

Proceedings of the Tenth

**INTERNATIONAL SYMPOSIUM ON FIREWORKS
SYMPOSIUM INTERNATIONAL D'ART PYROTECHNIQUE**

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PREFACE

This year, the International Symposium on Fireworks (ISF) celebrates its 10th Edition by returning to Montréal. In 1991 Giovanni Panzera first contacted me enquiring as to the possibility of organizing a fireworks event to coincide with the 350th anniversary of the city of Montréal in 1992. The gathering was to attract renowned pyrotechnicians from all over the world. The gathering was to launch the largest and best fireworks competition year ever held in Montréal.

And so it was that the International Symposium on Fireworks/Symposium International D'Art Pyrotechnique was born. Over the years the Symposium has become a unifying event, acting as a catalyst, displacing animosity and setting a stage for pyrotechnicians to focus and achieve common goals in the fields of science, regulation, and the art. It was your event in 1992 when, in conjunction with the Symposium, the first Meeting on Fireworks Standards and their Harmonization attracted representations of over twenty countries. It was your event in Vancouver in 1994 and in Orlando in 1996, the first Symposium outside Canada. In 1998 we were in Halifax where Mr Fred Wade first worked on the Symposium. In 2000, Giovanni Panzera accomplished his dream of bringing the Symposium to his beloved Naples, one of the most active fireworks areas in Italy. In 2001, shortly after Sept 11, we ventured back to Orlando, and in 2003 we returned to another fireworks-intense area in Europe, Valencia. Then in 2005 we travelled to the other side of the world, to the land of the perfect sphericals, Shiga, Japan. Then, for the culmination of the CHAF fireworks research program, we went to Berlin, Germany as guests of the BAM. Now we are back to the birthplace of the Symposium, Montréal for the 10th edition of this great gathering.

The International Symposium on Fireworks/Symposium International D'Art Pyrotechnique fostered under the support of CANMET until 2000. Then, with various cuts occurring government-wide, the Symposium was forced to relocate. A fireworks enthusiast and organizer was needed. Enter Fred Wade, who had experience in organizing conferences and had proved this when he assisted us in Halifax in 1998. In addition, he had shown great talent as a volunteer bar-tender at the Symposium Hospitality Suite in Orlando in 1996. The International Symposium on Fireworks Society, based in Halifax, was established in 2000, with Ettore Contestabile, Chairman, Roger Schneider, Vice-Chairman, and Fred Wade, Secretary-Treasurer.

In 1991, CANMET allowed us to support this venture wholeheartedly and I grasped at the opportunity to promote fireworks literature. There were so many knowledgeable people yet so little seemed to be going into print. Some pyrotechnics research had been published in the now defunct French Journal, Explosif and the Russian Journal, Explosistoffe. Later, some fireworks research was presented and reproduced in the Proceedings of the IPS, the International Pyrotechnics Seminar, some made it in the occasional Journal, Pyrotechnica, and some we were lucky to have access to from Japanese Journals being translated into English. The great presentations made at the PGI, Pyrotechnic Guild International, conventions rarely made it into print.

The last day of the first Symposium, a few of us met at an ad oc meeting, David Pier being a major force, highlighting that the success of this first Symposium could provide that thread of science and credibility for the fireworks industry. One of the ways to do this was through publication of fireworks research and other related material. The first set of Proceedings was in print. (A few suffered broken spines that is why those that followed were spiral-wound). Could a Journal on fireworks be possible? Dennis Manochio and Jack Drewes agreed to publish a fireworks journal if CANMET would take care of collecting and editing the papers. Shortly after, in 1993, Dennis Manochio passed away and Charlie Weeth entered the picture. The flooding of the Mississippi ended this venture when Charlie lost all his computing facility in the flood. A call from Ken Kosanke led to what is now the Journal of Pyrotechnics.

The reason that I relate this story is to indicate that the ISF has had and continues to have a great influence on the industry and leaves, positive lasting effects at all the locations wherever it has been held. Now, the 10th ISF Proceedings are in print, a collection of quality work that continues to strengthen the backbone of the science and art of the fireworks industry.

The Honorary Chairperson for this ISF is Jean Bissonnette, now retired from his position at CANMET, where he had the privilege of teaching many grateful Canadians how to use fireworks safely. John was a mediator between Montréal and CANMET, assisting with and being the first speaker at 1992 Symposium. In addition, the Guest Speaker is Everett Clausen, retired Chief Inspector of Explosives, without whom the ISF could have easily faltered

in those early years when it needed sound government support. The ISF is grateful to both of these gentlemen for taking the time to join us at this 10th ISF.

