

**CHAIRMAN'S COLUMN****CONTENTS**

**W**elcome to this, the winter 2002 newsletter. It has been an eventful year for the society culminating in the conference, of which there is a report inside, and the AGM.

When I became Chairman this time I said that there were two areas which I wished to concentrate on; the future of the Society and finances. Soon into my chairmanship I announced the review. This was to be wide reaching and was led by David Daniel, a former Chairman of the Society.

The review was presented at the AGM and if anyone would like to read it a copy is available on our website. David did an excellent job and I would like to thank him and HVR-CSL who sponsored the review.

As far as the finances were concerned Heather Benwood, our Treasurer, prepared a budget of our likely income and expenditure, and although our bank balance is healthy the budget showed that we are, in fact, spending more than we are earning. To resolve this we will in future be sending out the newsletter electronically. This will save around £2000 p.a. and will also allow us to reach a much bigger audience. Briefly then, your Society is in the best of health!

I would like to thank the outgoing committee members: Mike Storey, Pricing and Forecasting Group, Defence Procurement Agency, Duncan Barradale, DSTL Farnborough, Wg Cdr Barney Hubble, Defence Logistics Organisation and Brian Tanner, Pricing and Forecasting Group, Defence Procurement Agency for their work in supporting the Society during their term of office.

I would also like to welcome onto the committee, Max Murray-Brooks, DSTL Farnborough who becomes our new Secretary and Terry Proffitt, Cost Forecasting Team Leader, Defence Procurement Agency.

You will see from the newsletter that we have mapped out a full and interesting programme for 2003. Please make a note of the dates and I look forward to seeing you at these events.

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Editor:  
Arthur Griffiths.

*Any request to reproduce material from the Newsletter should be addressed to the Editors.*

# 19<sup>th</sup> ANNUAL CONFERENCE

*Costing for Low Intensity Conflicts*  
*25<sup>th</sup> September 2002*  
*MoD Abbey Wood, Bristol*

The Society's 19<sup>th</sup> Annual Conference was the fifth to be held at Abbey Wood, Bristol and again proved to be a great success. The speakers provided a meaningful insight into the current policies, techniques and effects on cost forecasting for situations other than a peacetime scenario. With a large percentage of our Armed Forces now deployed on peacekeeping missions this has become more the norm and its effect on whole life cost is significant.

Following the Chairman's welcome and introduction, the address was given by **Tony Moore** from the Disaster Management Centre at the Royal Military College of Science. The theme of Tony's address was based upon what lessons could we learn from disasters such as Piper Alpha. The video of the disaster was chilling and reminded everyone that it was no longer good practice to bury ones head in the sand and think that these things will go away.

The address was followed by **Herbert Abela** from Kellog Brown & Root. Herbert's paper described the use of Operational Contractor Logistic Support (CONDO & CONLOG). It was interesting to see how this activity had been adopted throughout the world and had been successfully integrated to support the regular forces. The content of the presentation clearly demonstrated the broad extend of contractor logistic support from equipment support, infrastructure support and services. There is no doubt that the concept is tried and tested and it is probably only a matter of time before it is fully accepted within the UK.

The final paper before lunch was presented by **Peter Page MBE** and **Keren Day** from HVR Consulting Services Ltd who demonstrated the application and use of ARGONAUT (Aggregated Recovery Generated Over Numerous Assessed Unit Tasks) – *must have been a competition for this acronym !!!*. The presentation included a discussion on the background to the MoD owned tool, the case study demonstrated was the Future Wheeled Recovery Vehicle and the presentation concluded with how the tool could be employed in other applications.

There has been much discussion on current assessment phase studies on how we should cost operations other than war. Certainly here was a tool that utilised the SAG scenarios, tasking, assumptions and the logistics of moving supplies around a given area.

Although the model had been designed to support Needs and Numbers studies it was clear that the data and results could also be used to examine the costs associated with whole fleet management, logistic delay and system availability. A worthy tool to be included in the cost forecaster's toolkit.

Following lunch and much discussion on the morning's papers the theme changed slightly to provide an overview of how cost forecasting of conflicts is carried out and how it is viewed and used by the various MoD departments.

