbine industry  
(5) Open and Closed: Linux versus Windows  
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### MORE INFORMATION

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# Food Advisory Committee – Review of Food Labelling 2001

## Consumer views

All the research data provided by consumer organisations in the UK, the results of the Food Standards Agency's Better Labelling Initiative and the FAC's own Open Fora on Food Labelling, indicate that consumers are confused by food labels and often don't understand the information that is presented to them.

A 'MAFF' survey revealed that 50% cannot find the information they're looking for while 75% of consumers find terms such as 'fresh' and 'pure' misleading. A further 50% of consumers want to see more information on food labels. More recently, surveys published by Which? Magazine show massive dissatisfaction among consumers about the labelling of GM food. The use of terms such as '%fat free', 'healthy', 'fresh', 'high', 'low', etc often confuse rather than inform consumers and there is even uncertainty about fundamental messages such as 'use by' and 'best before'.

## Recent developments

The Food Advisory Committee (FAC) has undertaken a short, limited review of Food Labelling in the UK and has produced recommendations for the guidance of the Food Standards Agency.

The FAC carried out a comprehensive review of labelling legislation and practices in 1990. Since that time there have been a number of developments within the food supply chain, and in particular the consumer's perception and expectations of it, which justify review of the issues considered at that time and the recommendations made. Not least among these developments are:

- the growing consumer demand for additional information about food and for clarification of some of the existing information on labels;
  - the pace of change in food and agricultural production methods, information technology and a rapid extension of consumer choice; and
  - the occurrence of a number of 'food scares' and other incidents connected with the agriculture industry and the food supply chain, which have undermined consumer confidence.
- In addition:
- the welcome advent of the Food Standards Agency (FSA) makes it appropriate to review the Committee's existing advice on labelling; and
  - there is strength of feeling within the European Union that the labelling Directive developed in 1979 (79/112/EEC) and consolidated but little amended by a Directive in 2000 (2000/13) now needs radical change. Certainly the additional labelling requirements introduced since 1979 and the piecemeal nature of many of them, warrant a thorough reappraisal.

## Some recommendations

Among the recommendations it is recognised that consumers' right to information about the foods they purchase should be seen as close to sacrosanct but it should also be recognised that not all this information can and should be supplied on the label.

Existing legislation is limited to pre-packed food and requires to be extended in some areas, for example to improve information regarding food supplied 'loose'. It is recognised that consumers may not require detailed information for

all food purchased. Consumers have been united in the need for labelling products in the supermarket, but there has been a similar consensus in their desire to remain ignorant of such facts when eating at a restaurant – eating out being considered a 'treat'. However, consumers have still indicated a desire to receive a certain amount of useful information to enable the quality of the product to be assessed along with its value for money. Such information may include whether a dish is freshly prepared, the size of the portion and the cooking methods – but the supply of such information should be the subject of 'best practice' recommendations rather than a mandatory requirement.

Labels should detail information to ensure safety (i.e. use, preparation, storage and allergens); promotion of choice (i.e. enabling the consumer to identify and compare products); and fair competition between traders. However, lifestyle information should be communicated by all methods rather than by using labels.

Similarly, as a result of campaigns against E numbers, it has become a practice for all additives to be declared on labels using their chemical name. However, more recently there has been a move back towards E numbers, particularly in the case of those additives with lengthy chemical names. This has resulted in more labels using a mixed system of E numbers and named additives. This is potentially confusing but if an ingredient has a common, well understood name, then it is recognised that this is likely to be the most informative to the consumer. Conversely, highly com-

plex chemical names are seldom informative to the consumer, nor is it helpful to give both the E number and the chemical name for an additive on the ingredient list. Therefore, it is recommended that a higher priority be given to informing and educating consumers about the meaning and use of E numbers.

It is estimated that around 40% of households have access to the Internet and 99% have a phone – making these useful channels for information. Large retail stores have computer access and information points available to their customers.

It is recommended that the FSA press the Department for Education and Skills to review the status of food related matters within the curriculum and the quantity and quality of information supplied to young people in relation to food.

The committee is also undertaking a separate review to consider the special issues arising when food is sold at a distance, such as by mail order or via the internet.

*Sara Witney Scholes*

## MORE INFORMATION

This article is taken and adapted from the following report: **Food Advisory Committee, Review of Food Labelling 2001**, published by the Food Standards Agency, January 2002 (FSA/0354/0102). Copies can be obtained free of charge either from the FAC Secretariat or by contacting: Food Standards Agency, PO Box 369, Hayes, Middlesex, UB3 1UT. Tel: 0845 606 0667. Fax: 0208 867 3225. Email: [foodstandards@eclogistics.co.uk](mailto:foodstandards@eclogistics.co.uk)

## Poulter's Prize



The Poulter's Prize has again been awarded for research at Silsoe Research Institute, this time to Dr Siobhan Abeyesinghe for her work on promoting poultry welfare through a proper understanding of behaviour. Her doctoral research concentrated on the aversion of broiler chickens to stressors, including vibrational and thermal stresses that arise during transport. These studies have led to her current research, which is concerned with environmental decision making in poultry. Specifically, she is asking whether fowl always choose for short-term benefit or if they can perceive the longer-term consequences of their choice.

Siobhan's prize was presented by the Master of the Worshipful Company of Poulterers at a ceremony in the magnificent hall of the Armourer's Company in the City of London.

## New MSc in Forest Protection and Conservation at Imperial College

With the increasing global threat to the integrity and well being of trees, a new MSc Option for the well-established postgraduate course in pest management at Imperial College is timely indeed. Brand-new and the only postgraduate course of its kind in the United Kingdom, the one-year MSc in Forest Protection and Conservation comprises taught courses and a research project.

The first MSc course in Forest Protection and Conservation begins in September 2002 and will be based at Imperial's Silwood Park Campus in Berkshire to the West of London, with some teaching at the Wye Campus of Imperial College located in Kent in the countryside to the south-east of London. Focus will be on natural forest and woodland, plantation trees and tree crops (with the exception of estate grown beverage crops – coffee, cocoa, etc), with due regard to amenity (shade) trees, in a truly international context and setting.

The wide range of biotic and abiotic factors that threaten the future sustainability of trees and forests (pests, diseases and weeds; stresses caused by climate change; the impacts of climate change itself, notably storm events and droughts; and international trade) is reflected in the comprehensive taught component

of the course. Established courses in Application Technology, Pesticide Science, Biotechnology, Decision Tools, Statistics and Experimental Design, which are a current feature of the MSc in Pest Management, are complemented with brand new courses in Forest Pathology and Forest Pests, Soils, Sites and Nutrition and Forest Ecology, Management and Conservation.

The taught component is assessed through continuous coursework during Terms 1 and 2 and oral and written examinations which take place in January and after Easter. During Term 3 students independently conduct a tree-related research project based at Imperial College (Silwood or Wye Campus), a research institute or commercial company in the United Kingdom or overseas. Students write a 20,000-word dissertation, which is submitted in early September, marked independently by the project supervisor and a second approved marker and moderated the External Examiner.

The course presents a unique opportunity for students interested in management of sustainable forest, woodland, plantation and amenity trees and to focus on protection and conservation in local, national and international contexts rather than take a traditional course in forestry. Students graduating in Forest

Protection and Conservation will be well equipped for employment in: forest services; forest research institutions; forest management and consultancy companies (especially where there is a strong plantation focus); overseas aid and development programmes; international non-government organisations (NGOs); environmental groups; local authorities; and arboricultural companies.

The course has the enthusiastic support of The Forestry Commission and the Department for International Development (DFID) and will attract additional support from large local authorities, multi-nationals and companies with strong positioning in forestry either from the forest production or harvesting/processing/manufacturing (e.g. timber, woodworking, pulp and paper) standpoints.

### CONTACT

**Further information from the Course Director: Dr Simon Leather, Imperial College, Silwood Park, Ascot SL5 7PY. Fax: 020 7594 2339. Email: [s.leather@ic.ac.uk](mailto:s.leather@ic.ac.uk)**

Boeing 727 Freighter aircraft in front of National Air Traffic Services Ltd's control tower at Aberdeen Airport  
(Photo: Alan A. Campbell)



# LANDING RIGHTS

Alan A. Campbell

## Background

So why do we change the direction that an aircraft lands and takes off? Well it is quite easy really but you need to look at some basic principles of flight so that you can understand why we do it.

I am assuming here that you do not know (or have forgotten) why an aircraft actually flies; what the rules of physics are that keep it in the air. If you do then you could probably skip the next bit and go to the end of this article, but I will tell you about three experiments that you can do to prove the theory and children might actually enjoy!

Two of the experiments that follow are reasonably simple and are clean, the third isn't!

## Wing shape and air-flow

Right, the first thing you have

to consider is the cross section of the wing, which is shaped like an aerofoil. This basically consists of a flat bottom and a curved upper surface, with the curve steeper at the front but tapering to a point at the rear. This shape is important! When the wing goes through the air, the air that travels over the top of the wing, following the curvature of the surface, has further to go than the air underneath. Due to the laws of physics, however, the same air must reach the same point at the same time, so it has to speed up. If you were able to mark two molecules of air and they hit the front surface of the wing at the same time, they must meet up again at the tapered point at the same time. The one that travels over the upper surface has to speed up as it has further to travel. Time for experiment one to prove it! This is the

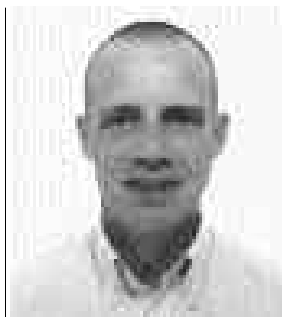
messy one and requires a stopwatch, a good eye, a measuring jug and a tap!

What you do is this: turn the tap on an exact amount that you decide and then collect water in the jug for 5 seconds. Measure the amount that you have collected. Cover

half the tap opening with your finger or thumb, turn it on again by exactly the same amount. Start collecting the water for the exact same time and you will find out that you have, if you have done it correctly, the exact same amount of water in the jug. This proves that if you open the tap the same amount each time, it doesn't matter how much you restrict the flow, the same amount of water must come out in the same time. With the restriction in place it has to go faster to allow the same amount to flow. What has this got to do with a wing, I hear you say. Well, the upper curved surface acts like this restriction against the still air a little way above the wing.

## Wing lift and air pressure change

So now we know that the wing shape acts like a restriction. Time for more science!



### BIO NOTE

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Another physical law, Bernoulli's Theorem, states that if a liquid speeds up due to a restriction, then the pressure in that liquid will reduce.

So relative to the air travelling virtually undisturbed along the bottom, flat surface of the wing, the stuff going over the top is going vastly faster and

and second fingers, holding it nearly at the top. Take the second bit and put it between your second finger and third finger creating a gap between the two bits of paper. Blow gently between the bits of paper and, if you get it correct, they will draw closer together until they touch. Second one

air, now you have to consider how you measure an aircraft speed. There are two speeds that are important, Indicated Air Speed (IAS) and Ground Speed (GS). The first is a measure of the speed, in nautical miles per hour (knots) that you are travelling through the air relative to the air

wind rushing up the Pitot Tube in the opposite direction to the one you are travelling, so although you have an IAS of 100 knots our GS will in fact only be 80 knots. If you were to maintain a GS of 100 knots then you would have to get the IAS to 120 knots. Got it? Right, you are going the other way now and have a tailwind of 20 knots. The 100 knots IAS is on the dial but our GS will be 120 knots because you are getting pushed along by the wind and you have to go a bit faster relative to the air you are in to maintain the 100 IAS.

### All change

Now we get to the reason we change ends. You can see from the above, if you have a headwind then you don't need to be going as fast, over the ground, to stay in the air. The same applies for take-off and landing. If you had unlimited tarmac then you could stay on the ground for as long as it takes, but you don't have, so to give your plane a fighting chance of getting off the ground you go into wind to take advantage of the air moving towards you. Same applies for landing, if the air is in your face you can go a bit slower over the ground, and when you are pointing it at the ground you want to be going as slow as possible!! Even using this rule you also have, on the wing, aerodynamic aids that will help you called flaps and slats. Flaps are positioned at the back of the wing and hang down a bit, increasing the surface area and the curvature of the wing, slats are on the leading edge of the wing and do a similar thing. So with this increase in area and curvature, you increase the lift available and also pointing it into the wind you can get off the ground quicker, because you are generating a lot more lift.

Boeing 757 aircraft in flight - Bernoulli's Theorem in action (Photo: Alan A. Campbell)



therefore the pressure is lower than that underneath. This pressure differential is what makes an aircraft fly, the air pressure under the wing is greater than the air pressure on the top of the wing, so the pressure underneath the wing lifts the aircraft and we are flying! Scary isn't it, this thing weighing tonnes, filled with fuel, baggage and people is only held up there by the air. You'll never feel safe flying again now!

Experiments two and three prove this theory. All you need are a couple of sheets of paper, your fingers and a bit of puff! For the first one, get two sheets of paper, place both hands palms up and point them towards each other across the front of your body. Take one bit of paper and hold it between your index

needs just the one bit of paper. Hands as they were before, palms up again holding it near the top, place the paper between your index finger and second finger like you did before. Now turn your hands over towards you, so that the backs are facing up. Make sure that the paper is curving and falling away from you over the top of your hands, but do not let your hands support the paper. You should now have a kind of aerofoil shape. Put the paper close to your mouth and blow over the top surface, you may have to blow quite hard, and the paper should lift up. Both experiments prove Bernoulli's Theorem.