The International Symposium on Fireworks Society (ISFS) thanks all the supporters who, over the years, have made the ISF a gathering where sound research is presented, choreographic designs are revealed and the latest regulations are thoroughly discussed in our continuing endeavour to Discover the Fire (ΕΞΕΥΡΙΣΚΕΤΕ ΤΟ ΠΥΡ).

The 10th International Symposium on Fireworks opening Remarks:

Our Honorary Chairman

Under the hot summer Montréal sun, on the dusty shore of the St. Lawrence River, among the head-kerchiefed pyrotechnicians was a gentleman pacing carefully among the maze of fireworks mortars. Now and then he would stop, inspect a mortar and its surroundings and then would indicate to one of the pyrotechnicians that an adjustment was necessary. He would tour the fireworks assembly area making suggestions to the workers and nodding approval and suggesting a change if he noted a safety infraction. His tour of the fireworks shooting site would end only once every mortar and every fireworks article connection had been inspected. With a smile, he walked off knowing that the fireworks display was set up as safely as possible. This was the process that Jean Bissonnette repeated for many competition displays at the Montréal site. Jean Bissonnette was the embodiment of fireworks in Canada. He was the Federal Government employee assigned to keep a tight rein on safety. Every single Canadian fireworks operator knew Jean because he had given them all the basic required training to get them started on the road to appreciate, design and shoot fireworks displays. His influence spread throughout Canada.

In 1991, when Giovanni Panzera started planning a fireworks event to coincide with the 350th anniversary of the city of Montréal in 1992, he turned to Jean Bissonnette and it was Jean, who actually contacted me. It was Jean who initially brought AMARC (Association montréalaise d'action récréative et culturelle) and CANMET (Canadian Centre for Metals and Energy Technology) together to begin the ISF adventure.

After a rewarding career of 23 years with the Explosives Regulatory Branch, Jean retired in 1995. His friends gathered to wish him well. It was a perfect evening for a reunion at the Chateau Montebello, a log-house style hotel nestled among the tall pines along the Ottawa River, not long ago used as a retreat for the G7 meeting and further back by other dignitaries and actors such as Bob Hope who swung their clubs at the adjoining golf course. This was the backdrop for the retirement party of Jean Bissonnette. A fitting location seeing that Jean and his family were actually involved in the building of this great Chateau. Many relatives and friends were in attendance. Jean's son-in-law wrote and sang him a ballad of his days as a fireworks instructor.

Among the elite attendees were Richard Brown (Hand's Fireworks), Maurice Cardinal (Ampleman), Bernard Masson (BEM Fireworks), Patrick Brault (Fiatlux), Yvon Leonard (AMARC), John Campbell (Canazon), Manuel and Frank Furtado (Benson & Hedges Competitions - Vancouver, Toronto, Quebec City), and Doug McPherson (Benson & Hedges)

Performance Pyrotechnics Associates (PPA) designed and fired the "Fireworks Display" on the Montebello grounds by the shore of the river. Under the leadership of Myles Patterson and Syme Jago, the show, assembled with MP Associates' indoor pyrotechnics, was choreographed and performed to the song "Johnny Be Good". It was spectacular!

What follows is an excerpt from Jean Bissonnette's retirement speech (Sections translated from French).

"My friends, great thanks for this evening. It is formidable. A thousand thanks my friends. To begin, I must thank the one who helped and encouraged me during the past 23 years, my wife Agathe.

In 1972 a special gentleman came to my house and told me, "Jean, we need a consultant in fireworks at headquarters in Ottawa." This gentleman was Mr. Hunter, one of the Explosives Inspectors.

Working in Ottawa, I was very happy with that, but you know, a few months after, I had more flying hours than a pilot from Air Canada, giving courses all over Canada, from Inuvik, North West Territories to St John's,

Newfoundland. Giving courses to 20,000 Canadians and you know, in all these cities, everybody was very friendly. I am happy that I have done something for my friends. This is a Great Country.

To be a good consultant was very easy for me because I had the support of all the Chief Inspectors of Explosives; Joe Fraser, Brian McHugh, Richard Shaw and Everett Clausen. Mr. Clausen, I wish that I were twenty years old again so that I could work forty more years in this position. I thank you sir for all these years, working for you, under your direction.