Our first speakers were **Rick Atkinson** and **Steven Boardman** from HVR Consulting Services Ltd who presented a paper on the Out of Area Cost Model used by HVR and PJHQ to predict the cost of Military Operations – *Training, Deployment, Sustainment and Recovery*. The model was founded upon the activities and costs associated with past conflicts (Balkans, Sierra Leone, etc.) and, for prediction purposes, the user could estimate the size and make up of the Force to be deployed and the model would calculate the likely costs of that commitment. The benefits of having the tool were clearly demonstrated as cost estimates have to be produced within 96 hours, they must inform the decision process and have an audit trail. Again, another useful tool for the cost forecaster's toolkit.

This presentation was then followed with **Duncan Barradale**, Leader (Cost Analysis) at DSTL who presented a paper on the Cost of Operations from a High Level OA Perspective. Duncan explained the differences in cost forecasting between the policy level (Costs for Order of Battle/Force Mix) against the costs at procurement level. He went on to say that both costs need to be accurate but for very different reasons. An interesting point was when the question of "are the costs of conflict significant" was discussed. From a historical perspective, Operation Granby cost an extra 8.5% of the defence budget. However, host nation contribution amounted to some 6% leaving a balance of 2.5% to be paid from the MoD defence budget. The content of the paper showed that the cost of conflict is not a major consideration in High Level OA, that important decisions are based upon what constitutes a marginal cost and that contingency costs are likely to be more of an issue in the future.

Our final paper was presented by **Mike Storey**, Pricing and Forecasting Group, Defence Procurement Agency. Mike's paper focused on a step beyond the usual project costings. His lively presentation and style certainly highlighted the challenges to faced by cost forecasters and identified the need to examine the delta between peacetime and conflict. To conclude, the presentation focused on why each conflict would be different (in cost forecasting terms), why there is no simple template for costing them and the difficulty in quantifying some of these costs.

The content of the papers together with the experience of the presenters ensured that this was an excellent conference and once again provided a forum for interesting discussion and debate.

A big thank you to all our speakers and we look forward to seeing you all at next year's conference.

# Annual General Meeting

*The Society's Annual General Meeting was held immediately after the Annual Conference*

The main events were reports from the Society's Chairman and Treasurer together with the results of an independent review of the Society conducted by Mr David Daniel, a former SCAF chairman.

## **Executive Reports**

The Chairman reported that 2002 had been another successful year for the Society. We had held very well attended seminars at Farnborough and Abbey Wood. Our speakers at the seminars this year had included representatives from the US Office of the Secretary of Defense, the UK Ministry of Defence, the UK defence industry and Academia. This demonstrated that the Society was fulfilling its most important objective – to provide a forum for improving cost analysis and prediction methods and to disseminate information among its members.

The Treasurer reported that the Society's accounts looked healthy. Earlier concerns that our expenditure was becoming greater than our income had been contained and the end of year results showed a good balance for the forthcoming year. Further cost savings would be achieved through the use of e-mail for the Society Newsletters.

## **Society Review**

The review was sponsored by HVR Consulting Services Ltd and thanks was acknowledged by the reviewer, David Daniel to: Heather Benwood, Peter Cook, David Faddy, Arthur Griffiths, Joe Harland, David Kirkpatrick, Harry Rogers and Frank Sawdon who gave their time freely to support the review. In summary, the findings of the review were:

- The Society still meets its objectives through regular seminars, conference, newsletter, library and working groups.
- The Society holds a balance slightly larger than expenditure and is therefore in control financially.
- Membership has remained stable for the past 18 years and is still predominantly from the defence sector.
- We have survived a significant reduction in the budgets employers are willing to spend on training.
- We have provided quality seminars and conferences on cost analysis.
- Membership fees should be maintained at their current rate.
- The Society's events should remain at their traditional venues.

A copy of the full review is available on the Society website. [www.scaf.org.uk](http://www.scaf.org.uk)

## Committee Elections

The end of the Society year saw a few changes and these are advised below.

