



*Safety & Loss Prevention
Subject Group*

IChem^E

Newsletter

EDITORIAL:

On the 10 June 2000 four persons were killed and four injured in an explosion in a Japanese plant involving hydroxylamine.

In the USA on the 19 February 1999 five people were killed and fourteen injured also in an explosion involving hydroxylamine. Read about them in the Loss Prevention Bulletin and decide whether they are the same accidents.

Have you tried looking at <http://news.bbc.co.uk/1/hi/health/2049248.stm>

It has an interesting story of Isabel, a child that was misdiagnosed by a junior doctor in an A&E section of a hospital. The child was diagnosed as having chickenpox but actually had a complication of a necrotising fasciitis bug infection. The child nearly died. The parents decided that it was not the doctor's fault as it was a very rare condition which he had not experienced or come across in his lectures. Instead they established the ISABEL DIAGNOSTIC TOOL www.isabel.org.uk which could be accessed on the website by medical personnel. This tool was a database of all diseases and conditions that could affect a child which was accessed by typing in the symptoms and a list of possible causes would be given. Further tests could then be carried out to point to the final condition.

For a junior doctor, who has little experience, and for other doctors it meant that they could tap into the experience of many consultants and prevent misdiagnoses.

Our own Accident Database is the same. A new design engineer and others can tap into our database to learn the experience of many others and prevent an accident. Do you have access to the Accident Database at your place of work?

I have now been editing this Safety Newsletter for 10 issues and I have not received one single email of complaint. Perhaps you are all bored stiff with the contents! However finding articles is very difficult so I would like to see some odd items from the readership to brighten up the dull days of being an engineer devoted to safety matters.

Email: john.bond007@nthworld.com

CONTENTS:

Editorial
Annual General Meeting
Talking Timbers
A New use for Mice
Signals for Accidents
The Hot Air Balloon
The Safety Inspector
Book Review. Lessons from Longford
- the trial.
Books on Risk

ANNUAL GENERAL MEETING

The AGM was held on the 7th November 2002. The notes of the meeting were as follows:

1. APOLOGIES

Apologies were received from:
John Munnings-Tomes, Tim Jones, Graham Ackroyd, John Atherton, John Bond, Noel Stack, Allen Ormond, Martin Pitt

2. MINUTES OF PREVIOUS ANNUAL GENERAL MEETING

The minutes of the meeting held on 5 November 2001 were agreed as a correct record.

3. CHAIRMAN'S REPORT

Mike Considine gave a short presentation during which he set out the role and activities of the S&LP subject group.

4. TREASURERS REPORT

- * Funding is good and has led to a healthy excess, mainly due to various successful meetings and other activities
- * There will be sufficient surplus to continue to sponsor the design prize and conference attendance by a student

5. NOMINATIONS

The following nominations and seconds were made:

Chairman - Mike Considine

Nominated by Simon Turner; seconded by Gus Carroll; carried

Secretary - Gus Carroll

Nominated by Mike Considine; seconded by Simon Turner; carried

Treasurer - Allen Ormond

Nominated by Gus Carroll; seconded by Mike Considine; carried

Newsletter editor - John Bond

Nominated by Mike Considine; seconded by Gus Carroll; carried

6. ANY OTHER BUSINESS

None

TALKING TIMBERS

Clanging bells, warning sirens and chirping canaries have long been used to warn of impending danger in confined spaces. But talking timbers? So were named a 19th century expedient used in the gold mines of Ballarat in Australia.

The timbers were narrow tree trunks cut and wedged to fit vertically between the ground and the roof of the quartz seam being worked. They were sensitive enough to detect any movement in the rocks overhead so that the resulting audible creaking of the wood gave warning to the miners of a possible roof fall. They were fitted as a warning system in case the pillars of quartz left to support the roof were insufficient.

These primitive seismographs were introduced to the Australian goldfields by migrating tin miners from Cornwall as a second safeguard against roof falls.

A NEW USE FOR MICE

According to an article in "Natural History", March 2003, on the behaviour of mice, they were "exhibiting a body posture that typically indicates anxiety and risk assessment".

In the old Dyestuffs Division of ICI mice were used for testing the atmosphere for oxygen prior to entering a vessel. One wonders if mice have been subjected to a modernisation process by the HSE and persuaded to carry out risk assessment!