### Air speed and ground speed

Right so your 'crate' is in the

around you and the second, as its name suggests, is the speed that you are travelling over the ground. Indicated Air Speed is measured by a thing called a Pitot (pronounced peetoe) Tube. It is basically a hollow tube that the air rushes up and the speed that it is doing in the tube is measured and displayed on an instrument that looks just like a 'speedo' in a car. You are flying along and you need to maintain say 100 knots IAS to keep this thing in the air, you are in a hypothetical still air with no wind anywhere. So the IAS indicator will show 100 knots and you will have a GS of 100 knots. With me so far? That is the easy bit!! This time you still need to be doing 100 knots IAS to stay flying, but you have a headwind of say 20 knots. So there is 20 knots worth of

**Concorde on approach for landing at Farnborough Airport**  
(Photo: Alan A. Campbell)



### Landing direction of approach

Right, so why do we change ends? Well the wind always favours one end of the runway better than the other, so you choose the direction that gives the best headwind component. Now if the wind

changes around you have to chase it, so we will declare the runway in use as the opposite direction. A single piece of tarmac has two directions, if it is aligned east west then the headings off the end are 090 and 270, these runways are called 'zero nine' and 'two

seven'. So say the wind is coming from the northeast, our runway in use would be 'zero nine' but if during the day the wind backed round to the northwest we would change to 'two seven'. This can be done almost instantly. You just have a little gap to change round and this is usually provided by having to vector the aircraft round for the other end instead of the one we were originally steering them to. You will also get a few departures off the old end before you go completely over to the new direction. For a little while, therefore, you may have two or three arrivals and departures all heading for the same kind of point but then we just have to use the radar to separate them, not much of a problem.

When watching aircraft in the flight path, you might occasionally see what we call 'playing end to end'. If the wind is really calm and any benefits you would get from heading into it are minimal, then the aircraft will want to take off and land in the general direction to where they are going or from where they have

come. So for example, if we had declared the easterly runway in use, 09, but someone wanted to depart to the west then he may request runway 27 for departure, to save him going in the opposite direction for a while then turning all the way back. If someone was coming in at the time from the west, he would be using the declared runway in use 09 so we have to do some slick vectoring to keep them apart. Obviously we only do this when it is a bit quieter, pointing two aircraft travelling in opposite directions at each other takes up your attention!!

There is another reason why we would change direction. If it was really still, then we would swap ends at lunchtime maybe so that the people at the takeoff end got a break from the noise of the aircraft going over their houses. Sure they still get some noise, but landing aircraft are a lot quieter than one with his throttles wide open struggling into the air!!

There you go then, science in action!

## INNOVATIONS

# Age is no barrier for 'bright sparks' in Audi design grant process

The Audi Design Foundation has awarded almost £100,000 in grants in the past four months and has shown that age, when it comes to 'bright sparks', is no barrier in getting a slice of this year's funding which is expected to exceed the £250,000 barrier.

While 17-year-old Daniel Cash, from Wilmslow in Cheshire, remains the youngest ever recipient of a grant, Newton Aycliffe's Edward Allen has made his case for Senior Citizens by just claiming £3,000 for his alternative propulsion design for a bicycle. The 72-

year-old Co Durham 'old timer' is currently constructing a working prototype courtesy of the funding.

Any would-be inventor or designer, regardless of sex or qualifications – and of course age – can apply for an Audi Design Foundation grant which may help to get an idea from drawing board to the prototype stage courtesy of funding.

A committee, sits every six weeks to discuss applications while projects can be concerning any subject and not limited to the automotive industry. Three existing designs that have received Audi Design

Foundation grants, a wheelchair, football boot and laryngoscope medical device, are now either in full production or about to be underlining the credibility and importance the organisation has reached in less than five years.

### MORE INFORMATION

**For entry forms and further information. Tel: 01908 601570.**

**Web: [www.audidesignfoundation.org](http://www.audidesignfoundation.org)**

# Forestry Commission turns the heat on rural development

In a bid to strengthen its Rural Development programme, the Forestry Commission in England has taken on a new specialist, Julie Collins, 37. She will carry out a top policy role as Programme Adviser to the Government's Forestry for Rural Development Programme of the England Forestry Strategy.

After a career negotiating programmes with the EU and developing practical policies with vision, Julie says of her new post that she wants to show how new and existing woodlands can be managed to deliver more benefits to regional and local economies. Both closer links with the private sector, and capitalising on the opportunities for the wood-energy sector, will be key to the programme's success.

Julie says: "In the wake of foot and mouth and with changing agricultural policies the Government is focusing on the broader rural development agenda. Forestry is a truly sustainable activity producing a renewable raw material which we use in our daily lives. I plan to show our partners in Government and its rural agencies how forestry, as the second most important rural land-use after agriculture, can help to deliver their programmes

and agendas.

"Woodlands boost the economies of rural areas and can provide a focus for community development. They can transform derelict landscapes, provide opportunities for access, recreation and education, they provide wildlife habitats, and can help to tackle the challenges of social exclusion. Farming, tourism, transport and forestry are all interdependent in rural areas, and falling incomes

low value timber. This would deliver environmental benefits through the better management of woodlands and strengthen local communities through the development of community-based heat or combined heat and power systems.

"Forestry is a significant employer in the rural economy and I am especially keen to work closely with the private sector. Access to skills



"Forestry is a significant employer in the rural economy and I am especially keen to work closely with the private sector"

for the land use sector are driving forces for change. The Forestry Commission itself, through its agency Forest Enterprise, is the biggest single provider of rural tourism in England.

"A key area which shows the Government's evolving new approach to rural development is renewable energy. This provides a significant opportunity for the forestry sector in England. A vital wood-energy sector would also help underpin woodland management and the forestry-contracting sector by providing a new market for

training will be an important area so that the private sector can take advantage of new opportunities, like wood-energy, as they arise."

Julie graduated in Forestry Science in New Zealand in 1986. She began her career in England in 1991 with the former Countryside Commission on the (then) new Community Forest Programme. She later worked on CAP reform and land use issues, including leading the Land Management Programme team responsible for planning and tracking all the

Agency's work on land management. Julie also worked on the development of the Countryside Agency's current strategy 'Towards Tomorrow's Countryside' which established both the vision and the agenda of the new organisation. In 2000 Julie headed up MAFF/DEFRA's LEADER+ team responsible for setting up the £32 million EU LEADER+ Programme – a community based rural development programme supporting 24 projects over six years.

# World-class congress will focus on agriculture's future

A world-class annual congress at which international leaders in food and agriculture will examine the challenges facing global agriculture, debate their effects and predict the impact on world farming food and trade, was launched in London.

Differing in both style and content from existing national and international food and farming conferences, The World Food and Farming Congress will take place in London every other year, alternating with other major venues throughout the world.

The inaugural congress, 'Meeting the needs of a changing world' will take place at Olympia, London, on Monday 25 and Tuesday 26 November, 2002, being associated with The Royal Smithfield Show. Organised by Clarion Events, and with the support of the Washington-based International Policy Council (IPC) on Agriculture, Food and Trade, the congress will be chaired by Lord Plumb, until recently chairman of the IPC.

Attracting speakers of the highest calibre, the congress will highlight practical developments in world farming and food production, establish a link between world policy issues, and examine practical advances in production techniques and new technologies. The event will also provide scientists and opinion formers with an opportunity to comment on significant issues related to food and agriculture, such as the use of biotechnology,

climate change and the form of the CAP.

Given its fundamental message, the congress will attract a high calibre audience, including politicians, agricultural policy makers, representatives from the food and supply industries, international traders, academics, scientists, environmentalists, consumer organisations and the media.

The opening days programme will include two sessions chaired by Lord Plumb.

The first entitled 'Future world demand and supply' will consider the effects of growing global prosperity on consumer demand and tastes in the context of constraints on water, land, environmental and health demands. Eminent speakers will include Ke Bingsheng, Director General, Research Centre for Rural Economics, Ministry of Agriculture, China.

In the afternoon, 'Trade issues and the globalisation of farming', will question whether free trade is a realistic proposition, investigate its limitations, and consider the implications of 11 September on food security issues. The session will also evaluate whether agriculture in the developed world can compete with the low wage structures and differing standards of animal welfare in developing countries. Amongst the speakers will be Robert Thompson, Chairman of the International Policy Council and Senior Advisor, Agricultural Trade Policy at the World Bank.

'The balance and transfer of

knowledge and experience', subject of the morning session on day two, will consider the implications of science, in particular biotechnology, on world agriculture and human health. Chaired by Lord Selborne, former Chairman of the House of Lords Select Committee on Science and Technology, the session will examine how the developed world can assist developing countries to deliver tangible benefits to their populations. It will include a paper by Margaret Karembu, Director, Africentre International Service for the Acquisition of Agri-Biotech Application in Kenya.

During the afternoon, the speakers, who include Dennis Avery, Global Food Issues at the Hudson Institute, will address 'The conflict between the affluent consumer and the needs of the majority'. In doing so, they will ask whether Western standards should apply to less affluent countries and question whether developing countries should be denied certain advances in science on the grounds of emotion rather than fact.

Speaking at the launch of the congress, James Brooks-Ward, Group Director of Clarion Events, said: "Global agriculture is undergoing a period of significant and rapid change. Never before have so many factors, such as economic and environmental pressures, population growth, changing consumer attitudes, increased affluence and new technologies, come together to create such an impact on world food production. The

World Food & Farming Congress has been designed to provide an overview of agriculture's role in this fast-changing world, answer the plethora of questions surrounding its future and highlight the opportunities that change presents."

Lord Plumb commented: "The World Food and Farming Congress is a significant and welcomed addition to the annual calendar of events. The fact that the International Policy Council has lent its support highlights the quality of the event and underlines its depth and credibility, both in terms of the quality of speakers and the audience it will attract."

The next World Food & Farming Congress is scheduled to take place in Central America during November 2003.

**World Food & Farming Congress**  
**Monday 25 and Tuesday 26 November, 2002**  
**Olympia Conference Centre, Kensington, London**  
**[www.wffe.co.uk](http://www.wffe.co.uk)**

## MORE INFORMATION

**Isobel Dennis, Congress Manager, Clarion Events Ltd, Earls Court Exhibition Centre, London, SW5 9TA. Tel: +44 (0) 7370 8853. Email: [info@wffc.co.uk](mailto:info@wffc.co.uk)**

# MEMBERSHIP MATTERS

THE NEWSLETTER OF THE INSTITUTION OF AGRICULTURAL ENGINEERS

## INSTITUTION OF AGRICULTURAL ENGINEERS - PROPOSAL FOR CHANGE OF NAME

The proposal that members should be asked to consider a change of name of the Institution was put to the AGM on 15 May 2002. I opposed it.

The proposal had previously been considered at various times in the past and rejected for a number of reasons, including as I recall:

- the present name has been established for over 60 years;
- we are proud to be agricultural engineers;
- the name describes what we do;
- a change would cause uncertainty rather than remove it;

- suggested alternatives were weak and uninspiring; and
- a new name would signal the effective demise of Agricultural Engineering.

What do we think has been the effect in recent years of changes of name to, for example, Silsoe Research Institute, Silsoe College, Defra, Consignia? What happened to British Airways following the replacement of the Union Flag on their aircraft with ethnic symbols? Did the change of image convey confidence, and clarity of purpose, or was it

indicative of a wish, like New Labour, to appear as all things to all men?

We are in a superficial and politically correct era, where euphemisms, spin and image take precedence over substance and tradition, not to mention reality. Do we honestly believe that potential members of this great Institution really fail to grasp and understand the breadth and scope which those two words – Agricultural Engineers – embrace? To believe that would be to do them an injustice.

Of course the Institution has many problems. We have many problems. But a change of name, rather than providing a solution, would in my view represent an irreversible step on the road to extinction. I appreciate that my view may not be universally shared, but that the change would be irreversible is incontestable.

What should we be doing? Of course the Council and Secretariat are constantly reviewing activities across the professional spectrum which the Institution encompasses, and it is a fact that the emphasis in recent years has

shifted towards information-based technologies and environmental issues. That evolution must inevitably be reflected by the Institution, and indeed if it is to remain a relevant force, it must take the initiative and lead rather than follow.

I believe the future for Agricultural Engineers is as rich with opportunities as ever it was in the so-called Golden Age of farm mechanisation of the second half of the 20th century. The key to success, now as always, is to identify trends, anticipate future needs and provide timely solutions. Change is inevitable and continuous – it is to be welcomed rather than resisted, managed rather than suffered, but change for change's sake leads only to a blind alley.

