Review of:

Proximate Special Effects Familiarization & Safety

J. Larry Mattingly, David A. Opperman, MD, Francis "Pinky" Pinkerton

American Firework News
[ISBN 0-929931-20-3] 2002

Stephen Miller M.I.Exp.E., Live Action FX, Ltd, email Steve@LiveActionFX.com

---

After many years of drought, the rain is falling for those praying for a basic technical reference book on stage pyrotechnics. The stage and special effects industry as a whole has been lacking a good, well written, reference book that is actually of use to the technician (there are plenty of titles aimed at the general public, but too few aimed at the practising technician).

Although "Britain and America are two countries kept apart by a common language", I have to say that I am rather impressed. The book is well laid out with chapters devoted to 'Professionalism, Responsibility & Licensing', 'General Application Information' (including security, permits, local inspectors and of course safety). I rarely have a good thing to say about the state of UK explosives law, but having read these chapters, I now realise that the problems I face are nothing in comparison to those tackled regularly by US technicians.

Further chapters cover: Manufacturers, Igniters & Airbursts; Comets, Mines, Crossettes and Gerbs; Flame Projectors, Flash Pots and Sparkle Pots; Concussion Effects; Flash Trays, Indoor Lances and Lycopodium Powder; Line Rockets & Saxons; and Firing Systems, Techniques, Tools and Supplies. These chapters are very useful and describe the various effects and techniques, while continuing to hammer home the 'safety' message, which is never a bad thing (although a little repetitive at times).

The information concerning 'Flame Projectors' was at odds with my experience: When igniting Flame Projectors at the top, I have found that the height of the flame is only affected slightly by the length of the tube; the inside diameter of the tube—and hence the top (open) surface area of the column of propellant powder—is the main contributing factor. The greater the surface area, the more unburned powder is available to be lifted by convection effects, this powder then burns higher up the column of flame, thereby increasing its overall height.

The duration of the effect is controlled by the height of the column of propellant powder when ignited to burn from the top down—I have created Flame Projectors that burned for 5 seconds and longer in the past.

In the UK, I have only seen Flame Projectors of cardboard construction, not the metal pot variety shown in the book. I would recommend against using the bottom ignition method mentioned in the book for creating a 'fireball' effect when using cardboard tubes, as they are likely to explode, even seemingly without confinement. Just a few inches head height of propellant over an igniter can be enough for the powder to 'self confine' and cause the cardboard tube to explode. I still have such a shredded tube from some tests I did about 8 years ago, to remind me about the power of these effects.

I was also concerned to see, or rather, NOT see any reference to the prevention of the accidental initiation of igniters (and ready assembled pyrotechnic devices) by radio frequency (RF) radiation and induced currents (i.e., Do NOT use radios or mobile phone while handling, wiring or within 20 feet of firing circuits; Do NOT lay firing cables along or near mains power and other cables.

In the UK, this is taken very seriously and there is a British Standard (BS 6657) that specifically deals with the prevention of such accidents. The British Standard is a comprehensive document and including a similar level of detail in the book would have at least doubled the page count. I also appreciate that stage events tend to be alive with RF and that doing away with radio traffic is near impossible. However, I do feel that the book, and the technicians who read it, would have benefited from a short section and some simple advice on this subject. Such coverage would allow the technicians to take a few basic preventative measures that will help mitigate

the majority of the risks associated with radio frequency radiation and induced currents, even in the transmission rich environments found at stage productions.

Putting these criticisms aside, I have to say that "Proximate Special Effects – Familiarization & Safety" is an excellent book, and I will be recommending it for inclusion on the reading list for the "Special Effects" specialist paper of the Institute of Explosives Engineers. Successful completion of this examination is used as a mark of competence on the UK "Joint Industry Special Effects Grading Scheme" (the recognised structure that the UK Special Effects industry operates within).

Cost including shipping within the US, Canada, and Mexico is US $44.95; visit web site for cost, including shipping to other countries.

Order from:
American Fireworks News
HC67 Box 30
Dingmans Ferry, PA 18328
USA
Fax: +1-570-828-8695
or visit web site: www.fireworksnews.com

Editorial Policy

Articles accepted for publication in the *Journal of Pyrotechnics* can be on any technical subject in pyrotechnics. However, a strong preference will be given to articles reporting on research (conducted by professionals or serious individual experimenters) and to review articles (either at an advanced or tutorial level). Both long and short articles will be gladly accepted. Also, responsible letters commenting on past Journal articles will be published, along with responses by the authors.