SIGNALS FOR ACCIDENTS

The gold mines at Ballarat had another safety system but this was not so well thought out. The signal system was operated by pulling a small rope cord which rang a bell. The lift which hoisted the gold bearing ore to the surface and transported miners was operated by a steam engine on a cage suspended from a large rope. The numerical signal system displayed on a board was:

SHAFT SIGNALS

- 1. Stop when in motion**
- 2. Lower**
- 3. Raise**
- 4. Hoist to surface**
- 5. Change to different level**
- 6. Release from hold fast**
- 7. Firing warning**
- 8. Tools and equipment on**
- 12. Accident**

If a roof fall accident occurred below ground I just wonder who would stay around to pull the signal cord 12 times!!

THE HOT AIR BALLOON

A man in a hot air balloon realized he was lost. He reduced altitude and spotted a woman below. He descended a bit more and shouted, "Excuse me, can you help me? I promised a friend I would meet him an hour ago, but I don't know where I am."

The woman below replied, "You are in a hot air balloon hovering approximately 30 feet above the ground. You are between 40 and 41 degrees north latitude and between 59 and 60 degrees west longitude."

"You must be an engineer," said the balloonist. "I am," replied the woman, "How did you know?"

"Well," answered the balloonist, "everything you told me is technically correct, but I have no idea what to make of your information, and the fact is I am still lost. Frankly, you've not been much help so far."

The woman below responded, "You must be in management."

"I am," replied the balloonist, "but how did you know?"

"Well," said the woman, "you don't know where you are or where you are going. You have risen to where you are due to a large quantity of hot air. You made a promise which you have no idea how to keep, and you expect people beneath you to solve your problems. The fact is you are in exactly the same position you were in before we met, but now, somehow, it's my fault."

Received by email

SHARING ACCIDENT DATA

At an I.Chem.E meeting he chaired
 The Safety Inspector declared
 That sooner or later
 All accident data
 Would have to be routinely shared

Take the Mary Celeste - in his view
 There wouldn't have been a to-do
 Had the X-Files been shared
 And the ship well prepared
 For those aliens abducting the crew

BOOK REVIEW

LESSONS FROM LONGFORD: THE TRIAL

By Andrew Hopkins, CCH Australia (special issue of Occupational Health and Safety Australia and New Zealand, December 2002), 72 pp.

Most readers will be aware of the catastrophic explosion that occurred in the Esso gas Plant in Longford, Victoria, Australia in 1998. When a pump failed the flow of warm oil through the shell of a heat exchanger stopped and its temperature fell to that of the cold oil in the tubes, -48°C. When the flow of warm oil was restarted, several hours later, the thermal shock fractured the heat exchanger, releasing hydrocarbon vapours and liquids. Explosions and a fire followed, killing two employees and injuring eight. Supplies of natural gas throughout the State of Victoria were interrupted and were not fully restored until three weeks later. There was no alternative supply of gas and many industrial and domestic users were without fuel for all or part of the time that the plant was shut down. The report of the official inquiry¹ described in great detail the circumstances that led to the pump stopping but in his book, *Lessons from Longford* Andrew Hopkins² described the underlying causes including the removal of all the professional engineers to the head office in Melbourne and the transfer of the foremen to administrative duties. Between them the last two actions resulted in a loss of support for the operators, sometimes described as empowerment.

Hopkins has now followed up his book by an account of the trial of Esso which resulted in the largest fine ever imposed in Australia for a safety offence. The trial produced no new insights into the causes of the explosion but did provide an object lesson in how not to handle one's defence in such a case. Esso pleaded not guilty on the grounds that the failure of the heat exchanger was due to a defect in the weld, but any article exposed to a stress far beyond its design is liable to fail and does so at its weakest point. Hopkins concludes that "the defence strategy backfired by irritating the Judge. This had profound consequences when it came to sentencing".

There was one major change in Esso's tactics between the Inquiry and the trial. At the Inquiry they had argued that the accident was due to operator error. At the trial they did not produce this argument, probably because it had produced much criticism.

Exxon, the owner of the Esso plant, is renowned for its commitment to safety. Was Longford a small plant in a distant country that fell below the company's usual standards or did it indicate a fall in standards in the company as a whole? Exxon's low lost-time accident rate may have misled them to think that process safety was under equally good control.

The underlying causes of Longford were mainly changes in management and the most important lesson from the inquiry and trial is the need to control them as systematically as most companies now control changes to plants and processes.

