

Inventique®

The newsletter of Wessex Round Table of Inventors September 2006

18-21 October BRITISH INVENTION SHOW www.britishinventionshow.com



Feeling tired?

TYRE COMPANY Goodyear has launched a 'walk on water' competition, challenging innovators to build a human-powered floatation device that will cross a 25m stretch of open water in the quickest time, writes Mike Overy.

The first **National HydraGrip Competition** takes place on **Saturday 30 September** in London Docklands, with the winner receiving **£5,000** and a set of Goodyear HydraGrip tyres.

The devices must be built from scratch for the event, and no oars are allowed for propelling them.

Entry forms are still available, but need to be completed and returned by **Sunday 24 September**.

● **Contact: Jayne Robinson**
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Next WRTI meeting WEDNESDAY 11 OCTOBER

Guest speaker **Rees Ruchat** of Southampton Enterprise Gateway will present 'Making a difference with hard-to-reach groups', followed by an Inventors Clinic. Room HC 017, Herbert Collins Building, Southampton Solent University, commencing at 6.30pm. Visitors welcome.

● **Non-members wishing to attend should e-mail: secretary@wrti.co.uk or tel: 01420 562 378**
 Map: www.streetmap.co.uk (SO14 0RP)
www.wrti.org.uk/events

Viewing the future

UK'S INNOVATION SHOWCASE LEADS THE WAY

THE BRITISH INVENTION Show opens on 18 October at London's Alexandra Palace for a four-day period.

Now in its sixth year, the show is run in association with the British Inventors' Society (www.thebis.org) and enjoys support from government partners including the Patent Office and UK Trade & Investment.

Billed as the UK's largest invention expo, the show is launched in tandem with the *British Innovation and Technology Show*, a major new IP and technology transfer event.

With 250 new prototypes on display and demonstrations by innovators from over a dozen different countries, *BIS 2006* is expected to be the most exciting event of its kind to date.

A panel of judges from the British Inventors' Society, whose judging criteria include design, ingenuity, originality and the




ecological and social benefits of the entries to mankind, will put the exhibitor's ideas to the test, culminating in the presentation of the British Invention, Technology and Design Awards. Some 300 guests are expected to attend the Awards dinner in the Palace Suite on Friday 20 October. ■

● www.britishinventionshow.com:
www.alexandrapalace.com
www.thebis.org

THE PORTSMOUTH FESTIVAL OF INNOVATION & ENTERPRISE 2006 will be held on 21 September at the University of Portsmouth's Portland Building, commencing at 9.30am. Admission is free. Now in its fourth year, the festival's themes include cultural, creative and social enterprise; inventors, spin-outs and start-ups; enterprise in education; innovate or evaporate, and SMEs and big business. An Innovation & Enterprise Exhibition will showcase local best practice and regional business support, while successful entrepreneurs will share their experiences through a programme of seminars. ■

● www.portsmouth-innovation.co.uk

Wessex Round Table of Inventors meet at 6.30pm on the second Wednesday of each month at Southampton Solent University, East Park Terrace SO14 0RP

News in brief

● 'INVISIBLE WOMEN' SURVEY

THE FIRST MAJOR SURVEY of businesses in the Science, Engineering and Technology (SET) sectors run by women is currently being undertaken by Prowess (see *Inventique*, August 2006 issue). The survey will provide insights into the nature and number of such businesses and how the government can better support these potentially high-growth companies.

Prowess wishes to hear from all women running SET-based enterprises, whatever their size. Taking part in the survey will help build the capacity of business support providers to meet future needs, increase business opportunities for women in SET, influence government policy and help change perceptions.

● **Contact: Alice Kent**

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HUMORESQUE: New definitions

ABDICATE: To give up all hope of ever having a flat stomach.

BALDERDASH: A rapidly receding hairline.

CIRCUMVENT: An opening in the front of boxer shorts worn by Jewish men.

COFFEE: The person upon whom one coughs.

ESPLANADE: To attempt an explanation while drunk.

FLABBERGASTED: Appalled over how much weight you have gained.

Source: *The Washington Post Neologism Contest*

● PROGRAMMER WINS £1,000 FOR MOST HUMAN CREATION

JOAN IS JUST a few years old and very talkative – and now she is officially the world's most human computer program. The computer-generated character has won the prestigious Loebner prize for artificial intelligence, earning £1,000 and a bronze medal for her British creator Rollo Carpenter, who also won last year with Joan's predecessor, George. Judges at University College London held typed 'conversations' with challengers as part of the quest for the unclaimed £50,000 Turing prize, reserved for the first program to fool judges into thinking it is a real person.