Mike Storey (Secretary), Duncan Barradale (Member), Wg Cdr Barney Hubble (Member) and Brian Tanner (Member) were all due to step down after completing a two year term of office. The Society wish to record their thanks for all their support during their term of office. The new committee for 2002/03 is:

|                      |  |
|----------------------|--|
| <b>Chairman</b>      | Mr Joe Harland, Advantage Business Group Ltd   |
| <b>Vice Chairman</b> | Mr Arthur Griffiths, HVR Consulting Services Ltd   |
| <b>Secretary</b>     | Mr Max Murray-Brooks, DSTL Farnborough   |
| <b>Treasurer</b>     | Ms Heather Benwood, HVR Consulting Services Ltd  |
| <b>Members</b>       | Prof. David Kirpatrick, University College London<br>Mr Terry Proffitt, Pricing & Forecasting Group, Ministry of Defence |

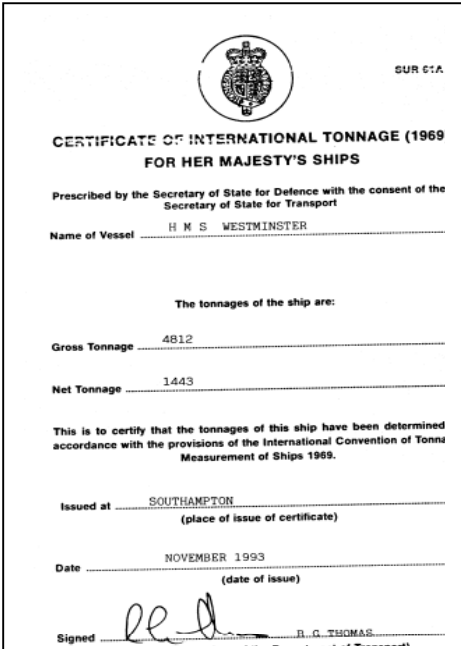
## Comparing Apples & Oranges

*Brian Tanner, Pricing and Forecasting Group, Defence Procurement Agency looks at the use of Compensated Gross Tonnage to provide a method for comparing naval shipbuilding productivity*

The Chief of Defence Procurement, Sir Robert Walmsley, is taking a keen interest in benchmarking defence industries against other industrial sectors. For ship acquisition the Pricing & Forecasting Group's response to this interest is manifested in the development of Compensated Gross Tonnage [CGT] factors for naval vessels, thereby providing a method for comparing naval shipbuilding productivity with best commercial performance.

What is Gross Tonnage [GT]? It is a measure based on the total volume of a vessel, deriving from medieval times when cargo was carried in barrels, typically a 'tun', and 'tunnage' was an indication of ship size/ capacity. It is a measurement applied to all commercial vessels, but not to warships. But, GT is used for canal and harbour charges and each [RN] warship carries a modified international tonnage certificate as shown opposite.

In the early 1970s, when European shipbuilding began facing competition from the newly emerging Far Eastern shipbuilding industry, the OECD sought measures to compare performance and productivity. The outcome was CGT factors which in essence are ratios of the manhours to construct each GT in ships of various sizes and types.



The image shows a 'Certificate of International Tonnage (1969) for Her Majesty's Ships'. It features the Royal Coat of Arms at the top center and the text 'SUR CTA' at the top right. The certificate is prescribed by the Secretary of State for Defence with the consent of the Secretary of State for Transport. The vessel name is 'H M S WESTMINSTER'. The tonnages are listed as Gross Tonnage 4812 and Net Tonnage 1443. The certificate is issued at Southampton on November 1993. It is signed by R. G. THOMAS.

|               |      |
|---------------|------|
| Gross Tonnage | 4812 |
| Net Tonnage   | 1443 |

Issued at SOUTHAMPTON (place of issue of certificate)  
Date NOVEMBER 1993 (date of issue)  
Signed R. G. THOMAS

This table is an extract from the published OECD tables:

| General Cargo Ship<br>[Deadweight] | CGT Factor | Passenger Ships<br>[GT] | CGT Factor |
|------------------------------------|------------|-------------------------|------------|
| Under 4,000                        | 1.85       | Under 1,000             | 6.00       |
| 4,000 – 10,000                     | 1.35       | 1,000 – 3,000           | 4.00       |
| 10,000 – 20,000                    | 1.00       | 3,000 – 10,000          | 3.00       |
| 20,000 – 30,000                    | 0.85       | 10,000 – 20,000         | 2.00       |
| 30,000 – 50,000                    | 0.75       | 20,000 – 40,000         | 1.60       |
| 50,000 – 80,000                    | 0.60       | 40,000 – 60,000         | 1.40       |
| 80,000 – 160,000                   | 0.50       | 60,000 and over         | 1.25       |
| 160,000 and over                   | 0.40       |                         |            |

While described as CGT factors, the majority of OECD tables are based on deadweight, ie, the weight the ship can transport. As this is predominantly the cargo weight, for any one type of ship where cargo density is constant this is a good indicator of size. The tables are stepped values, but applying regression at the midrange points shows curves with power coefficients of around  $-1/3$ . This reflects the work of Carryette who demonstrated similar trends.