I would like to thank all the fireworks companies and artificiers: Ampleman Pyrotechnique, Canazon Fireworks, Feux d'Artifice B.E.M., Feux d'Artifice Royal, Fiatlux, Glorious Fireworks, Hands Fireworks, Performance Pyrotechnics Associates.

We have worked together for 23 years and were successful in establishing safe working practices. Permit me also to mention some of the large displays which are a grandiose success in Canada: Competition International d'Art Pyrotechnique de Montréal, Symphony of Fire in Toronto, Symphony of Fire in Vancouver, Les Feux Loto Québec, Canada Day, Festival des Tulipes.

It is always a pleasure to work with you all. You remember in 1981, 16 major displays for Canada Day. I think that that was the biggest thrill to work on these shows, all within a short period of time. Imagine, 16 major displays across the country with a great success!

We all work and belong to CANMET of the Department of Natural Resources, and our Assistant Deputy Minister, Dr. Marc Denis Everell.

All my friends at the branch! Thank you!"

**Greeting from the Honorary Chairman
John R. Bissonnette**

As Honorary Chairman, please allow me to bid everyone a very warm welcome. First of all, I want to thank the speakers, company representatives, and the Symposium organizers. This week, you will hear about security, artistic and scientific art, new pyrotechnic effects and everything for the complete success of your displays.

It is important to realize that no other form of entertainment can give so much fun and admiration to thousands of spectators at the same time. I also welcome those who are attending their first Symposium. Don't hesitate to ask your questions to the pyrotechnic experts on site.

For forty-two years, I've lived with pyrotechnics, and I'm really proud when I see the number of accident reports decrease each year throughout the world. I thank the local Fireworks Supervisors as well as those in your respective countries to have followed and respected the recommendations issued by government authorities. The pyrotechnics artist paints on the biggest canvas: the sky.

I hope you have an excellent Symposium. Enjoy the fireworks!

En tant que Président honoraire, permettez-moi, de vous souhaiter à tous la plus cordiale des bienvenues. En premier, je tiens à remercier les conférenciers, les représentants des compagnies, et les organisateurs. Cette semaine, vous entendrez parler de la sécurité, de l'art scientifique et artistique, de nouveaux effets pyrotechniques, le tout pour le plus grand bien de vos déploiements.

Il est important de noter qu'aucune forme de divertissement donne autant de plaisir et admiration à des milliers de spectateurs en même temps. À ceux pour qui c'est leur premier Symposium, soyez les bienvenues et n'hésitez pas à demander des renseignements auprès des experts en pyrotechnie qui sont ici présents.

Pendant quarante-deux ans, j'ai vécu avec la pyrotechnie, et quand je vois le rapport d'accidents diminué à chaque année dans le monde, j'en suis très fier et je remercie les artificiers d'ici, ainsi que dans vos pays, d'avoir suivi et respecté les recommandations émises des autorités gouvernementales. L'artiste en pyrotechnie peint sur la plus grande des toiles: le ciel.

Je vous souhaite un excellent Symposium. Bons Feux!

Jean R. Bissonnette
Président honoraire

Guest Speaker

Everett Clausen (retired Chief Inspector of Explosives) CIL/Orion

I can't believe 15 years have passed since the idea of this Symposium was born and then came to life at this very place. I was working as the Chief Inspector of Explosives and thought the idea a brilliant one and to tell you the truth I am not surprised at the success and interest in this ongoing event.

We were so fortunate to have Et Contestabile with his enthusiasm for the subject of fireworks and Jean Bissonnette who at that time in my estimation, was the most knowledgeable man in North America when it came to thoughtful and deliberate planning of fireworks presentations. I can remember when on one occasion he was not satisfied with security at a Canada Day show on Parliament Hill and overrode the politicians, bureaucrats and the CBC crew to hold up the show until he was satisfied all was absolutely safe. It was the only time in my tenure as Chief Inspector that I got a call directly from the Minister's office for a friendly chat.

Of course the goal of the Symposium has always been the advancement of knowledge in the understanding of fireworks and consequently using that understanding to improve safety in manufacturing, transport, storage and use. If ever there was a time for international co-operation at the government, industrial and commercial level in ensuring safety and security in the area of fireworks and explosives in general, it is now. International use and application of the UN Classification system puts us all on the same page as we discuss products and their properties and how to deal in a unified way with any problems. If we can move from that to international understanding of all aspects of fireworks from raw materials to final assembly we will contribute greatly to the improvement of safety throughout the industry.

We all look forward to a most productive Symposium and trust that it will be a most interesting week for all of us.

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Honorary Chairman

Jean Bissonnette

Guest Speaker

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