● **Source: Bobbie Johnson**

The Guardian, 18 Sept'06 issue

INVENTORATOR Graham Thomson

Design protector-2

PATENT PLAN'S ROUTE FROM CONCEPTUAL IDEA TO INNOVATIVE DESIGN TO MANUFACTURED PRODUCT

THERE SEEMS little point in applying for a patent unless one is going to make money out of one's idea. Patent Office research indicates that only a relatively small number of patent applications filed each year by inventors and small companies proceed, largely because of lack of commercial promise – often a result of poor industrial design and prototype input.

Taking a concept to manufacture and market is a complicated process which inventors underestimate at their peril; making an error in the early stages can prove costly.

A key component of Patent Plan's Prototype Service is industrial design, which is a process of analysis, creativity and execution. Choosing the right materials and manufacturing process, and making the product function properly and look right, are all part of this exercise.

Our 6-stage prototype service

Patent plan has designed a tried-and-tested formula to take you down a logical 6-stage industrial design path to help make your product a success. Put very simply, these stages include:

Stage 1: Concepts Examine different design concepts – including alternative solutions – and arrive at a final option to take forward.

Stage 2: IDGA Industrial Design General Arrangement drawings (outline designs of what the product will look like and including all its functions) are produced, usually as 2D CAD drawings, which can be used for research or in obtaining manufacturing quotes.

Stage 3 (optional): Block model This can be used for market research, to prove a principle without the expense of creating a full prototype, or to finalise the product's aesthetic appearance.

Stage 4: Prototype drawings

Converts the IDGA into a detailed engineering prototype drawing to allow pre-production checks, final manufacturing process decisions etc.

Stage 5: Prototype model This can be used for demonstrating the product's function, pre-selling and licensing the product, market research, and obtaining more accurate manufacturing quotes.

Stage 6: Manufacturing drawings

Usually created in collaboration with a manufacturer or toolmaker to suit the chosen method of manufacture and ensure that the product works as intended. The manufacturer now only has to think about making your product, not *how* to make it.

Using the above strategy, clients can always choose not to complete a stage – and are always in control of costs, being provided with quotes before work commences. A small start-up company might wish to choose a low-cost manufacturing process, whereas an existing company may prefer to invest in expensive tooling at the outset to obtain an immediate cost benefit. Another client may wish to licence the product to an existing manufacturer.

We would estimate a cost of between £1500 to £3000 per stage, dependant on the requirements and scale of the project. Some clients have raised finance to cover these costs through DTI grants. ■

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● *Graham Thomson is industrial design director at Patent Plan.*

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LICENSING YOUR PRODUCT-2

SHOULD INVENTORS USE A COMMERCIAL AGENT, OR A DISTRIBUTOR?

ON THE question of whether to use a commercial agent or a distributor as a means of licensing your products, I started last month by outlining the relative roles of commercial agents and principals, and the legal consequences of entering into an agency agreement, writes Dr Rosanna Cooper. Now let us examine such agreements.

Agency Agreements

There are numerous ways in which the regulations may affect the agency arrangement, and it is imperative that these matters are expressly set out in a carefully drafted, comprehensive agency agreement. It is advisable for the parties to enter into an agency agreement which would include the following key terms and conditions:

- **Territory** The commercial agent is usually given a territory for supplying the goods, which could be exclusive (ie to the exclusion of all other parties).
- **Duties of the Agent** The regulations place a number of obligations on both parties, which are very broad and sometimes onerous but do not allow either party to derogate from those duties. The agreement should specify the obligations on the agent during the term of the agreement. Careful drafting is required to ensure that both parties are protected.
- **Duties of the Principal** The main obligation of the principal is to pay the agent commission.
- **Term** The length of the agreement must be specified.

HUMORESQUE: New definitions

FLATULENCE: An emergency vehicle that picks you up after you have been run over by a steamroller.

FRISBEETARIANISM: The belief that, when you die, your soul flies up onto the roof and gets stuck there.

GARGOYLE: Olive-flavored mouthwash.

LYMPH: To walk with a lisp.

Source: *The Washington Post Neologism Contest*

ROSANNA COOPER CLARIFIES THE LEGAL POSITION FOR INVENTORS AND ENTREPRENEURS

● **Commission** Payable during the period of the agreement to an agent, usually as a percentage of the net invoice price of the product sold through the agent or of the cash received by the principal from those sales. A lower commission may also be granted in respect of the principal's sales to customers in the agent's territory not concluded through the agent. There are only a few instances where the commercial agent would not be entitled to commission for work carried out during the agency relationship, and it is important that your agency agreement sets out clearly what is excluded and what is not (and remember, this must be within the scope of the Regulations). Commission is also payable to the agent on a transaction concluded after the agency agreement has been terminated.