My proposal is that the Council nominate a Sub-Committee comprising the President, the Secretary and three others to undertake a wide-ranging review of the Institution and its activities, based on the SWOT principle: Strengths, Weaknesses, Opportunities and Threats, with the following terms of reference:

(1) to consider, identify and list all adverse and positive factors influencing the present and future development of the Institution, and in each case to propose action respectively to counter or reinforce such factor; and

(2) if after such a broad review it were to appear to the Committee that one of the essential elements of the overall programme of future development would be a change of the name of the Institution, and that an incontestable case in favour of such a change had been made, then to set out that case in full detail, with a recommendation to that effect, in the proposals to be submitted by way of a Report to Council.

Following approval or amendment of the proposals by Council, it would then be appropriate to canvass members' opinions on the proposals by way of a letter to all members from the President. Approval of a proposal to change the name of the Institution would require the support of 75% of members responding.

John Fox



## THEO SHERWEN ENGINEER, INNOVATOR AND DESIGNER

Theo Sherwen, who died aged 92 on 14th July 2002, began his distinguished career in Mechanical and Agricultural Engineering as a draughtsman with the Squire Car Co. of Remenham, Berkshire. There, he had a hand in designing the supercharged 2-litre Squire sports car in the 1930's – a notable model comparable with the Aston Martins and Frazer-Nash cars of that era; only a few were made, and just two or three of the original cars now remain in going order.

He then joined Harry Ferguson, where among other original design developments he was responsible for the Ferguson hydraulically-operated

trailer hitch, since copied by all other tractor manufacturers, allowing the use of two-wheeled trailers with the axle at the rear and the consequent transfer of weight to the tractor's rear wheels, greatly adding to the tractive ability of a light tractor. He was particularly proud of this invention, not only for its worldwide use in farming, but also for its life-saving potential in the tragic circumstances of the plight of the Kurdish refugees escaping from Northern Iraq, and subsequently the Kosovans fleeing in the Balkans. Their means of transport on hazardous and mountainous roads was invariably by tractor and trailer – all with the

Sherwen-designed hitch enabling them to carry many people to relative safety in such difficult terrain.

Later, as an independent consulting engineer, Theo specialised in applications of hydraulics and power transmission in agricultural machinery. One of his special projects was a weed-cutting boat, produced in collaboration with John Wilder Engineering Ltd., of Wallingford. He was also instrumental in the design of a small tractor with four innovative hydraulic wheel motors, in collaboration with BSA, regrettably discontinued when that firm was taken over.

He was intimately connected with the Institution of Agricultural Engineers, and was involved in the early stages of discussions with the Council of Engineering Institutions and the

Engineers Registration Board which led in due course to recognition of the Institution as a Nominated Body of the Engineering Council. Also instrumental in the foundation of the agricultural engineering-based charity, the Douglas Bomford Trust, he was its Chairman from 1972-88. Serving as President of the Institution of Agricultural Engineers from 1967-69, he was made an Honorary Fellow in 1974.

Theo Sherwen, CEng, HonFIAGrE, was born on 7th March 1910, and died on 14th July 2002 at his home in Chiselborough, Somerset. Predeceased by his first wife Aileen, he is survived by his second wife Kathleen and by the son Michael and daughter Amanda of his first marriage.

*J.A.C. (Ian) Gibb*

## TCDM DAVID MANBY OBE

An address presented at the funeral held on 21 June 2002 at St James Church, Silsoe

I feel deeply honoured and somewhat overawed to have been asked to say something of David's professional career. This will not be all about engineering because what made David so successful and led to so many remarkable achievements was, in part, his engineering and his research skills, but also, in part his personality. Here his attributes were those of imagination, of drive and of inspiration: in short the skills of a great leader.

When the history of Agricultural Engineering is written, the name of David Manby must appear on so many pages. Looking towards the end of his career first, one sees his leadership in the development at the National Institute of Agricultural Engineering (NIAE) of so many new and improved machines by Wilf Klinner's team (forage), David Patterson's team

(cultivation), and Ivor Kemp's team (horticulture) in particular, all led by TCDM. Equally important was his role in developing the relationship between so many manufacturing companies and the Institute, based on the achievement of mutual trust and interest in one another's abilities and needs, so that the ideas conceived and tested at NIAE could nearly all be licensed for manufacture. His personality led to the directors and engineers in many companies becoming his personal friends and, through this, supporters of the NIAE and enthusiastic employers of its ideas. A Queen's Award for Innovation, the MacRobert Award (engineering's premier award) and many Royal Agricultural Society of England (RASE) medals came from the Institute's work and its collaboration with the manufacturers at that time. One of the 'buzz words' these days is

'networking'.

I think we can all see that David was one of the first networkers. I still feel, however, that his main love was tractors, so at this point I will return to his beginnings.

David was born in Chapellthorpe Hall in Wakefield in 1923, gaining a scholarship to Queen Elizabeth Grammar School, Wakefield and entry to Leeds University in 1940, where he graduated with first class honours in Civil Engineering in 1943. After one year's apprenticeship at Metropolitan Vickers Manchester, he joined the National Institute of Agricultural Engineering at its war time home in Askham Bryan near York. (He actually manned an Anti Aircraft battery on the East Yorkshire coast during the latter part of the war but was, I think, more at home in the 'swords into ploughshares' aim of seeing how Bren gun carriers could be used as tractors.) He persuaded Mabs

to marry him in 1946, with them sharing an interest in riding at that time.

In 1947 the NIAE moved to Silsoe and he played a major role in planning and establishing the facilities for tractor research and testing. Tractor testing was at that stage carried out on the runway of disused Tempsford Airfield.

David gained an MSc by research into the performance and design of tractor tyres in 1948. At the same time, he and his family moved into number 3 Wrest Park. He led research into tractor engine wear and engine air cleaners – so vital with tractors increasingly being employed within dusty areas in the world's developing regions. He pioneered radio isotope piston ring techniques and also had much to do with the setting up of an investigation and testing unit in East Africa. Back in Silsoe, his trials' work including early assessments of models emerging from new manufacturers such as

Nuffield as well as new types of vehicle like the Land Rover, Austin Gypsy and JCB digger. Later he promoted the use of safety cabs which saved so many lives.

Tractor and safety cab testing was developed under the auspices of the Organisation for Economic Co-operation and Development (OECD) to become a very sophisticated process. David was one of the major international contributors. His influence in the annual meetings held in OECD headquarters in Paris was such that I remember with pride being told by the Danish delegate when I won an argument against him: "You're as bad as Dave Manby!". David was seen as a standard of excellence in tractor test matters. Furthermore, on greeting the delegates at each meeting – whether from the USA, Scandinavia or Japan, the first question would be "How is Mr Manby?".

Of course, David's overseas activities stretched well beyond Paris. He worked in Africa to mechanise the attack on locusts, in India he helped to develop the tractor and machinery testing station where again I found him well remembered by all.

Outside the NIAE, David whole-heartedly supported the engineering profession. He organised many conferences for the Institutions of Agricultural Engineers and Mechanical Engineers and he was appointed President of the IAgRE from 1976 to 1978. Typical of the great energy and the increasing status he brought to that organisation was a reception held at the Guildhall in the City of London. He was presented with the IAgRE Award of Merit in 1985 having previously won major awards from IMechE for his tractor research. He represented the IAgRE on the Court of Cranfield University for more than 20 years until his death. And only on the Sunday

before last was telling June and me with great pride of the large government grant just received at the Silsoe campus for research related to scrapie in sheep.

With Cranfield as with NIAE and post retirement consultancies he was always searching for new ways to tackle knotty problems. In addition, his superbly enquiring mind found great satisfaction in the forensic engineering problems of his legal consultancies.

Despite all these activities, David had a great love of home and a great home life – Mabs, Chris and Stephanie can vouch for this. Silsoe House – how he must have loved being able to acquire this – has always been such a welcoming environment, be it a mug of tea in the kitchen, a roaring open fire in the sitting room, or a splendid meal in the classic dining room. My memory goes back to the occasion when Alan Reece and I were invited to persuade Chris over dinner that Agricultural Engineering was a civilised profession – we obviously failed because he became a civil engineer. Of course home to David and family is not just Silsoe, but also Pembrokeshire – Tenby and Saundersfoot or at sea in his boat – and Chapelthorpe Hall in Yorkshire which is still owned by the family.

Property development was another remarkable aspect of his career, with many buildings in West Wales benefitting from his imagination, hard work, and sometimes struggles with the 'National Park' and county authorities. The range of his building is well illustrated by recent and current projects – a new lean-to greenhouse modified and erected by him personally at Silsoe House and at Bryn y mor Tenby what are probably to be the most luxurious apartments in West Wales, having a private in-door swimming pool and gymnasium.

At Heathrow is a large illuminated picture of Tenby harbour – with one of his properties, Laston House, at the centre – which greets visitors to the UK at Terminal 3 arrivals hall. I often found this an inspiring home-coming and it has been mentioned by overseas engineers visiting NIAE. It may also now be possible for his forests near Lampeter in mid Wales to be seen from the air on transatlantic flights.

All this shows what a truly remarkable man David was. Being honoured by the Queen with the award of an OBE in 1980 pleased him and all his friends. Never was this honour better deserved.

Being such a busy man and such an achiever, it would be

easy for a person to be rather remote and even rather colourless. David was the exact opposite in that he always took great personal interest in the achievements of his friends and colleagues. His character was also not colourless. In fact, working or travelling with him seemed to guarantee adventure. I could tell so many stories and I am sure Des Smith could tell many more, from the bidet we broke in Paris to June's story of distributing meals on wheels with him as passenger when a flying branch nearly shattered the car windscreen.

David, my personal thanks for my training, my adventures and for my introduction to West Wales. My thanks on behalf of agricultural engineers for the years of high achievement both of NIAE and of the many tractor and machinery companies that you helped, and guided.

Finally on behalf of all your family and friends here present and those many around the world unable to be here today, we salute your life of innovation and development, of leadership and of achievement. We are unlikely to encounter your personality and your charisma again.

John Matthews

## Long service certificates

Name	Grade	Date of Anniversary
<b>50 years</b>		
Peter Saunders	CEng MIAgRE	16 Jul 2002
<b>35 years</b>		
Edmund John Bates Greenwood	AIAgRE	27 Jul 2002
Robert Wyper McMath Stewart	IEng MIAgRE	27 Jul 2002
Anthony Noel Curry	IEng MIAgRE	27 Jul 2002
David Keith Morris	Eur Ing CEng MIAgRE	27 Jul 2002
<b>25 years</b>		
Colin Peter Crossley	CEng FIAgRE	14 Jul 2002
Geoffrey Hanson	FIAgRE	14 Jul 2002

# THE NAME CHANGE DEBATE

## (A SUMMARY OF EMAILED SUBMISSIONS RECEIVED BY THE SECRETARIAT)

Following the article in the early summer edition of *Landwards* by the immediate Past President, Geoff Freedman, on the subject of the possibility of a name change for IAgRE, the Secretariat sent a reminder email and invited responses. A good number of email responses had been received by the copy date for this edition of *Landwards*. To assist with the stimulation of further debate, the responses received to date are summarised below.

As a preamble to the responses, it should be remembered that there has already been a 'name change by stealth' which has taken place over the last few years. In effect, we at the Secretariat have been increasingly making use of the acronym IAgRE in preference to the full 'Institution of Agricultural Engineers'. Indeed, looking at the current edition of *Landwards*, you will see that words 'Institution of Agricultural Engineers' does not even appear on the front cover. This is in response to the perceived need to widen our appeal to include those who may not be

in agriculture and who may not necessarily see themselves as engineers.

The current 'tag' or 'strap' line used in much of our newer publicity material is:

'IAgRE – the professional body for engineers/managers/scientists/technologists and students in the land based sector'. The full name 'Institution of Agricultural Engineers' is still used but to a much lesser (and in terms of font size – smaller) extent but it is still there and will always be there – somewhere!

Using this approach allows us latitude to apply a different tag line according to the marketing circumstance or audience.

Any vote therefore to maintain the name would be, in effect, a vote for this status quo and not the status quo ante.

### And so to the emailed responses.

Those received so far have been approximately 65% against a name change and 20% for and a somewhat neutral middle arguing constructively in both directions but being somewhat stymied by the lack of a suitable name.

The reasons articulated against include:

- Present name is well established, internationally recognised and is part and parcel of the Institution's reputation
- We are proud to be, and to be recognised as, agricultural engineers
- The name describes what we do
- A change would cause uncertainty rather than remove it
- Suggested alternatives are weak and uninspiring
- A new name could be seen to be signalling the demise of agricultural engineering
- What has been the effect of recent name changes (e.g. Post Office to Consignia; BT Cellnet to O2; TECs to Learning and Skills Councils; GCE to GCSE).
- It takes many years to raise the profile of a new name to the level of acceptance of the old.
- Any name change will cost money. Better to put that money towards better marketing campaigns to the parts of our existing bailiwick that have been largely ignored to date e.g. dealer employees and tech-

nicians

- We should incorporate the word British in the existing title. (The original name of the Institution was the Institution of British Agricultural Engineers – IBAE. The name change to the Institution of Agricultural Engineers – IAgRE came into effect on January 1st 1960 to accommodate in part, the fact that many of the Institution's membership were from overseas. Indeed, it is still the case that some 16% of the IAgRE membership live at overseas addresses. – Ed)

A small number of respondents indicated that they would not wish to be a part of an institution that did not describe itself using the words agriculture and engineer.