Knowing CGT Factors allows any one shipyard to calculate the manhours per compensated gross ton it uses to construct vessels since in theory it should be a constant. Applying its total cost per manhour produces a cost per CGT for the shipyard and permits comparison with other shipyards. Such calculations are usually based on published accounts and industrial knowledge, but more specific values are possible when shipyards co-operate in an analysis.

## Type 23 and AOR



Gross Tonnage = 4,812  
CGT Factor = 8.15  
CGT = 39,218



Gross Tonnage = 28,821  
CGT Factor = 2.65  
CGT = 76,375

**AOR six times GT but only  
twice the work content of Type 23**

CGT Factors for Naval Ships

PFG began the development work for naval vessels in mid 2000. In its simplest form the derivation of factors requires 'stepping stones' in any shipyard whereby the manhours for a ship with known CGT factor can be compared with those for a vessel whose factor is to be determined.

The startpoint for the PFG work was intended to be Swan Hunter Shipbuilders [SHS] in Newcastle Upon Tyne, which had been a mixed yard producing both commercial and naval vessels so providing 'steps'

from commercial through Auxiliary Oiler Replenishment [AOR] to Type 23 frigates. But all commercial vessels built by SHS were specialist types which are lumped under 'Other Non-cargo Vessels' in the OECD table and the factors are, therefore, less robust than those for other groupings. First Marine International, the knowledgeable consultancy employed by PFG/CF Sea to carry out the work, has derived alternative techniques for such situations. To date, factors have been derived for Type 23 and AOR; their magnitude is the square of the value for a passenger vessel of similar tonnage.

Future work is intended to produce tables for various types of warship similar to that shown above and to assess UK shipyards' productivity compared to a European benchmark. In assessing a CGT factor manhours must be compared on a like for like basis. This means that ships being compared must have been built in the same shipyard at the same time under similar contract conditions. Similarly, when comparing productivity, cognisance has to be given to the fact that most commercial shipyards produce specific types of vessels and employ standard modules, the design of which evolves/ changes with time. There must exist therefore, some degree of economy due to standard processes and products. It follows that care will have to be taken when comparing warship and commercial productivity since the manhours to construct a class of warship comprising ten to fifteen vessels can be shown to change significantly. This is due to both changes in production technology and product learning and that has a corresponding effect on the assessed productivity.

## **Does Anyone Really Care About Affordability ?**

**In a recent article, Mr Tony DeMarco, President, PRICE Systems LCC illustrated the frustration felt by many US cost analysts that politics and budget games are taking up too much of their time.**

Recently, I heard a cost analyst ask this question at a workshop and many others mirrored his frustration. While job frustration isn't new, it quickly became clear that the most frustrating part of a cost analysts' job isn't the technical challenges or time constraints rather it is politics, budget games and getting management buy-in that drives people crazy.

Spend time talking to programme/project managers, acquisition professionals and estimators and you are likely to hear things like...

*"The cost estimates the customers see do not reflect the true cost of the programme"*

*"Cost estimates are not updated to reflect changes as the programme evolves through the development process"*

*"Management uses budget constraints to push for unrealistically lower costs"*

*"It's a 'buy-in' mentality...industry often provides unrealistic cost proposals to capture market share."*

Unfortunately, these beliefs are supported by facts.

The Center for Strategic and Budgetary Assessments study reveals that major DoD programs average cost overruns of 40%.

Mr. Aldridge, the Pentagon Acquisition Chief, announced that “...as many as 10 Programs have high overall cost growth exceeding the Nunn-McCurdy threshold and may face termination...”

The most frustrating thing is that these facts get the media’s attention. And the media has convinced the public and government officials that our industry is still unable to understand and manage cost. This was demonstrated most recently with the Army Crusader Program whose budget history was dragged through the media when in reality the Crusader has a well-conceived and practised cost management strategy.

There is hope! Leaders in the Pentagon and at NASA have elevated cost to the top of their agenda. In June, Mr. Aldridge told the House Armed Services Committee that “we have to be realistic in how we cost programs rather than being too optimistic.” And in his inaugural address NASA Administrator, Sean O’Keefe, said “in selecting goals we must be honest with ourselves as to the efforts and resources that will be required. And once attained, we must manage these outcomes responsibly and continually improve performance.”