● **Change of agent's during transaction** A principal must ensure that there is a fair system in place to deal with the situation where an agent's contract is terminated before a transaction is concluded. Where another agent is engaged, who concludes the deal, there will be issues of apportionment of commission.

● **Conversion of fixed period agencies** Where you are a party to an agency agreement and assuming it is for a fixed term, if upon expiry of this term both parties continue to perform their obligations, it will immediately convert into an agency for an indefinite period. This has

real implications for payment of commission, compensation or indemnity. It also has implications for notice periods.

● **Notice periods** There are strict notice periods that apply to an agency arrangement.

● **Restraint of Trade** Stops the agent providing similar services in the territory on termination or expiry of the agency agreement.

● **Intellectual Property Rights (IPRs)** Prevents the agent from registering the IPRs of the principal.

● **Termination** What will trigger termination and what are the consequences of termination? This would depend on the reason for termination and who terminates the agency agreement. It is possible that an agent might be entitled to payment either on compensation or on an indemnity basis.

● **Entitlement to compensation or indemnity on termination of the relationship** This is a key area of an agency arrangement and one which has to be addressed carefully before entering the arrangement, especially by the principal.

In essence, the agent's right to compensation or indemnity will arise whenever an agency agreement protected by the Regulations comes to an end, save in a list of excepted circumstances. ■

Continued next month

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● Dr Rosanna Cooper is a partner at RT Coopers, a commercial law firm focusing on inventors and business start-ups.

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WHEN A COLUMN or strut is loaded on end with perfect symmetry, it will support the load until it fails in compression, unless it is above a critical length-to-diameter ratio (depending to some degree on the material being used), when it will bend to the side in an elastic process called Euler buckling.

The transition between behaving as a compressed column and a bending strut can be very sudden if the loading is perfectly symmetrical. However, if the eccentricity of loading is high, the column will bend more gradually but at a lower load, so the safety is high although the same maximum loads will not be resisted.

The nature of the beast

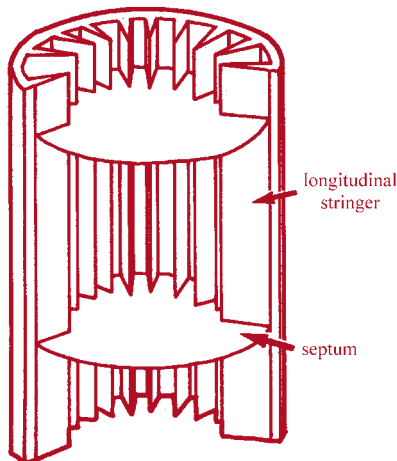
The hedgehog has spines of constant length over its entire body; these are slightly curved with the base inserted off-centre. Thus, although they are only 20mm long and 1mm in diameter – placing them as long columns on the Euler buckling diagram – they can never fail in compression across the entire section since they will always buckle out of the way.

These factors render the spines ideal for shock absorption: the hedgehog – well-known for having a so-called '3-dimensional environment' – climbs trees in search of food, then curls itself into a ball and drops to the ground, relying on its spines to bend and

In accordance with Professor Vincent's commitment to the principles of Open Access, the ideas presented here are freely available. In demand as a lecturer and consultant to industry, he welcomes consultation or research enquiries by companies and entrepreneurs.

help spread the loads at impact.

The spines therefore have to be able to store large amounts of elastic strain energy. In order to help them deform to the extremes their material properties will allow, they are internally reinforced in two



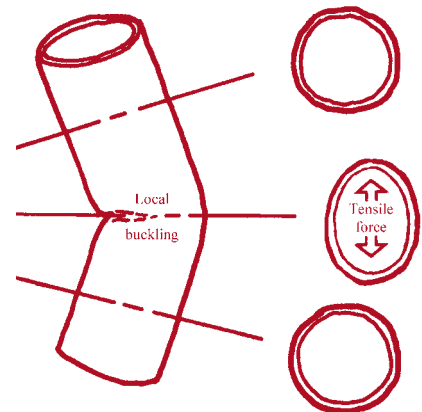
Above: Internally, the hedgehog's spine has longitudinal stringers – which resist local buckling – and septa (which, like nodes in bamboo, resist ovalisation of the section).

ways: there are longitudinal stringers, which brace the wall of the spine against local buckling (above), and there are numerous septa or bulkheads, which hold the section in the round shape, resisting the ovalisation which heralds bending failure in the midsection of an overloaded spine (above right).

Viewed as tubes with an infill of cellular material, the spines of *Erinaceus europeae* (one of the phylogenetically most advanced hedgehogs) are extremely efficient at storing strain energy.