One respondent identified the fact that we have already changed to IAgRE and was supportive of this approach.

Those for a name change recognise the need for an all encompassing name but have been unable to make many suitable suggestions.

C RWheathall

## Commercial Members

Autec Design Ltd  
Stockley Road  
Heddington  
Calne  
Wiltshire  
SN11 0PS

Douglas Bomford Trust  
16 The Oaks  
Silsoe  
Bedford  
MK45 4EL

Bomford Turner Limited  
Salford Priors  
Evesham  
Worcestershire  
WR11 5SV

John Deere Ltd  
Harby Road  
Langar  
Nottinghamshire  
NG13 9HT

FEC Services  
NAC  
Stoneleigh Park  
Kenilworth  
Warwickshire  
CV8 2LS

G C Professional Services  
for land-based and related  
industries  
Highdown Cottage  
Compton Down

Winchester  
Hampshire  
SO21 2AP

Law-Denis Engineering Ltd  
Millstream Works  
Station Road  
Wickwar  
Wotton-under-Edge  
Gloucestershire  
GL12 8NB

David Ritchie (Implements) Ltd  
Carview Road  
Suttieside  
Forfar  
Angus  
DD8 3EE  
Rotomation Ltd

Summerwood Lane  
Halsall  
Ormskirk  
Lancashire  
L39 8RH

White Horse Contractors Ltd  
Lodge Hill  
Abingdon  
Oxfordshire  
OX14 2JD

# QUEEN'S AWARD FOR ENTERPRISE:

# INNOVATION 2002

**ANDREW Garnett** went to Newton Rigg College in Cumbria to learn about farming technology four years ago at the age of 19. He came away without any qualifications but the beginning of a business that has earned his family's business a Queens Award for innovation. He used his college time to answer an SOS from his father and fulfil a college project assignment – develop a machine that takes the bucket and shovel, as well as the back-breaking and tedious work, out of laying straw and sawdust to bed down the farm's herd of Holstein cattle.

Andrew, the youngest of three sons, came up with a

design and a machine after a series of setbacks and trials. The company that resulted from it all, Garnett Farms Engineering – based at the 200 ha family farm at Allstock, near Knutsford, Cheshire – is now a thriving business.

The four-strong team – mother Pamela is

company secretary and cheerleader – has sold almost 600 of the machines around the country and is now exploring export markets as well as adapting the machine for sport and leisure markets. The Garnett family failed to enthuse banks or attract interest from three companies offered rights to the machine

and decided to go it alone. The machine has won a number of farming awards including a RASE Silver Medal this year, and users comment that it is almost maintenance free and provides a considerable saving of bedding materials.

Mrs Garnett said: "We encouraged him throughout the project work. He might have failed all his exams but how could we be disappointed? Look what's happened since then."

(Source: Daily Telegraph, 22 April) [See also: Royal Agricultural Society of England Machinery Awards – winners 2002 Ed]



## Academic Members

Askham Bryan College  
Askham Bryan  
York  
YO23 3FR

Cranfield University (Silsoe)  
Bedford  
MK45 4DT

Duchy College  
Rosewarne  
Camborne  
Cornwall  
TR14 0AB

Harper Adams University  
College  
Newport  
Shropshire  
TF10 8NB

Myerscough College  
Myerscough Hall  
Bilsborrow  
Preston  
Lancashire  
PR3 0RY

Oatridge Agricultural College  
Ecclesmachan  
Broxburn

West Lothian  
EH52 6NH

Pencoed College  
Pencoed  
Bridgend  
CF35 5LG

Reaseheath College  
Reaseheath  
Nantwich  
Cheshire  
CW5 6DF

Sparsholt College  
Sparsholt  
Winchester  
Hampshire  
SO21 2NF

Wiltshire College - Lackham  
Lacock  
Chippenham  
Wiltshire  
SN15 2NY

Writtle College  
Chelmsford  
Essex  
CM1 3RR

## Membership Changes

### Admissions

Fellow  
J Moverley (Lancashire)

### Member

R A C Montgomery (Kent)  
J F Oldfield (Norfolk)  
T H Robinson (Cambridge)  
T Rymer (East Yorkshire)  
C T Sherrill (Nottinghamshire)

### Associate Member

T M Farrow (Lincoln)  
P R McFerran (Warwickshire)  
H J Murray (Leicestershire)

### Associate

K A Adenuga (Nigeria)  
F R Shellard (Somerset)  
N P Swift (Kent)

### Deaths

L B Cheal (Malawi)  
T C D Manby (Bedfordshire)

### Transfers

Member  
P M Wightman  
(Buckinghamshire)

### Engineering Council Registrations

**CEng**  
M J Povey (Gloucestershire)

### IEng

N P Porat (Buckinghamshire)

### Does anyone know the whereabouts?

**Name**  
Bruce Cusworth

**Last known address**  
5 Torrin Drive, Radbrook  
Green,  
Shrewsbury,  
Shropshire SY3 6AW

# OPINIONS ON THE NAME CHANGE

## LETTERS TO THE EDIT OR

24 June

I write following the article in the latest edition of Landwards, and the mail reminder I received today. My thoughts are summarised as follows:

(1) The name of the institution could be changed to reflect the nature of today's industry. This, however, is only part of a measure to increase membership – I do not believe a name change alone will address the problem. Other societies such as RASE also have the same problem – they are now focusing on 'rural affairs' and it would be a good idea to discuss industry changes with them.

More manufacturer/corporate members are also required – to do this, the IAGrE needs to have more of a voice in legislation and product applications – a role currently fulfilled by various associations – partnerships with these associations would also be an idea. An alternative to a name change would be a partnership or merging with a larger institution – perhaps the Civil or Mechanical Engineers, or even American 'institutions' and societies.

(2) If a name change were to go ahead, it is very important that the xIAGrE designation after members' names remains. This cannot be stressed enough. It may be that members could have a choice between the current and a new designation.

*Ian Sayers AMIAGrE*

24 June

I have the opinion that the name should be retained until further information is forwarded to me.

*Kehinde Adenuga AIAgrE*

27 June

I feel a number of points should be borne in mind over this issue.

- Surely it is quality that counts, not quantity.
- The name 'Institution of Agricultural Engineers' is recognised world wide as authoritative. That 'authority' would evaporate overnight with a name change, along with the influence the Institution carries. I suggest the Royal Mail/Post Office debacle, with the meaningless 'Consignia' name, as the prime example. The current name has a cachet which would prove difficult, even impossible, to match.
- Lastly, and very personally, too many things in this world are changing and at too fast a pace. On this matter of name, is it not better to stick to the time tested and proven title?

*Bob Dixon AIAgrE*

4 July

I joined the Institution of Agricultural Engineers whilst still a student in 1964. In my first year of membership, I attended the Institution's AGM and was a voice of dissent on some issue, the details of which I have long forgotten. When I qualified and obtained my first serious employment in Devon, the then Secretary of the Institution, a man called Bennett, approached the South Western Branch Committee and suggested that I should be encouraged to join the local committee. I duly did so and have been, I like to think, a supportive member of a branch committee ever since 1965 and an office holder since about 1970. I joined the Institution because it represented my chosen career as an agricultural engineer. Agricultural Engineers may be a

declining breed but I still believe that engineers working in agriculture and its related fields are at the heart of the Institution and represent its core membership. I am a traditionalist who didn't approve of the change of logo, as neither did all of the committee of the Southern Branch at the time. If the Institution of Agricultural Engineers changes its name in some misguided belief that it will increase the size of its national role then I regret to say I for one will no longer choose to belong.

*Oliver Statham IEng MIAgrE  
Hon. Secretary & Treasurer  
Southern Branch IAGrE*

6 July

I suggest the Institute of Environmental Engineers.

*David Roe IEng MIAgrE*

[Remember to consider the acronym as well as the full version when suggesting alternative names. Ed]

9 July

I see that the question of a new name for the IAGrE is in the frame again. This was considered at some length when I was on the Executive Committee in the late 1980s, and the decision was taken then, rightly in my view, to leave well alone. The arguments for change were these; I suspect that they are the same today:-  
(1) Both 'agricultural' and 'engineering' are words with unfortunate connotations for some people, and are associated with pollution, bad husbandry, disease transmission and old-fashioned smokestack industries.  
(2) The Institution is keen to demonstrate that it caters for wider interests than just farming, and wants to attract members from the food, forestry, amenity

and sports industries.

However, no other name describes what we do as well as the one we use now, and there are serious implications in changing it. One of these is that many people will no longer recognise us. This is a serious issue; all the mobile phone networks have recently changed their names – why, I can't think – and I don't know which network I'm on!

It is important to have a name which describes what we do, and by which our members are proud to be identified. I would like to remind you of the experience of my other Institution, IMechE., when they planned to merge with the Production Engineers about twenty years ago. The merger was obviously sensible, and received strong backing from the membership, until the question of a name for the merged Institution came up. The chosen title had an acronym which looked and sounded like MINCEPIE. The membership revolted at having this after their names, and the merger didn't happen. The name matters.

It is fashionable just now for long established organisations to change their names, usually to disguise the failings of the current management. Unfortunately the new names are usually so stupid that they merely emphasise these failings. Marconi and Consignia are two examples.

The moral of this story is that a name change is seldom the answer to a problem, and can often make it much worse. If in doubt, don't do it.

*J.C. Jeffery CEng FIAgrE*

15 July

It does what it says on the label. It is not a name change that is needed but a raising of public perception of the broad spectrum of activities that constitute agricultural engineering.

*Vaughan Redfern MIAgrE*

# PRINCIPLES AND PRACTICE

## FOR DESIGN ENGINEERING OF LIVESTOCK BUILDINGS

Mike Kelly and George Campbell

Attention to detail and appropriate materials can result in buildings of the highest standards



### Background

The statutory controls over the design, construction and siting of agricultural buildings and associated farm waste storage facilities have been continuously updated over many years in response to more rigid control over development in the countryside and a greater public awareness of environmental issues.

Early consultation and discussion with the appropriate Local Planning Authority (Building Control and Planning and Environmental Health), the Environment Agency (Scottish Environment Protection Agency SEPA in Scotland) and advice from experienced specialists, as appropriate, is strongly recommended. This should help to limit any unnecessary costs, abortive work or delay, and may prevent enforcement procedures in respect of work undertaken without appropri-

ate approvals and also consents and/or prohibition of use.

This article outlines the main statutory controls applicable to agricultural buildings and comments on the effect of these controls and their uptake in practice.

### Planning

Advice on planning matters may be obtained from the relevant Local Planning Authority. This may involve informal or formal discussions and negotiations prior to formal submission.

All new or significant alteration or significant extension of agricultural buildings and structures will require either 'Prior Planning Notification' or 'Planning Permission' [HMSO, 1992].

The usual interpretation of 'significant extension' is where the cubic content of the building increases by more than

10% or the height of the original building is increased.

'Permitted development' benefits some agricultural development under the relevant planning legislation and full or formal planning permission may not always be required.

### Prior Planning Notification

This is a simplified submission procedure to confirm that the Authority accepts the proposals as 'Permitted Development' and it must be undertaken prior to any work commencing on site. Procedurally, it is less demanding than for planning permission.

Work on site cannot begin within the 28 days period unless the Authority issues written acceptance. If the Authority does not reply within 28 days of their receipt of the notification, it may then be regarded as 'Permitted



### BIO NOTE

This paper was presented at the IAgRE Annual Conference entitled *Design and Construction of Agricultural Buildings* held at Harper Adams University College on 15 May 2002. Dr Mike Kelly is a Design Specialist with his own consultancy business *Build Design*, Knockendale Cottages Symington, Ayrshire KA1 5PN. Tel: 01563 830147. E-mail: [mikelly.builddesign@btinternet.com](mailto:mikelly.builddesign@btinternet.com). Mr George Campbell is a Chartered Civil Engineer and Chartered Building Surveyor with his own Ayrshire-based consultancy business at 1 South Dean Rd Kilmarnock KA3 7RE. Tel/fax: 01563 523404. E-mail: [ghcc@btopenworld.com](mailto:ghcc@btopenworld.com).



**Maintenance and repairs should be in sympathy with the original construction!**



Development' and work can proceed.

### Planning Permission

Certain types of agricultural development do not benefit from permitted development rights and so require a formal application for planning permission. These include:

(a) development on farms and holding of less than 0.4 hectares

(b) construction, alteration or extension of a dwelling house (including farmhouse)

(c) building or works not designed or intended for an agricultural purpose

(d) the construction, alteration or extension of any building or works –

- over 465 square metres in area (in calculating this area the Planning Authority will take into account any permitted development which has taken place within 90 metres of the proposed site in the previous 2 years)
- over 12 metres in height or 3 metres in height if within 3 km of an aerodrome
- within 25 metres of a metalled, trunk or classified road
- used, or to be used, for: intensive livestock accom-

modation or storage of slurry or sewage sludge

- within 400 metres of a 'protected building'.

A 'protected building' is a building normally occupied by non-agricultural people e.g. house, school, hospital, residential home, etc. It does not include buildings occupied as, or forming part of, a working farm or other agricultural unit or certain special industrial buildings.

