

Eighty Years of International Congresses on Glass (1933 – 2013)

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As in other scientific fields, glass science and glass technology have their international dimension which is systematically nurtured by national societies seeking to meet high standards of research and technology in their individual countries. The development of cooperation between glass technologists and researchers on the worldwide stage has been strongly facilitated by the establishment of the International Commission on Glass (ICG). One of the first and extremely important actions of the Commission was the decision to organize International Congresses on Glass at regular three yearly intervals. This article briefly describes the early years of ICG and deals mainly with the history of the International Congresses on Glass. It provides an overview of the Congresses illustrating their importance for personal contacts and for the development of international cooperation among glass scientists and glass technologists worldwide in the period from the 1st International Congress on Glass in 1933 to the 23rd Congress in 2013.

Introduction

At the beginning of last July Prague hosted the 23rd International Congress on Glass. The very fact that the world glass congress was held for the twenty-third time suggests that the event, which takes place every three years, has a long tradition and is rightly considered highly productive, both summarizing and giving a general overview of the results of glass research conducted all over the world. The congresses present original contributions that bring new information about new glasses and their properties, advanced technologies, and fresh opportunities for the application of glass. The concept of organizing congresses on glass arose from the mutual contacts established between glass technologists from several countries; this resulted in the founding of the International Commission on Glass (ICG) which became the initiator of international cooperation and regular meetings of glass experts at the international congresses. The first congress on glass was a reflection of the gradual formation of national glass societies and of the progressively developing international cooperation between glass technologists and researchers. The history of the establishment and subsequent development of ICG has been described in several publications that represent the main source of information about it /1-4/. This article describes briefly the circumstances at the beginning of the tradition of International Congresses on Glass and it also mentions prominent personalities who

contributed significantly to their successful organization and to their high professional standard. The article was originally written in Czech and published in the Czech journal on glass /5/. In response to requests from the international glass community this adapted and supplemented version has been prepared and submitted for publication in English.

Period between the world wars and the first and second congress on glass

The idea of organizing worldwide meetings of glass professionals developed gradually and came to the point of implementation after the First World War thanks to Professor W. E. S. Turner, the first secretary of the Society of Glass Technology (SGT), founded in 1916. In the period from 1923 to 1930, contacts between the Society of Glass Technology and German and French glass experts were gradually developed. Also cooperation between British and American glass researchers grew in a similar spirit and became institutionalized by a joint meeting of the Society of Glass Technology (SGT) and the American Glass Division of American Ceramic Society in 1928. Personal contacts which prevailed in the early stages of the process gradually expanded into systematic international cooperation on actual glass technology problems. In such a way, the cooperating participants jointly addressed the problem of definition of viscosity reference points, definition of viscosity intervals suitable for refining and processing molten glass, determination of temperature intervals for measurement of thermal expansion, standardization of methods to measure chemical durability of glass, and testing of refractory materials.

In the early 1930s SGT also established contacts with representatives of the Italian glass industry. The situation of a relatively large international group with mutual personal and professional contacts naturally led to the idea of holding a meeting of all the currently cooperating countries and to invite participants from other countries who might be interested in attending such an event.



Figure 1: 1st ICG Congress in Milan, 1933 - opening ceremony

The first such meeting was held in Milan, Italy, in 1933 as a joint event organized by glass and ceramics experts and it was followed by a separate meeting of glass specialists in Venice. At this first meeting of glass experts, which was actually the 1st International Congress on Glass, Professor Arnaldo Mauris (Italy) proposed that international meetings of glass professionals should be held regularly every three years. His proposal was accepted and a commission was set up to bring the idea to life. Members of the commission were: J. A. de Artigas (Spain), J. C. Hostetter (USA), Bernard Long (France), H. Maurach (Germany), Prof. A. Mauri (Italy) and Professor W. E. S. Turner (GB), who was elected the first president of the newly established International Commission on Glass (ICG). At the

same time, the organization adopted its first constitution which required the members to develop international cooperation between glass technologists and to organize international congresses in regular intervals of three years. Immediately, after establishment of the International Commission on Glass, Dr. Václav Čtyřoký was invited to join its activities as a representative of Czechoslovakia. New members - Prof. P. Gilard (Belgium), K. Fuwa (Japan) and Prof. A.H.M. Andreasen (Denmark) - joined the ICG executive committee in connection with the 2nd International Congress on Glass in London and in Sheffield in 1936. A photo of participants of the second congress is shown in Figure 2. The third International Congress on Glass was to be held in Berlin in 1939 but did not take place due to the outbreak of the Second World War and during the war the cooperation between glass researchers was interrupted.



Figure 2: 2nd ICG Congress in London-Sheffield, 1936

First row from left to right: Dr. J. M. Mühlig (CZ), F.C. Flint (USA), Dr. H. Maurach (Germany), Dr. K. Mey (Germany), Prof. W. E. S. Turner (UK), B. P. Dudding (UK), Prof. J.A. de Artigas (Spain), E. Meigh (UK), Dr. J.C. Hostetter (USA), Dr. B. Long (France)

International Congresses on Glass in the 50s and 60s of the XX. century

International contacts between glass professionals were resumed after the Second World in 1948 when Prof. Turner called together members of the pre-war International Commission and invited other participants to discuss the possibilities for international cooperation between glass experts in the post-war era. At that meeting they agreed that in the future the International Commission on Glass should be open to all national glass institutions, who would be entitled to nominate their representatives through national glass societies or national glass research institutes. They also decided to set up a Provisional Commission to prepare a new constitution (Figure 3). After several working meetings the new constitution was adopted in 1950 at a meeting of the Commission in Bern. The new constitution reflected the extended field of activity of ICG and it formulated principles of membership in the Commission, the form and content of the future international cooperation and the method of its management. In the following years, the constitution and the rules of cooperation were adapted several times to new political and social conditions, but the idea of holding International Congresses on Glass every three years always lived on.