But we’ve seen these comments from top officials before and somehow their visions lose steam before realisation. In my experience the breakdown occurs between the practitioner and the visionary leader, somewhere in middle management the vision gets lost. As cost professionals how are we to bring Realism, Honesty and Responsibility to cost management?

The DoD defines Affordability as “the degree to which the life-cycle cost of an acquisition program is **in consonance** with the long-range investment and force structure plans of the Department of Defense or individual DoD Components. Affordability procedures establish the basis for fostering greater **program stability** through the **assessment** of program affordability and the **determination** of affordability **constraints**.”

“In consonance” “stability” “assessment” “determination of constraints” These are our goals to strive for.

“**In Consonance**” means delivering products/services that meet the customers needs and budget.

“**Stability**” means that organisations are working towards the opportunities it can win and sustain rather than falling prey to over-optimism and buy-in.

“**Assessment**” means creating a program management culture that centres on affordability and guarantees programme viability.

“**Determination of constraints**” means bringing affordability to the foreground before management and engineering “fall in love’ with unaffordable designs.

Obtaining these goals is not easy. Overcoming politics, driving through budget games and getting managers to believe in estimating requires each of us to become a change agent.

**A message for the UK to follow ? or is it already happening ?**

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# SCAF Newsround

## **QinetiQ buy Motionbase**

**Q**inetiQ has acquired British simulation motion platform specialist, Motionbase, in a move to strengthen its global profile in the expanding mid-range simulator sector.

Motionbase's experience is based around six axis servo-electric motion platforms and electric control loading systems, all with PC-compatible interface software. The acquisition will allow QinetiQ to access additional established customers within the rapidly expanding training simulation market, which it can now provide with fully integrated simulator systems.

*Engineering TECHNOLOGY*

## **Half Hearted Preparation for Euro**

**A**ccording to figures released from the DHL Quarterly Export Indicator some 55% of engineering exporters claim to have no processes or systems in place for the Euro. The survey found engineering businesses are growing more positive in their attitude towards the single currency. 46% of exporters now believe that the Euro will benefit their business, compared with 38% in January 2001.

With the Euro now a reality in 12 European nations, and with 92% of engineering exporters trading with EU countries, DHL asked businesses which systems or processes they have already put in place or are currently implementing in order to prepare for the Euro. This was further narrowed down into categories of staff training, marketing campaigns and new software.

The results showed that 14% of engineering exporters are investing in staff training on the Euro, compared to the national average of 12%, while 27% are introducing new software. 3% have planned a marketing campaign.

David Coles, Managing Director of DHL UK, said: "As the Euro becomes common currency in many European nations support for Britain joining the single currency is growing among engineering exporters.

*Engineering TECHNOLOGY*

## **Underestimating Costs in Public Works Projects**

An article has been published in the *Journal of the American Planning Association* (Vol. 68, No 3, Summer 2002) that claims to be the first statistically significant study of cost escalation in transportation infrastructure projects. Based on a sample of 258 transportation infrastructure projects worth US\$90billion and representing different project types, geographical regions, and historical periods, it is found with overwhelming statistical significance that the cost estimates used to decide whether such projects should be built are highly and systematically misleading. Underestimation cannot be explained by error and is best explained by strategic misrepresentation, that is, lying. The policy implications are clear: legislators, administrators, investors, media representatives and members of the public who value honest numbers should not trust cost estimates and cost-benefit-analyses produced by project promoters and their analysts

**Strong stuff this !!!!**

*Further details available  
Please contact the Editor*

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## **Grand Review for our Fleet's Finest Hour**

The navy's greatest pageant is set to be resurrected to mark the fleet's finest hour. The famous Spithead review will make a return in 2005 as the nation marks the 200<sup>th</sup> anniversary of victory at Trafalgar.

Three years ahead of the commemorations, senior officers are making plans for a "fleet gathering" in the Solent – a parade by the leading ships of the Royal Navy and allied nations. Spithead reviews are traditionally held to mark a royal coronation or jubilee. The Royal Navy controversially pulled the plug on the regatta planned for the Solent this year at the request of Buckingham Palace, who wanted the Queen's 50 year reign celebrated with the minimum of fuss and expenditure.

The navy, sailors and commentators believe a review would prove to be an excellent morale booster for the senior service and for the nation.