Planning application forms and guidance in making an application are available from the Planning Authority. Application for planning permission must always be accompanied by the appropriate plans, including a location plan, necessary submission fee and certificates that, where appropriate, any neighbours, owners, tenants, occupiers and other land interests have been formally notified. The Planning Authority may require some applications, such as agricultural slurry stores, to be advertised in the local press. Any other interested party affected by the proposals may also make representation to the Planning Authority.

Applicants have the right of

appeal against refusal of permission and/or against any conditions attached to a grant of permission. Applicants also have the right of appeal if the Planning Authority fails to give a decision within the statutory period of 2 months from the date of application. This is usually problematic as appeal procedures are slow and time consuming.

Work must not commence on site until planning permission has been granted.

Prior Planning Notification does not appear to be working well in practice, in that some Local Authority staff are receiving few notifications even when there is a significant amount of farm building activity in their area. Despite the legislation being in place since 1992, many farmers and builders are unaware of the requirement to notify for a new farm building, or significant extension.

This situation is pertinent to a lesser extent for planning permission. Some farmers and contractors are erecting buildings without planning consent, either through ignorance, or deliberately, taking a chance. This is particularly true in remoter rural areas, where there is less likelihood of neighbour objections.

There is a definite need for Local Authorities to promote awareness of the planning legislation, but busy staff do not always see the benefits of promoting an activity which creates even more work.

Farmers are not keen on the additional paperwork, delay and uncertainty involved, especially should an over-zealous conservation officer become involved. Furthermore, application fees, which continue to rise above the inflation rate, do not help. A moderate dairy complex of 1200 sq. m now requires a planning fee approaching £3400.

After many years of planning exemption up to 1992,

the benefits of planning control have yet to be fully sold to the farming community. Many farmers are proud of their buildings and are willing to invest in their appearance and landscaping. However, farm buildings are primarily highly functional, with cost constraints that do not allow much scope for manoeuvre. Planners must understand this, and offer practical support coupled with good educational material, for example 'Planning Advice Note 39'. [HMSO 1993].

### Environmental assessment

The Environmental Impact Assessment Regulations 1999 refers to 'intensive agriculture' although this term is not specifically defined in these or other current regulations.

Schedule 1 'Development' under these regulations refers to a development comprising of 'installations for the intensive rearing of pigs and poultry with more than – 85,000 places for broilers or 60,000 places for hens; 3,000 places for production pigs (over 30 kg); or 900 places for sows.'

Schedule 2 of these regulations describes under 'agricultural development', intensive livestock installation (unless included in Schedule 1) and sets the applicable thresholds and criteria as the area of the floor space exceeds 500 sq. m'.

This may entitle the Planning Authority to request an 'Environmental Impact Assessment' (EIA) to accompany all applications for any or all of the above categories of building.

The Department for Environment, Forestry and Rural Affairs (DEFRA) have started to consider certain dairy and cattle projects as intensive housing and, therefore, as possible candidates for an Environmental Impact Assessment. This is causing some confusion, since an EIA can be expensive and can

Structural certification is required for this silage clamp wall for a building warrant if applicable and under the Control of Pollution (Agriculture) regulations in Scotland



cause considerable delay to a project start.

### Building control legislation

The Building Standards (Scotland) Regulations 1990–2002 apply to agricultural buildings in Scotland and compliance should ensure good building practice in the interests of public safety and pollution control. Agricultural buildings in England & Wales are not subject to building control regulations to the same extent.

Prior to the commencement of work on site in Scotland, a Building Warrant is required from the relevant Building Control Department of the Local Authority for the following agricultural buildings and structures:

- internal building capacity of a 'detached' building exceeds 2,000 cubic metres (any 'attached' buildings would be considered to be included in the 2,000 cubic metres)
- any building which is to be erected within 10 metres, or the equivalent of its height, whichever is the less, of the

boundary of a building that is in residential use e.g. dwelling house, residential home or institution

- all dungsteads, middens, slurry stores and farm effluent tanks
- any building used to any extent for retailing (including storage of goods for retailing or exhibiting), e.g. farm shop
- where a wall exceeds 1.2 metres in height or a fence 2 metres in height
- any building used for food processing, e.g. milking parlours and dairies
- any demolition or dismantling work

Appropriate application forms may be obtained from the relevant Building Control authority. Completed forms, appropriate fee and plans and drawing need to be submitted. Building Control may require structural design certification prior to issuing a building warrant.

After a building warrant has been issued, Building Control must be notified in writing when work commences on site, when drains are ready for

inspection and testing and when work on site is completed. A certificate of completion must be obtained from Building Control prior to the building being used or occupied.

The requirement for a building warrant in Scotland has helped to maintain standards for those buildings requiring compliance. Farmers do not always appreciate this however because of the paperwork involved, and the submission fee, for example £800 for a £90,000 project.

The option of bringing all farm buildings under Local Authority Building Control is being reviewed in England and Wales. This has no support currently from the Rural Design and Building Association, including the construction group members, but it is recognised by them that a similar system of checking the structural design to that used in Scotland would greatly help to maintain standards. BS 5502 could have an important role to play as 'deemed to satisfy' for the Building Regulations.

### Pollution Control Regulations

The Control of Pollution (Silage, Slurry and Agricultural Fuel Oil) Regulations 1991 enforced by the Environment Agency (SEPA in Scotland), impose statutory requirements, notifications and procedures on any related proposals commenced after 1991.

Detailed technical, dimensional, siting and performance requirements are specified in 'Schedule 1' for Silos, 'Schedule 2' for Slurry Storage Systems and 'Schedule 3' for Fuel Oil Storage Areas.

In Scotland, SEPA require certification of new proposals by a Chartered Civil or Structural Engineer (Design - Certificate A); the builder or supervisor (Construction - Certificate B); and the farmer (Person having Custody - Certificate C).

The Control of Pollution (Agriculture) or COPA Regulations, require the provision of impermeable channels, structural walls and floor slabs. Facilities require to be designed and constructed so that, with proper maintenance, they are likely to have a minimum life expectancy of 20 years. Irrespective of the concrete quality or specification adopted, it needs to be protected from attack by silage effluent, which is highly acidic in nature.

The regulations have done much to improve standards and awareness of pollution control. They do, however, need to be constantly promoted within the agricultural industry to remain effective.

### Relevant British Standards

BS 8007: 1987 Design of concrete structures for retaining aqueous liquids is widely recommended in order to design reinforced concrete structures capable of satisfying the requirements for impermeability.



BS 5502 Building and structures for agriculture contains various parts covering:

- Reference information and legislation (Parts 10 to 19)
- General design (Parts 20 to 39)
- Livestock buildings (Parts 40 to 59)
- Crop buildings (Parts 60 to 79)
- Ancillary buildings (Parts 80 to 99)

Most of these parts date from the early 1990s and revision is currently under consideration for the following:

- Part 21 Code of practice for selection and use of construction materials
- Part 22 Code of practice for design, construction and loading
- Part 25 Code of practice for design and installation of services and facilities
- Part 50 Code of practice for design, construction and use of storage tanks and reception pits for livestock slurry
- Part 75 Code of practice for design and construction of forage stores

The following are now subject to the five-year review:

- Part 30 Code of practice for control of infestation
- Part 31 Guide to the storage and handling of waste
- Part 40 Code of practice for design and construction of cattle buildings
- Part 41 Code of practice for design and construction of sheep buildings and pens
- Part 51 Code of practice for design and construction of slatted, perforated and mesh floors for livestock
- Part 74 Code of practice for design and construction of bins and silos for combinable crops
- Part 81 Code of practice for design and construction of chemical stores

BS 5502 is the mainstay of agricultural building design, for general design as well as providing guidance on relevant structural loading, in addition

#### A method statement for demolitions is required under the Construction [Design and Management] Regulations



to permitted modifications to other British Standards relating to structural design involving steel, concrete, masonry and timber. It is an excellent comprehensive document of great value to the industry with a variety of parts as indicated above. However, the influence of BS 5502 as a means of imposing standards on livestock housing design is declining due to a number of factors.

- Decline in grant aid makes it tempting for some contractors to provide cheap structures not in compliance with BS 5502 Class 2. Many farm buildings are not eligible for grant aid, therefore there are no statutory checks for compliance.
- Lack of promotion means that many farmers do not understand the benefits to them of having a building compliant with BS 5502, at least as a basic standard safeguard.
- Farmers under financial pressure to minimise capital expenditure put contractors under severe pressure to provide as cheap a building as possible, hence there is a great temptation to cut corners.
- Farm quality assurance schemes have their own design standards, which do not

necessarily agree with BS 5502, and for many farmers compliance with QA is more important. This is particularly marked for organic livestock housing standards where for example the Soil Association [UKROFS, 1996] require 1.8 sq. m/kg bedded court area, compared with BS 5502: Part 40 requiring less than 0.8 sq. m/kg bedded court area.

- Parts of BS 5502 are out of date, but updates are planned as detailed above. For example in respect of complying with the space requirements of continental cows and calves, BS 5502 is very tight for cows over 600 kg, since it was written for traditional breeds which rarely exceeded that weight.
- BS 5502 is expensive to purchase at over £1000 for the complete set, but is available in small, affordable parts, provided you know what to ask for.
- Resources to update material are in short supply as designers, manufacturers and suppliers continue to struggle in the agricultural market.

#### Construction [Design and Management] Regulations

The Construction (Design and Management) Regulations

1994, commonly referred to as the CDM Regulations, may apply to the construction, alteration and erection of agricultural buildings. They are applicable in all cases involving demolition or removal.

The regulations reinforce existing requirements and duties on the client and designer to ensure that the work is carried out as safely as possible. The regulations set out to ensure that there is adequate provision made in the planning of the works, from inception to demolition, for health and safety requirements.

The Rural Design and Building Association (RDBA) have produced a free leaflet entitled 'The CDM regulations and the Farmer' that is useful and informative [RDBA 2000]. It explains:

- (a) minimum standards when erecting a building
- (b) when CDM does apply?
- (c) responsibilities of the farmer who, when constructing his own building, may find that they are responsible for any or all of the following roles:
  - client
  - designer
  - planning supervisor
  - principal contractor
- (d) delegation of CDM duties

(e) how a farmer can be sure the specialist contractor or designer is competent  
(f) how industry must take all steps to self-regulate effectively; otherwise external pressures may impose standards that are not agreeable to the industry

The CDM Regulations are having a positive effect on safety, both at the design stage and when on site. Safety nets are required when erecting roofs, and fragile roof sheets are now reinforced. However, much still needs to be done to promote the benefits of CDM, especially to the farmer client, and traditional farm building contractor.

Uptake of CDM, and education on CDM, has largely centred around large industrial and commercial construction projects. Many small farm projects are exempt from CDM Regulations, but this must not prevent the highest standards of safety being applied to such projects.

### Construction and maintenance standards

Despite all the ongoing legislation, a continuing decline in building standards is a strong possibility, including a lack of basic farm building maintenance [Kelly, 2000]. Poor design and construction standards on many farms was evident during the recent foot and mouth crisis, when a number of farms were visited by DEFRA staff. On some farms, conditions are so bad that Health and Safety assessments recommend that it is not safe to enter the farm buildings alone [Hughes, 2002].

Most successful farm businesses have good quality, well maintained buildings however, many failing farm businesses continue to operate from poor quality premises in dire need of planned, phased investment. The option for the latter is to quit farming, and this may be the reality as QA

and more rigorous legislation, particularly with regard to environmental protection and food safety, comes into effect.

The agricultural construction industry is taking its own steps to maintain standards. In 1999 The RDBA Construction Group was formed, mainly as a response to the Construction [Health and Safety] Regulations. The group comprises mainly of steel and timber frame suppliers and now has 44 members, with the laudable aim of promoting good, safe, working practices and raising the profile of agricultural building and manufacture. Membership is open to all agricultural builders and suppliers who have these aims.

This is an encouraging development in the war against poor standards. The agricultural construction industry must take all steps to self-regulate effectively; otherwise external pressures may impose standards that are not agreeable to the industry.

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## AWARDS

# Royal Agricultural Society of England Machinery Awards - winners 2002



## GOLD MEDAL – Simba Solo

The Simba Solo, launched in 1999, combines the action of discs, tines with options of wing and share size and configuration, and the RASE Silver Medal winning 'DD' press rings or rubber tyre rollers. In one pass and at very high work rates it can produce a seedbed that is:

- weatherproof to a great extent
- able to be safely left as a stale seedbed
- suitable for drilling cereals at any time
- re-structured below the sub-surface horizon without bringing difficult clods to the surface

The Solo fulfils the present day needs of the large-scale, low-labour cereal farm where speed and economy of operation has to be matched with soil treatment that can lead to maximum yields.