Reviewed by Trevor Kletz, Visiting Professor, Loughborough University

1. Dawson, D.M. and Brooks, J.B., *The Esso Longford Gas Plant Explosion*, State of Victoria, Australia, 1999.
2. Hopkins, A., *Lessons from Longford*, CCH Australia, Sydney, 2000.

BOOKS ON RISK

Learning from Errors and Accidents; Safety and Risk in today's Technology, by Romney Duffey, Atomic Energy of Canada Ltd. And John Saull, International Federation of Airworthiness. This has been published recently by Elsevier (ISBN 0750675969, pp227, price £35).

At Risk: Natural Hazards, People's Vulnerability and Disasters by B. Wisner, T. Cannon and I. Davis. The second edition is due to be published by Routledge in 2003.

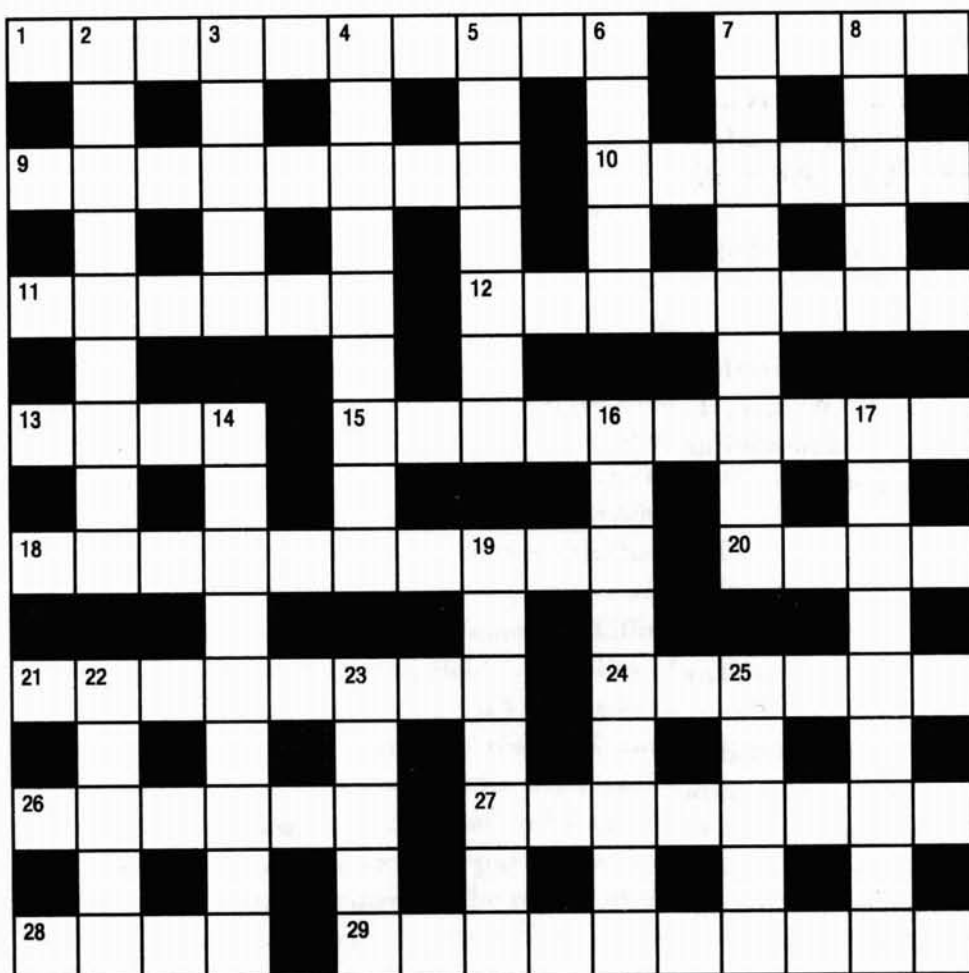
Safety-related Systems: Guidance for Engineers.

Issue 2 Aug. 2002 ISBN 0 9525 103 0 8

This new revised guidance document is now available from Hazard Forum. Copies cost £15 plus £2 p&p. Order from Secretariat on 020 7665 2202 or email Vicki.gallagher@ice.org.uk

NEWS BRIEFS

Transco is to be prosecuted over the deaths of four members of the same family in a gas explosion more than two years ago. The Scottish prosecution service said it was taking culpable homicide proceedings against the gas distribution network with a contravention of the Health and Safety at Work Act 1974 as an alternative.