*Portsmouth News*

# SCAF Future Events

|  |  |
|--|--|
| <p><b>Weds 12<sup>th</sup> February 2003</b><br/> <b>MoD Abbey Wood</b><br/> <b>Bristol</b></p>  | <p><b><u>Theme:</u> Is Cost Forecasting really helping the decision process ?</b></p> <p><b>Speakers</b></p> <ul style="list-style-type: none"> <li>• <b>Is it time to revisit the cost forecasting process ?</b><br/> <i>Arthur Griffiths, Vice Chairman, SCAF</i></li> <li>• <b>A View on the applicability and use of Confidence Limits</b><br/> <i>Philip Pugh, HVR Consulting Services Ltd</i></li> <li>• <b>The determination of three point estimating in PFG</b><br/> <i>Terry Proffitt, Pricing and Forecasting Group, DPA</i></li> </ul>       |
| <p><b>Tues 13<sup>th</sup> May 2003</b><br/> <b>MoD Abbey Wood</b><br/> <b>Bristol</b></p>       | <p><b><u>Theme:</u> Data , Measurement and Cost Analysis</b></p> <p><b>Speakers</b></p> <ul style="list-style-type: none"> <li>• <b>The use of historic data and applicability to today's environment</b><br/> <i>Andy Nicholls, Pricing and Forecasting Group, DPA &amp; Dale Shermon, PRICE Systems</i></li> <li>• <b>Should we use Price or Cost ?</b><br/> <i>Joe Harland, Advantage Business Group</i></li> <li>• <b>An approach to measuring the benefits of Smart Acquisition</b><br/> <i>Prof. David Kirkpatrick &amp; Eric Lomas</i></li> </ul> |
| <p><b>Weds 11<sup>th</sup> June 2003</b><br/> <b>Civil Service Club</b><br/> <b>London</b></p>   | <p><b>Chairman's Summer Reception</b><br/> A light hearted presentation on Resource Accounting and Budgeting as applied to the domestic budget.</p> <p><b>Guest Speakers</b></p> <ul style="list-style-type: none"> <li>• <i>Mr Philip Pugh</i></li> <li>• <i>Mr David Faddy</i></li> </ul>  |
| <p><b>Tues 16<sup>th</sup> September 2003</b><br/> <b>MoD Abbey Wood</b><br/> <b>Bristol</b></p> | <p><b>20<sup>th</sup> SCAF Annual Conference</b></p> <p><b><u>Theme:</u> Is Smart Acquisition Cost-Effective ?</b></p> <p><b>Speakers</b></p> <ul style="list-style-type: none"> <li>• To be confirmed</li> </ul>  |
| <p><b>Tues 18<sup>th</sup> November 2003</b><br/> <b>DSTL</b><br/> <b>Farnborough</b></p>        | <p><b><u>Theme:</u> Technology Refresh, Insertion or New Build ?</b></p> <p><b>Speakers</b></p> <ul style="list-style-type: none"> <li>• To be confirmed</li> </ul>  |

## Other events by Associated Societies

### See below

## Other events by Associated Societies

|   |  |
|---|--|
| <b>28<sup>th</sup> – 30<sup>th</sup> January 2003</b><br><b>Williamsburg, USA</b>               | US DoD Cost Analysis Symposium (DoDCAS)  |
| <b>1<sup>st</sup>- 3<sup>rd</sup> April 2003</b><br><b>MoD Abbey Wood</b><br><b>Bristol</b>     | European Aerospace and Eurospace Working Group on Cost Engineering   |
| <b>10<sup>th</sup> April 2003</b><br><b>1 Great George Street</b><br><b>Westminster, London</b> | Association of Cost Engineers, Seminar on Cost and Project Management for International Projects. Further details available from <a href="mailto:Info@acoste.org.uk">Info@acoste.org.uk</a>                                    |
| <b>17<sup>th</sup> – 20<sup>th</sup> June 2003</b><br><b>Orlando, Florida,</b><br><b>USA</b>    | International Society Parametric Analysts /Society of Cost Estimating and Analysis 4 <sup>th</sup> Joint Annual International Conference. Further details available from: <a href="mailto:lscea@erols.com">lscea@erols.com</a> |
| <b>November 2003</b><br><b>Germany</b>  | PRICE Systems European Symposium. Further details available from: <a href="http://www.pricesystems.com">www.pricesystems.com</a>   |

Please send any articles, letters or any other ideas for inclusion in the newsletter to:

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