The machine is based on a massive single beam chassis carrying all the independently

### Awar d

Gold Medal	Simba Solo
Silver Medal & Lloyds TSB Award For Economic Merit	Monsoon Mobile Sheep Shower
Silver Medal & Grower Award	Triple Bedformer
Silver Medal	Livestock Controller
Silver Medal	TRX500 Quad Bike
Silver Medal	A G Dispenser FS 200
Silver Medal	Semis Direct
Silver Medal	McConnel Hy-Reach
Silver Medal	Valtra HiTech
Silver Medal	Unistock Cattle Crate Mk 2
Silver Medal	Lynx 'Frontline' Front Linkage
Silver Medal	Michelin MachXbib

### Equipment

### Compan y

Simba International
Monsoon Sheep Showers
Jones Engineering
William Taylor
Honda (UK)
Garnett Farms Engineering Ltd
Kuhn Farm Machinery
McConnel Ltd
Valtra Tractors (UK) Ltd
Premier Livestock Handling
Lynx Engineering
Michelin Tyres

mounted cultivation elements. At the front are 710 mm discs well proved in the 23C disc harrow series. They are followed by winged tines which have been refined by combining scientific research in the soil bin at Cranfield University, Silsoe, with practical field trials across a range of soil types by Simba engineers, to provide minimum draught and maximum soil loosening effectiveness. The tines can operate at

100 mm to 250 mm below leading disc depth, and can be hydraulically taken into and out of work from the driver's seat. They are followed by the DD press rings or, as an option, by rubber tyre rollers, and a further set of 760 mm discs working to about 25 mm deeper than the front discs to ensure full incorporation of any crop residues. A further set of press rings can be towed behind the Solo where

that is considered necessary.

Users interviewed were mostly very large-scale cereal growers who had taken action to streamline their system and so contain labour and machinery costs. The Solo in most but not every case produced a seedbed suitable for cultivator drill sowing in one pass. Work rates were high at 40 ha a day and more for the 6 m machines. Downtime was very limited, with tine points

and wings being quickly and easily replaced and discs not needing attention during the cultivation season. The customer support provided by Simba was exemplary.

#### CONTACT

**Simba International Limited, Woodbridge Road, Sleaford, Lincolnshire, NG34 7EW. Tel: 01529 304654 E-mail: philip.wright@simba.co.uk**

### **SILVER MEDAL & LLOYDS TSB AWARD FOR ECONOMIC MERIT – Monsoon Mobile Sheep Shower**

This mobile sheep shower features a purpose-built fully galvanised steel trailer with a 4.5 mm chequer plate aluminium floor containing an integral sump tank. It carries two 325 litre water tanks making it independent of a site water supply. The shower operates from jets on a top boom, with a further set of jets at floor level. The 600 l/min capacity pump is powered by a 3 kW Honda engine. In use the shower is supported on 4 screw jacks of 300 mm available travel. Treatment is usually 2.5 minutes from the top jets and 1 minute from the floor level jets to give complete saturation of the sheep.

The key feature of the shower is that it gives precise control of the dip solution to the benefit of the operator and the environment. At the end of a session dip for disposal or to be carried over to the next day does not exceed 25 litres. Trailer working height is 60 mm, which is convenient for the operator and more importantly allows a free view of the system for the sheep so that they run easily and with minimal stress into, through and out of the shower. Single person operation and very quick and easy setting up of the shower, make it suitable

for treating either large or small numbers of sheep.

Users found the machine effective in terms of the:

- thorough treatment of the sheep
- virtually eliminated problem of sheep dip disposal
- total independence of any facilities at the dipping site
- throughput which could comfortably exceed 2500 sheep a day
- profitability to the contractor providing the service

Lloyds-TSB Head of Agriculture Tim Porter selected this machine for the Bank award for its outstanding combination of efficiency and effectiveness, economy of operation and care of the environment.

#### CONTACT

**Trevor Wilson, Lower Bankside Farm, Cartmel, Grange over Sands, Cumbria. Tel: 01539 536416**

### **SILVER MEDAL & THE GROWER AWARD – Triple Bedformer**

The Triple Bedformer is designed for the larger scale vegetable grower who needs to create smooth level beds of uniform density directly from ploughed or de-stoned land. The three-bed capacity of the machine, with hydraulic folding, allows high daily work output and safe movement between fields. The folding beam carries three individual cultivating units, each consisting of a rotor with blades working to a depth of up to 300 mm and designed to minimise panning at the depth of cultivation. An adjustable hood ensures even distribution of tilth and even density across the bed width, a vital factor in achieving uniform growth of the crop.

The Bedformer users interviewed were very large-scale vegetable growers. Most machines were covering at

least 400 ha each year and one had seen 7 years of use. Every user rated the machine as excellent, competitive in price and fully effective in the field. They considered that it outclassed the imported competition. The vegetable growers are largely on light and abrasive soils which can be expensive in soil-moving parts. They were, however, all satisfied with the length of life and the cost of spares, and the necessary downtime for fitting. They particularly praised the service provided by Jones Engineering.

The Bedformer was selected for the Grower Award because of its clear contribution to further efficiency in the large-scale vegetable growing industry.

#### CONTACT

**Jones Engineering, 93 Akeferry Road, Westwoodside, Doncaster, DN9 2DX. Tel: 01427 752171 Fax: 01427 753673**

### **SILVER MEDAL – A. G. Dispenser FS 200**

The A G Dispenser 200 is a mounted poultry house litter spreading machine designed to accurately spread shavings, chopped straw and pre-mixed litters in large poultry houses. It is a separate development from the medal winning A G

### **Cow Cubicle-Bedding Dispensers.**

The machine is based on a 2 m wide steel bucket holding about 2.2 m<sup>3</sup> of material. The bucket tilts to the horizontal for self-filling. Two contra-rotating augers in the bucket feed the litter onto two contra-rotating discs which provide a spread of up to 12 m. Power is from a single hydraulic outlet, there being no power take-off (pto) requirement for this efficient spreading system. The weight of the spreader has been reduced, compared with the cow cubicle machines, to suit the requirements of the poultry producers with smaller skid-steers and loaders. However, it is still very robust.

Users, many of them with very large enterprises, reported labour reduction for littering by a factor of up to 5, together with substantial savings in litter through accurate depth of spreading. The spreaders have proved extremely durable in use, with minor problems being quickly resolved by Garnett Engineering.

#### CONTACT

**Garnett Farms Engineering Ltd, Clay Bank Farm, Allostock, Knutsford, Cheshire WA16 9NE. Tel: 01565 722922 Fax: 01565 723303**

**A.G. Dispenser pictured with inventor and designer Andrew Garnett, after being presented with his award at the Royal Show, Warwickshire**



## SILVER MEDAL – TRX500 'Foreman' ATV

The TRX500 is the largest of the Honda range of All Terrain Vehicles. The 499 cc water-cooled, dry sump petrol engine drives through a hydrostatic automatic transmission system but retains the option of manual control. Three hydrostatic modes D1 and D2 automatic and ESP manual are linked to a mechanical transfer gearbox for hand selection of high, low, neutral or reverse. The machine has a torque sensitive, limited slip, front differential, drum brakes front and rear, and permanent four-wheel drive.

Users, many of them with extensive experience of other makes and models of ATVs, praised the power, economy, stability and versatility of the 'Foreman'. In particular they valued the 'brilliant' transmission with its versatility, ease of use and substantial torque in the D2 range. Those interviewed used the Honda for a wide range of tasks in arable farming, stock work, forestry, sporting and leisure. Users showed great initiative in the variety of tasks they undertook, and the Honda performed well under all circumstances.

### CONTACT

**Tom Gardner, Honda (U.K.) – Power Equipment, 470 London Road, Slough, Berkshire, SL3 8QY. Tel: 01 753 590144 Fax: 01 753 590732**

## SILVER MEDAL – Semis Direct Drills

The Kuhn SD series direct drills are designed to sow into uncultivated land, or land that has been minimally or traditionally cultivated according to soil type and condition. It has a single central seed-metering roller capable of dispensing from 1.5 kg to 400 kg/ha depending on seed and cir-

cumstances. Distribution is by a powerful, low noise level, hydraulically driven fan.

The twin drilling discs are preceded by an opener disc, either serrated or wavy, applying a force of up to 250 kg to cut through trash and prepare a localised tilth for drilling. Accurate depth control is provided by depth wheels which also close the drilling slot and ensure good seed-to-soil contact. A central pivot between the opener and drilling discs ensures accurate following during turns and curves in the field. Seed rate adjustment is easy and accurate. The machine is put into transport mode hydraulically from the tractor seat, and the spring suspension allows smooth cross-country movement.

The principle behind the design of this drill is to reduce the cost of crop establishment, a need that is paramount in the minds of cereal producers today. Many users reported 30 ha and more drilled per day with major savings in labour, overall tractor power needs, fuel use and the cost of wearing parts. The drills seen were commonly drilling over 400 ha per season, and this, over several years' use, provided a good test of the quality of the product. Use as a strictly 'direct' drill was, however, limited. The majority of users were doing some cultivation, generally to about 50 mm, and the drill performed well under these conditions. It is clear that the drill does perform well under a range of cultivation depths and soil conditions. In their presentation to the judges Kuhn staff emphasised that direct drilling and minimal cultivation is site-specific: it does not apply to all soils or all districts, and the management demands it makes are considerable.

### CONTACT

**Robert Garthwaite, Kuhn Farm Machinery (U.K.) Ltd,**

**Stafford Park 7, Telford, Shropshire. Tel: 01 952 239300 Fax: 01 952 290091**

## SILVER MEDAL – Lynx 'Frontline' Front Linkage and PTO

Lynx 'Frontline' linkages are manufactured by Zuidberg Techniek of Holland, and are available for general agricultural use with lift capacities of 1.5, 2.5, 3.0, 3.5, and 5.0 tonnes. There are smaller linkages for amenity and horticultural tractors. Those seen by the Awards judges were at the heavy end of the agricultural range.

The linkage features folding and removable arms and Category 2 links, with an independent articulating system to allow float of front mounted equipment. The design is compact and fitting is simple. Power take-off design is customised to the tractor, with a dry cone clutch of very high torque capacity and electro-hydraulic clutch engagement. It offers outputs of up to 150 kW at 1000 rpm.

'Frontline' users recognised the need to make more effective use of their tractors with front mounted equipment for arable and grassland operations. Operator time for a task had been halved in some cases. Wheeling and compaction had been reduced. Some of the linkages seen had been in use for up to 7 arable seasons on very large tractors without any problems or failures. Where there had been minor damage it had received rapid attention from Lynx. Users in every case praised a very substantial and trouble free item of tractor equipment.

### CONTACT

**Dylan Roberts, Lynx Engineering, Unit 2, Wharf Works, Long Buckby, Northampton, NN6 7PP. Tel: 01 327 84325 Fax: 01 327 844341**

## SILVER MEDAL – McConnell Hy-Reach

The Hy-Reach 550 and the 650 telescopic arm hedge and verge cutters demonstrate outstanding daily work output with minimal operator fatigue. The machine is designed for linkage or sub-frame axle mounting. Specification includes a standard 48 kW independent gear driven pump delivering 125 litres/min or an optional 56 kW piston pump giving 130 litres/min. The standard arm includes a 100 degree power slew, hydraulic breakaway, and the facility for reverse drive on the multi-cut flail head to clear blockages. The head is 1.2 m wide, with an option of 1.5 m.

The outstanding feature is the Easy Drive System (EDS) which provides hands-free cruise control operation at much greater speeds, increasing safety, efficiency and profitability of the machine. The system is based on two potentiometers fitted within the two pivot points on the power arm's king post. Readings from these sensors inform the hydraulic system how much ram pressure is required to float the arm and flailhead over changing ground contours. Readings are taken every 30 milliseconds, giving a very rapid response to allow high-speed operation when verge mowing.

Users interviewed were generally using the machines in excess of 1000 hours a year and had extensive experience of hedge and verge trimming work. They considered the Hy-Reach to be outstanding in construction, feature low wear characteristics of the flails, fully adequate oil cooling, and company support. Fingertip control was 'superb' and the EDS a real bonus.

### CONTACT

**Christian Davies, McConnell Limited, Temeside Works, Ludlow, Shropshire, SY8 1JL.**

Tel: 01 584 873131 Fax: 01 584 876463 E-mail: sales@mcconnel.com

### **SILVER MEDAL – MachXbib Tractive Tyres**

The MachXbib is a tyre range designed specifically for tractors of more than 170 kW. The tyre was developed in conjunction with major tractor manufacturers. The key feature is a new radial casing structure, using the latest in rubber compounds, which gives maximum resistance to the high torque stresses developed by the large tractors as well as optimum field and road performance.

With a diameter of over 2 m, and 650 mm overall width, the tyre provides a long contact patch for efficient traction while retaining the option of working in the furrow bottom. Load carrying capacity is up to 9230 kg per tyre at 2.1 bar, while at lower loading, pressure can be reduced to 0.4 bar for maximum contact patch and minimum ground pressure. The radial construction provides great suppleness within the tyre which adds to comfort and safety in the field and on the road.

Users interviewed were large-scale farmers and contractors who gave the tyres a severe test over many hours' use. The indications were that they gave a very long working life, and provided very efficient high draught where that was required. More importantly, in the view of the users, at low air pressure they gave a very large contact area, excellent 'suspension' and ground following and very little marking of the land. The manufacturer had in all cases taken a close and supportive interest in the performance of the tyres in the field.