**CROSSWORD
PUZZLE
No. 13**

CROSSWORD PUZZLE No. 13

ACROSS

1. Paint solvent is nothing but an oil with initial impurities removed. (10)
7. Sugar with roots. (4)
9. Destroy vessel containing mixed measure of a substance. (8)
10. Five cents worth of metal. (6)
11. Was Bessemer so hard-hearted? (6)
12. Attitudes about medical speciality - ketoses, for example. (8)
13. Recruit holds a colour. (4)
15. Hear arrest went badly. Blame the elements. (6, 4)
18. Chemically speaking, a pickpocket in charge of a police force. (6, 4)
20. Orderly if not in 21. (4)
21. Accordingly I'm in Bedfordshire town for liquid intake. (8)
24. Some maniac insists that nicotine isn't all bad. (6)
26. Device to help you get round a Director General. (6)
28. Jump it or trump it, in Chicago they pump it. (4)
29. Concerning addicts, we hear it said the risks must be looked at again. (10)

CROSSWORD PUZZLE No. 13

DOWN

- 2. Paid out a hundred and one old pence for unusable substance. (5, 4)
- 3. Damaged and penniless. (5)
- 4. Describes cocktail of rich - and dirty - alcohol. (9)
- 5. Japanese drama and other performing art shortened by loser. (2-5)
- 6. Decline nylon; it contains another fabric. (5)
- 7. Rubbish blown about in tropical storm curtailed the accelerator. (9)
- 8. Returning a pound to First Lady is a disaster. (5)
- 14. Disconnected, like a book not mentioned on radio, say. (9)
- 16. Upsets the Greens and puts them at risk. (9)
- 17. Weighty sounding team postulated topless player. (9)
- 19. Container of the French basic unit. (7)
- 22. Nil tax on first ever shape. (5)
- 23. Bury beheaded playwright. (5)
- 25. Sit back under an Opposition. (5)

| | | | | | | | | | | | | | | | |
|----|---|---|----|----|---|---|---|----|----|----|----|----|---|----|---|
| P | P | 2 | L | Y | M | O | R | P | H | I | 6 | S | M | | |
| E | | A | | A | | A | | A | | C | | M | | 8 | A |
| 9 | R | E | S | I | N | | | M | E | R | C | U | R | O | U |
| I | | E | | G | | S | | D | | B | | N | | S | |
| 1 | G | E | R | M | A | N | A | T | E | | 12 | A | N | O | D |
| E | | | | N | | Y | | N | | | | M | | N | |
| 14 | E | A | 15 | S | T | E | R | | | S | E | 16 | D | I | M |
| | | | U | | S | | | 17 | A | | D | | S | | R |
| 18 | S | O | L | V | E | N | T | S | | | 19 | P | O | I | S |
| E | | P | | | | | | R | | 20 | W | | T | | I |
| 22 | E | T | H | 23 | Y | L | | | 24 | O | V | E | R | 25 | R |
| T | | I | | E | | | | P | | I | | O | | V | R |
| 26 | H | Y | D | R | A | T | I | N | G | | | 27 | P | H | O |
| E | | E | | R | | | | N | | H | | I | | I | U |
| | | | 28 | I | N | S | E | C | T | I | C | I | D | E | S |

**ANSWERS
TO
CROSSWORD
PUZZLE
No. 12**

DIARY OF SAFETY EVENTS

| GROUP | TITLE OF MEETING | PLACE & CONTACT | DATE |
|--|---|---|-------------------------------|
| AIChE | 37th Annual Loss Prevention Symposium AIChE 2003 Spring National Meeting | New Orleans, Louisiana, USA John Murray Tel +1 202 261 7622 Email john.murray@csb.gov | 31 March - 2 April 2003 |
| Offshore Engineering Society | Safety in the Offshore Industry. Paying Lip Service? Or Paying attention | Institution of Civil Engineers Bisi Oyekanmi Tel 020 7665 2239 | 2 April 2003 |
| Institution Mechanical Engineers | Railway Safety | Inst. Mechanical Engineers, London Natalie Murray Tel 020 7973 1316 Email n_murray@imeche.org.uk | 24 April 2003 |