The tubular columns of off-shore oil platforms are similarly constructed with stringers to inhibit local buckling of the walls, as are the fuselage and wings of aeroplanes. The additional stability provided by bulkheads is not so common, although our experiments with hedgehog spines show that they easily double the resistance to Euler buckling – and hence double both the maximum load and the cushioning effect.

The controllable deflection of



Above: This is what happens when the spine fails: the central part goes oval and becomes much weaker, rather like a bent drinking straw.

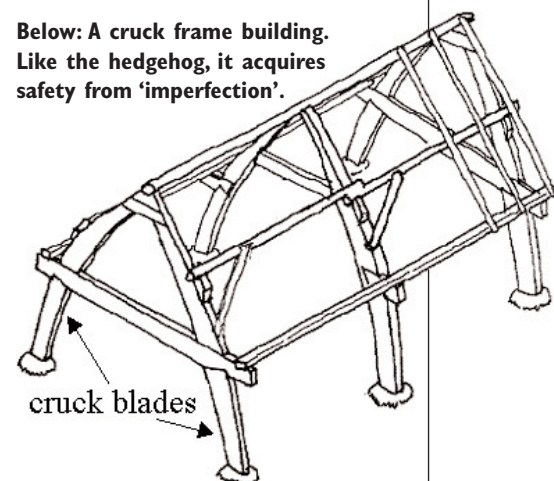
off-centre loading is also why the main members of a cruck frame, used in some older wooden buildings, are bent (below).

The trees from which the frames were derived were commonly restrained in a bent position so that they would grow into the right shape. If the timbers in a building can deform during construction, they will be more likely to bed-in and hold the whole structure steady.

Many biological structures incorporate such 'imperfect' design, which embodies more predictable responses to overloading. ■

© Julian Vincent 2006

Below: A cruck frame building. Like the hedgehog, it acquires safety from 'imperfection'.



Julian F V Vincent is Professor of Biomimetics at the University of Bath. Biomimetics is the concept of taking ideas from nature and implementing them in another technology, such as computing, design or engineering.

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THE INVENTORS WEBSITE

CENTRE OF EXCELLENCE IDEO

IDEO, logically...

SUCCESSFUL CHAMPION OF DESIGN INNOVATION

FOUNDED IN THE USA by chairman David Kelley (whose younger brother Tom is managing director), IDEO has been marketing Innovation for 30 years, laying claim to 3,000 successful innovations including the Palm Pilot, the modern form of the Apple mouse and the laptop computer.

Kelley, who is also founder of the Hasso Plattner Institute of Design – the d.school – at Stanford University, is a keen proponent of anthropological observation (people watching) to identify problems, believing that empathy is as important as skill or knowledge.

The empathetic designer doesn't just rely on face-to-face interviews with end-users – who unwittingly give false information about their experiences – but actually observes them in action, noting the faults, obstacles and inefficiencies glossed over during interviews. And it is equally important to observe extreme

users to gain fresh perspectives (both shoe fetishists and people who don't wear shoes at all, for example, when designing footwear).

Rough, but ready to refine

IDEO's founder believes that the sooner one can develop a prototype, the better the resultant product design will be in the end. But early prototypes don't need to be superbly finished; initially it is better to fashion something out of office supplies on your desk than send it to an engineering workshop. Such prototypes are meant to be learned from, so looking rough and amateurish is quite acceptable at this stage of their development (IDEO often use tools such as iMovie to quickly produce a rough visual of a possible design idea).

And in addition to encouraging what he terms 'radical collaboration' – where clients are invited to attend creative play sessions using simple

WEBSITE OF THE MONTH

www.enterprising-women.org

The new online community for women's enterprise startups in eastern England. Over 2,000 free training places are being offered to women starting up businesses.



BOOK OF THE MONTH

The Ten Faces of Innovation: Strategies for Heightening Creativity by Tom Kelley

Profile Books 304 pages
ISBN 1861978065 £10.99

A brilliant guide to fostering creativity and business innovation by the managing director of IDEO.



prototyping tools, for instance – Kelley endorses team-working within organisations to stimulate successful innovation. Instead of rewarding individuals with their own offices, which dissipates the synthesis of minds, skills and communicable ideas, he prefers to build a 'team' environment (supplied, crucially, with superb equipment) to encourage members to work together. ■

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BUSINESS LINK WESSEX INNOVATION CLINICS

Are you thinking about developing a new product or process? Have you invented something and don't know what to do next? Through its series of free Innovation Clinics, Business Link Wessex provides confidential and impartial guidance on such subjects as investigating an innovative idea, developing a new product or process, working with universities, exploiting inventions and intellectual property rights. Innovation clinics are held in the Bournemouth, Portsmouth and Southampton regions.

● Advice Hotline: 08454 58 85 58 innovation@businesslinkwessex.co.uk www.businesslinkwessex.co.uk/events

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