#### **CONTACT**

**Robin Audaer, Michelin Tyre PLC, Campbell Road, Stoke-**

**on-Trent, ST4 4EY Tel: 01782 402000 Fax: 01782 402011 Website: www.michelin.co.uk**

### **SILVER MEDAL – Unistock Cattle Crate Mark 2**

Cattle handling has for some time been recognised as a major cause of farm accidents. The requirement for clipping before slaughter has further intensified the need for a safe and low stress means of animal restraint to both animal and operator. George Clark, following the outstanding success of his 'Unistock Headgate', developed the Unistock Cattle Crate Mark 2 to address the problem.

The Crate is substantially built on simple, clutter-free lines. One person working alone in complete safety can use it. All sizes of animal, from calves to the large continental beef breeds, are comfortably held. The floor surface is non-slip reinforced rubber and the upper side panels lift and slide horizontally into the roof of the crate where they can cause no injury or obstruction to the operator. There is then clear access to the upper part of the animal with full lower body protection. The lower side access doors close to the centre of the crate, the catches being foot operated from a safe position at the corner. The central restraining bar carries a wheel-operated revolving rump bar to provide positive and comfortable restraint for the animal. Anti-kick bars are incorporated into the rear doors. In operation they swing upwards in front of the animal's legs to give complete security. The crate has optional extras for weighing and foot trimming.

Users praised the superb quality of construction, the high degree of safety provided and the ease of one-person working. They, as experienced stockmen, made it clear that

someone else who knew about stock had designed this crate.

#### **CONTACT**

**George Clark, Premier Livestock Handling, The Old Creamery, Haugh Road, Dalbeattie, DG5 4AR. Tel/Fax: 01 556 612240**

### **SILVER MEDAL – Livestock Controller**

The requirement for safe handling of cattle, and especially safety during clipping before slaughter, has led to the design of some outstanding cattle crushes or crates. Restraint is normally provided by suitably placed bars which offer little or no inconvenience to the operator attending the animal.

The William Taylor Livestock Controller uses a novel and completely different principle. The floor of the crate is pivoted to rock from side to side with any change in the attitude of the animal. As the floor tips it rests against springs rather than a rigid stop, giving a feel of uncertainty at all times. The result is that the animal cannot and will not kick, providing a high degree for safety for the operator.

The Controller, which is made for William Taylor by Ritchie Agriculture of Forfar, includes fully galvanised construction, reversible tailgate, foot operated lock of the rocking floor, roller mounted side rails, the Ritchie Auto Head Yoke, and top rails to take the Ritchie hoof trimming attachment.

Users confirmed the effectiveness of the pivoted floor in preventing kicking. One had put 5000 cattle through without any damage to man or clippers. It was described as completely safe for the operator, self-catching, marvellously simple, with little to go wrong and therefore likely to have a long working life.

#### **CONTACT**

**William Taylor, William Taylor Inventions, 56 Cashel Road, Macosquin, Coleraine, Northern Ireland BT51 4NU. Tel: 028 70343534 Fax: 028 70343419**

### **SILVER MEDALS – Valtra HiTech Range**

The Valtra HiTech range of tractors are fitted with the hi-tech transmission which is controlled by a Power Control System. The HiTech's transmission is a 36-speed semi-power-shift transmission, which with a clutchless power shuttle and various automatic functions provides a safe and efficient transmission with minimum effort from the driver. This transmission combines the advanced features of a computer controlled power shift system with a well proved 12-speed mechanical gearbox. Smooth and safe operation is achieved by the Power Control System (PCS) which monitors all functions of the tractor and selects the correct gear for the current situation. The PCS also monitors and controls the power take-off (pto) drive.

Judges met many highly satisfied users of the Valtra. Initial choice of the tractor had been for reasons of engine characteristics, especially the high torque back up, for the ease of operation of the clutchless shuttle, for driver preference, for competitive pricing and for the excellent company support. None of those that the judges met were disappointed with the outcome. The performance of the tractors in both arable and livestock farming was outstanding.

#### **CONTACT**

**David Jefferson, Valtra Tractors (UK) Limited, 5 Seymour Court, Manor Park, Runcorn, Cheshire, WA7 2UZ. Tel: 01928 594400 Fax: 01928 594410 E-mail: david.jefferson@ffi-valtra.com**

## KNAPSACK SPRAYER

# Automatic metered dose spraying for forestry

Forests are ecologically sensitive areas that require carefully targeted sprays. Application may be made to young trees and stumps for insect pest and disease control or in restricted areas for the management of weeds. Vast areas require coverage in a relatively short space of time, which put pressures on forest management teams.

Emphasis is on the use of portable applicators that deliver consistent accuracy with low volumes of liquid. This is achieved by the application of measured amounts of carefully targeted spray to restricted areas with so-called spot gun applicators or, in the case of band application, the use of controlled droplet application (CDA) using hand-held rotary atomisers.

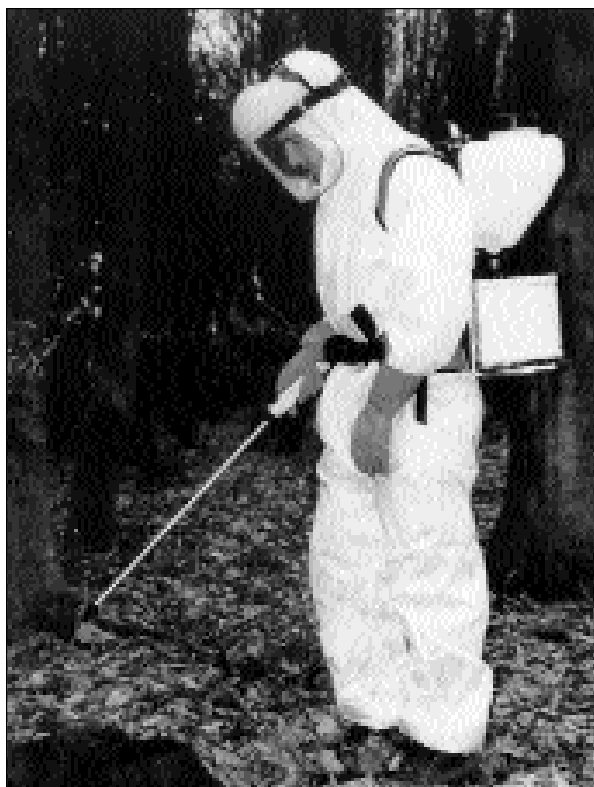
Hand-held metered volume dispensers (spot guns) are well established for forest spraying. But in the current climate of increasing concern for the health, safety and comfort of spray operators, spot guns suffer from one major drawback – repeated squeezing of the trigger over a long periods of time is accompanied by the increasing incidence of 'Repetitive Strain Injury'.

Micron Sprayers Ltd, the UK based designer and manufacturer of portable sprayers custom-designed for forest protection, has developed an electronically operated and automatic metered volume dispenser that carries out all the tasks required, without the health and safety problems commonly associated with manually operated dispensers.

The electronically operated unit, appropriately called 'Autodos', comprises a 10 litre tank and a sealed electronics/battery unit mounted on a lightweight tubular

frame and carried on the operator's back. The back frame and straps have been ergonomically

valve. Comfort and stability is provided during movement and operation by broad and cushioned



designed to maximise operator comfort. The battery is rechargeable via a re-charging port on the sealed unit which has a simple three way function switch for metered dose, continuous delivery or off. The operator simply selects the dose and spray pattern required from one of six different nozzles and liquid is delivered via a robust lightweight lance every time the trigger is depressed.

Autodos is supplied with a wide range of nozzles and a lightweight control flow valve that fits in between the end of the lance and the nozzle. Filling is safe and easy via the wide necked spray tank fitted with a basket filter and closed with secure lid complete with a chemical resistant seal and ball

valve. Comfort and stability is provided during movement and operation by broad and cushioned

shoulder straps and a wide and supportive waistband. Autodos offers forest protection teams a user-friendly and versatile portable applicator for ring weeding around young trees, cleaning up pathways and fence lines and as part of a bracken control programme. The Autodos is ideal for targeted application of insecticide to the base of young trees for the control of weevil pests and spot application of sealant and protectant to stumps of newly thinned or felled trees.

The large pine weevil (*Hylobius abietis*) attacks all types of pines as well as high value spruce tree crops and some deciduous tree species. It opens the way for secondary fungal infections and is by far

the most damaging of weevil pests.

The large pine weevil attacks the lower 15cm of stem on newly planted saplings 25-40 cm tall and, therefore, requires the most carefully targeted sprays. New transplants are also at risk from *Hylastes* spp. (black pine beetles). Black pine beetles infest pines and spruces and are managed by the same spot applications used to control large pine weevil on transplants in the field.

Other species of weevils can be damaging to both conifer and hardwood nursery stock. Infestations may be particularly severe when nurseries are surrounded by woodland. Pest populations initially increase in the woodland and later invade the nursery. Ground vegetation, such as heather or grass, may additionally provide the primary breeding ground for these weevil pests which are:

- clay coloured weevil (*Otiorhynchus singularis*) and Nut leaf weevil (*Strophosomus melanogrammus*), the latter being especially common on larch. Western hemlock (*Tsuga heterophylla*) appears to be very susceptible to both;
- strawberry fruit weevil (*Baryphthos araneiformis*) and Short snouted weevil (*B. peltatus*), which kill emergent seedlings by severing the hypocotyl or by ring barking older seedlings;
- strawberry root weevil (*Otiorhynchus ovatus*) which feeds on the finer shoots, needles (adults) and roots (larvae) of most conifers;

Application of stump sealant and protectant using the Autodos prevents the cut surface of conifer trees from invasion by spores of the root infecting Basidiomycete fungus *Heterobasidion annosum*

(Fomes root and butt rot). Infections become established in the root system (which is still living), and fungal hyphae transfer, via root contact, to other mature trees in the stand (after thinning) and young trees when the area is replanted.

Heterobasidion annosum is the most serious disease of both young and mature conifers including pines, firs and spruces. Cut stump surfaces should be protected immediately after thinning, which is an essential part of tree management as the forest matures, and to the stumps that remain when the forest is finally felled.

Urea (with marker dye) has been the traditional chemical used for stump sealing and protection. But in many parts of Europe, and especially Scandinavia, much interest is now shown in borate compounds such as disodium

octaborate tetrahydrate. Biological control products based on spore suspensions of competing, antagonistic fungi such as Phlebiopsis gigantea are also recommended and used.

Protection of cut stump surfaces against invasion by spores is essential. The basidiospores are able to travel huge distances, the causal fungus survives extremes of temperature and once established there is no cure for this disease, except the total and costly removal of the entire stump.

#### CONTACT

**Micron Sprayers Ltd**  
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**Bromyard, Herefordshire**  
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#### PLASTICS RECYCLING

## Delleve urges more support from UK local authorities and waste agencies

Leading UK plastics recycler, Delleve Plastics, is urging UK local authorities and waste agencies to support the UK's recycling industry to give it a fighting chance of survival, by rethinking their recycling strategies and stop the export of UK plastics waste.

"We have a successful and newly-equipped 10,000 tonnes a year plastics recycling plant that is being forced to run at half capacity due to the short-fall in plastic feedstock. As a direct result of the current UK PRN system and the higher European subsidies, large quantities of the UK's post-consumer plastic waste is being exported," says Lee Clayton, Delleve Plastics' general manager. "Whether they know it or not, our local authorities and waste agencies are actually subsidising the competition in Europe and the Far East. Unless the exporting stops, UK plastic recyclers will simply go out of business," he adds.

Securing feedstock supply is an increasingly uphill battle. Derrick Clark, Delleve Plastics managing director notes: "The great pity of the current situation is that UK plastics recycling is really getting into its stride; making value-added products that people want to buy. Our industry - suppliers, recyclers and customers - need to get together and strengthen the 'Recycled in UK' brand, not have it undermined by exporters and the PRN system."

Based at Ettington, near Stratford-on-Avon, Delleve Plastics' large-bore plastics

pipes for civil engineering and agricultural use are a successful and volume-based solution to the problem of plastic waste. Delleve, who has been developing and manufacturing these recycled applications for the past twenty years, has a full order book and is now striving to match the increased demand with feedstock from UK sources.

Clark says that the industry now has the power to make or break its future: "I would urge all UK local authorities and waste agencies to investigate and determine where their plastics waste is going and to do all in their power to ensure it is reprocessed within the UK."


Delleve Plastics has been supplying recycled twin-walled pipes since 1980, and employs 30 people at its Ettington site, near Stratford-upon-Avon. Delleve's recycled pipes are tested to survive a working life span of at least 50 years. The company's production is monitored through its own onsite Polymer Laboratory. The company is dedicated to the successful service of the environment and its manufacturing processes are quality assured to the ISO 9002 standard.

#### CONTACT

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**740037. Email:**  
**info@delleve.co.uk. Website:**  
**www.delleve.co.uk.**

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## SECURITY

## Datatag wins international award

Datatag, the 21st century's leading high-tech theft deterrent, has received further international recognition by winning the Security category in the third annual RFID (Radio Frequency Identification) Awards held recently in Amsterdam, Holland.

The awards, organised by international magazine, Frontline Solutions, recognise excellence in the application of RFID as a solution to business problems.

Originally developed in the early 1990s in response to increasing levels of motorcycle theft, the Datatag security marking system utilises RFID technology as part of a multi-

level approach to theft deterrent.

Tiny transponders, which react to hand-held scanners issued free of charge to police forces, are hidden in inaccessible locations within a scooter or motorcycle. Police officers suspecting a vehicle to be stolen can obtain a transponder code and match it to owners' details stored on the secure Datatag database.

Since its launch to the motorcycle and scooter market, the system has been applied to a variety of different sectors such as computers, personal watercraft, bicycles, construction equipment and agricultural equipment.

Datatag now protects virtually all jet skis in the UK and construction and excavation specialists such as Kubota apply the system as original equipment on their product ranges.

Kevin Howells, general manager of Datatag, accepted the RFID award at the Amsterdam ceremony. He commented: "It's testimony to Datatag's enduring technology and relevance to the security market that it is winning prestigious international awards ten years after it was first developed."

"Datatag has become almost a generic marking system for the UK motorcycle industry," he continued, "and it has reduced theft levels from

approximately 25% to 2-5% on Datatagged machines.

Criminals are loath to steal or handle Datatag marked vehicles because they are so difficult to dispose of. Its technology is now being recognised more and more by other industry sectors and in other countries."

## CONTACT

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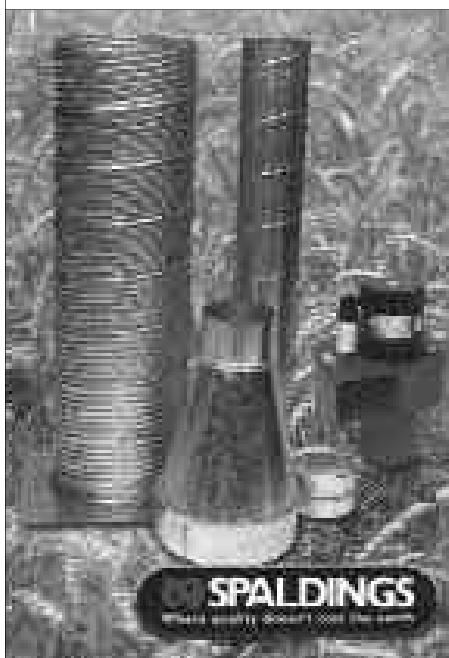
## GRAIN STORAGE

## Grain conditioning columns

Spaldings have introduced grain conditioning columns into their product range for optimum grain store management. The new grain columns allow the quick cooling down of any hot spot occurring in stored grain preventing the deterioration of grain quality and ultimately loss of profit.

Hot grain deteriorates in quality very quickly. Cool grain will keep safely for longer, with less chance of pest infestation, vital with today's low grain prices. It is also a major requirement for quality assurance schemes. Unventilated grain in the store may appear to be doing well, but there is a

Grain conditioning columns and fans keep crops cool and in optimum condition when in storage



very high risk of it heating up without warning.

Spaldings grain conditioning columns and fans keep grain, potatoes, and other crops fresh, cool and in optimum condition in a bulk store, bin or silo for many months to allow the best potential return on your crops. Grain columns work by cooling grain quickly to ambient temperature straight off the combine or drier.

These grain columns are low cost and easy to install as they are simply stood on the building floor with grain being piled around them. Unlike

other systems there are no laterals to get in the way when emptying the store.

The system is versatile and can be used in grain stores or other suitable buildings with grain depth from 2 m to 4 m as the height of the columns can be easily changed simply by adding or taking away column sections to suit. When not required the grain columns can be easily moved allowing the building to be used for other purposes.

## CONTACT

**Alastair Ramsay, Spaldings (UK) Limited, Sadler Road, Lincoln, LN6 3XJ. Tel: 01522 500600 722200 Fax: 01522 689011 E-mail: marketing@spaldings.co.uk Website: www.spaldings.co.uk**

## Renault fully introduce independent front axle suspension

Renault has now fully introduced the PROACTIV independent front axle suspension system that it announced it was working on last year.

Optionally available on Renault 117 kW ARES 715RZ, 131 kW ARES 815RZ, and 145 kW ARES 735RZ models, the PROACTIV independent front axle suspension system is designed to improve grip and complement the unique HYDROSTABLE full cab suspension system fitted as standard on these models.

The development of the PROACTIV front axle has drawn upon Renault's experience in developing car and lorry suspension systems. Unlike a conventional suspended front axle which just have a single, central suspension unit, on the PROACTIV front axle, each front wheel has independent, separate suspension units.

The advantage of such a system is that when, for instance, a wheel goes into a hole or a hol-



low in the field, only the right hand side suspension system will absorb the impact, and the left hand side wheel remains unaffected, which would not be the case on a suspended axle. Because the axle does not tilt, stress on the left hand side is reduced and optimum tyre contact with the soil is maintained, ensuring maximum grip from both tyres and an improved transfer of power, so raising output and productivity.

The wheels are supported on double transverse wish-

bones that are kept rigid by two single acting hydraulic cylinders. Incorporated into the hydraulic circuit is a nitrogen damper to absorb impacts.

Using controls mounted on the dashboard, the PROACTIV front axle can be operated in either manual or automatic modes.

In automatic mode, the axle maintains a mid-travel position to allow the wheels to travel 42 mm upwards or 45 mm downwards. When front weights or a front linkage are fitted, the con-

trol unit will automatically compensate for this by increasing the hydraulic pressure to maintain the middle position.

In manual mode, the operator can select a high, middle or low position for the front axle, but still keep the suspension system active. In addition, to ensure that linkage draft control is unaffected for operations such as ploughing, the PROACTIV suspension system can be disabled, at which point the axle will return to the lowest position.

The PROACTIV independent front axle suspension system is immediately available on all Renault ARES 700 and 800 range models, and costs £2,525.

### CONTACT

**Robert Merrall, Renault Agriculture Ltd, Shipston House, Darlingscote Road, Shipston-on-Stour, Warwickshire CV36 4DZ Tel: 01608 662727**

### ENGINES

## Bosch and Perkins launch electronic control for off-highway engines

Production has just started of Perkins' new 1100 series range of 1.1 litres/cylinder off-highway engines.

Employing Bosch fuel injection pumps and injectors, the four and six cylinder versions are the first engines to be developed in Peterborough and taken through to production with fully electronically controlled fuel injection.

The new 1100 Series engines, an evolution of the established 1000 Series, bring improvements in noise levels,

power output, reduced operating costs and increased service intervals. Using the Bosch VP30 fuel injection pump these engines will meet all EU and North America Stage 2/Tier 2 off-highway emissions requirements well before they start to become compulsory from 2003.

Bosch has manufactured VP 30 fuel injection pumps for passenger cars since 1998, during which time more than 1 million have been built. The introduction of an off-highway version

follows tried and tested experience in this market with the VE pump.

The significant differences in this latest version are in the development of a 24 V fuel metering solenoid and electronic pump control unit, a 12 mm diameter plunger for higher fuel output and more durable drive components.

The Bosch VP 30, which has its own control unit and memory, has also been integrated into the Perkins engine's diagnostic cycle and will make a

major contribution to end-customer service support.

The 1100 series engine will progressively replace existing Perkins engines in applications all over the world.

### CONTACT

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## GLOBAL POSITIONING

# Cows in the corn

Today's cornfields are doing more than raising maize. With the help of Trimble Global Positioning System (GPS) technology, they're being turned into intricate mazes that help towns raise money, build libraries, give scholarships and have a lot of fun.

According to England's maze-king Adrian Fisher, the first known corn maze was constructed after floods devastated the Midwest in 1993. Pennsylvanian farmers wanted to show their support to those who had lost their crops. So with the help of Fisher, they cut a maze covering 12,600 square metres with 3 kilometres of paths in their fields - and raised \$32,000 for flood relief.

Since then it seems the world has jumped into the action, with hundreds of corn mazes cropping up worldwide from California to Maryland,

his role as a co-op's site specific specialist.

"I've used GPS to do soil sampling and variable rate application for farms," he said. "It's helped us be more environmentally responsible, while also saving farmers money. Now we're using it to raise money for good community fundraisers."

After getting the design from Stacyville's Ed Halbach, Kruse used Trimble GPS to cut out a two hectare maze picturing two cows in just four hours. The town raised \$10,000 in one season and is now in their third, this time

Brian Pearson Memorial Scholarship Fund.

"This one was hard as the corn was planted at an angle," said Kruse. "I couldn't tell where I was by any rows, so I had to ignore everything around me and rely solely on GPS to make it through the pattern. But by using the AGGPS 132 with The Choice™ technology, we were able to get within a metre of the beaten path of the maze."

And the result?

"It was really successful and we had a good summer with it," said Dorothy Siefken, whose

got into the corn maze craze by using Trimble GPS to create a Purdue Boilermaker train maze in a two hectare cornfield just south of Lafayette, Indiana for the large Farm Progress Show in late September. And it's still open for visitors on Jerry Smit's farm.

But perhaps most fitting of all for this time, the Martindale Family Farm in Corunna, Michigan boasts a Statue of Liberty corn maze.

About Trimble

Trimble is a leading innovator of Global Positioning System (GPS) technology. In addition to providing advanced GPS components, Trimble augments GPS with other positioning technologies as well as wireless communications and software to create complete customer solutions. Trimble's worldwide presence and unique capabilities position the Company for growth in emerging applications including surveying, automobile navigation, machine guidance, asset tracking, wireless platforms, and telecommunications infrastructure. Founded in 1978 and headquartered in Sunnyvale, California, Trimble has more than 2,000 employees in more than 20 countries worldwide.

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Canada to Switzerland. And while the first maze didn't use GPS, corn mazes throughout the world today are being accurately and quickly created with Trimble GPS.

"You can use traditional tape measure methods, but it's better with GPS," says Fisher, who used Trimble GPS on a maze in Switzerland. "It's three days with tape, half a day with GPS."

Iowa's Brian Kruse agrees. Three years ago he was asked to help create the first annual corn maze in Stacyville as a fundraiser for a new library. He'd never done one, but had used Trimble GPS for years in

with a repeat of last year's successful 'haunted maze.'

"This year we have a monster rising six metres above the corn," said Halbach. "We get a larger turnout when it's haunted. I guess everyone wants to be scared."

Last year, Kruse helped create another unique maze in Palmer, Iowa; this one pictured a panther to commemorate Palmer High School's successful boy's basketball team in the 1980s. The two hectare maze included ten stations with trivia answers; whoever made it through the maze and found the answers won a prize. Palmer raised \$5,000 for its

field held the maze. "Maybe 11 different states were here. Even the weather cooperated. Things just worked."

And there are more GPS creations: Ohio has birds of prey in Plymouth - and dinosaurs in Sidney. Abe Lincoln stands in Naperville, Illinois. And Illinois is the site of the world's largest corn maze in Spring Grove. With 11.7 km of trail through seven hectares of corn, the three interconnecting mazes show a caricature of Richardson Farms' owners with a barn, tractor, Christmas tree, and four animals.

Purdue Agronomy School

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## CROP SPRAYERS

# New advanced features for Knight crop sprayers

Improved control of variable rate applications and a new high-efficiency plumbing system are two of the latest developments now available on Knight crop sprayers.

A new system developed by Knight solves one of the main problems associated with chemical injection, variable rate applications and spot treatments. This system ensures that the required chemical is at every nozzle within ten seconds of it being selected. With a conventional system on a 24 m sprayer it takes up to a minute for chemical to clear the spray lines and be replaced by the new solution. Meanwhile the sprayer is continuing to apply the wrong chemical.



The system can be retrofitted to most Knight sprayers, enabling them to be converted relatively simply into variable rate machines. It can be used with manual or GPS control. Knight's new APS plumbing system brings important benefits in reduced chemical wastage and easier operation. With the

new system only one main valve is used to select filling or spraying, and other functions operate automatically. The amount of pipe work and valves has been reduced, so less chemical solution is retained in the system and operation is particularly clear and simple.

## CONTACT

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**A new control system developed by Knight Farm Machinery improves the practicality and accuracy of spot treatments and variable rate applications**

## ENGINES

# Bosch and Perkins launch electronic control for off-highway engine

Production has just started of Perkins' new 1100 series range of 1.1 litres/cylinder off-highway engines.

Employing Bosch fuel injection pumps and injectors, the four and six cylinder versions are the first engines to be developed in Peterborough and taken through to production with fully electronically controlled fuel injection.

The new 1100 Series engines, an evolution of the established 1000 Series, bring improvements in noise levels, power

output, reduced operating costs and increased service intervals. Using the Bosch VP30 fuel injection pump these engines will meet all EU and North America Stage 2/Tier 2 off-highway emissions requirements well before they start to become compulsory from 2003.

Bosch has manufactured VP 30 fuel injection pumps for passenger cars since 1998, during which time more than 1 million have been built. The introduction of an off-highway version follows tried and tested experi-

ence in this market with the VE pump.

The significant differences in this latest version are in the development of a 24 V fuel metering solenoid and electronic pump control unit, a 12 mm diameter plunger for higher fuel output and more durable drive components.

The Bosch VP 30, which has its own control unit and memory, has also been integrated into the Perkins engine's diagnostic cycle and will make a major contribution to end-customer

service support.

The 1100 series engine will progressively replace existing Perkins engines in applications all over the world.

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