Figure 3: Some members of the Provisional Commission, Charleroi 1949

Sitting from left to right: Henry, Turner, minister Duvieusart, Dudding

Standing from left to right: Vandecapelle, Andreassen, Simmingskoeld, Fanderlik, Long, Stevels

The first international congress on glass after the Second World War (historically the third one) was held in Venice in 1953, 20 years after the first congress and was symbolically held at the same place as the first congress. It revived the plans formulated before the war and launched the so-far uninterrupted series of congresses held in the post-war era at regular three yearly intervals. The 4th International Congress, held in Paris in 1956, turned out to be a successful social event and it documented the continual efforts of glass professionals to meet and to socialize. The congress culminated with a closing banquet that took place in the impressive Palace of Versailles.

In 1959 the congress was held for the first time in Germany – in Munich. The importance ascribed to the event by the then government of West Germany was documented by the fact, that the congress was attended by Vice-Chancellor Erhard, who gave a lecture on current economic development. Despite the fact that some Asian and East European countries were only represented by small delegations, the congress proved that contacts between glass experts were again developing on a global scale.



Figure 4: Opening ceremony of the 5th ICG Congress in Munich, 1959

In 1962 the congress was held for the first time outside Europe as its organization was entrusted to the American Ceramic Society. The congress was held in Washington and it came up with a major development which made it possible for the participants to learn about the detailed agenda in advance. Proceedings of the congress were distributed to the participants in the form of a volume of “Advances in Glass Technology”. This approach was very well received and became an integral part of the following congresses. The subsequent development of international contacts between glass professionals was significantly affected by the fact that the concept of regular congresses on glass had spread to the American continent and soon after further expansion into Asia took place.

The following two congresses took place again in Europe: in Brussels (1965) and London (1968). The professional agenda documented progress in glass science and glass technology in the post-war period and the London congress outlined opportunities for glass research in the coming computer era. The growing interest in participation at the congresses and their prestige is illustrated by the increasing numbers of participants and also by the presence of distinguished political representatives from the organizing countries.

The International Congresses on Glass were always organized under the auspices of ICG. All its management bodies – Bureau, Executive Committee (later Steering Committee) and the ICG Council were involved in the preparation and post evaluation of the congresses. The elected ICG presidents were outstanding and respected personalities, and scientific authorities with international prestige; they contributed significantly to the implementation of the fundamental ideals of the ICG constitution and, last but not least, to the recognition of the high professional standard of the International Congresses on Glass (Figure 5).



Figure 5: ICG presidents in 1933 - 1985

W. S. Turner (1933-1953), B. P. Dudding (1953-1959), H. R. Lillie (1959-1961), N. von Bulow (1961), O. Burch (1961-1962), A. Dietzel (1962-1963), B. Long (1963-1966), J. M. Stevels (1966-1969), N. J. Kreidl (1969-1972), R. W. Douglas (1972-1975), J. Staněk (1975-1978), P. J. Gilard (1978-1981), H. Scholze (1981-1984), V. Gottardi (1984-1985)

International Congresses on Glass in the period of 1970 – 2000.

The very successful 9th ICG congress was held in France (Versailles, 1971), fifteen years after the one in 1956 and its professional agenda included for the first time a lecture illustrating the results of the work of one of ICG's technical committees. Organization of subsequent events was entrusted to countries which had attended the congresses in the past and had offered to organize this challenging event.

Japan was the first among the Asian countries. The 10th International Congress on Glass was held in Kyoto in 1974. This event confirmed that the concept of International Congresses on Glass and the international cooperation within the International Commission on Glass had also become established on the Asian continent. The professional agenda of the congress was extended with an accompanying meeting that documented progress in the then very topical field of optic fibers and waveguides.

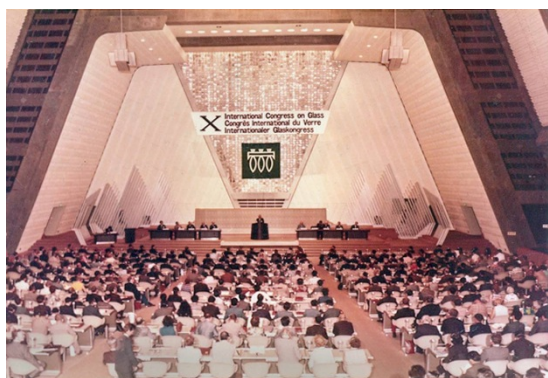


Figure 6: 10th ICG Congress in Kyoto, 1974 - opening ceremony

In the late nineteen sixties and particularly during the nineteen seventies, thanks to the involvement of Prof. Jaroslav Staněk, Czechoslovakia was the first Eastern European country within the Soviet sphere of control that participated in the ICG management and in the work of its technical committees. In 1967 Prague hosted an annual meeting of the ICG and in this connection the Czechoslovak Silicate Society organized an international symposium "Colored Glasses". Thanks to the success of that event and to the performance of representatives of the Czechoslovak Silicate Society in the International Commission on Glass, Czechoslovakia was commissioned to organize the 11th International Congress on Glass in Prague in 1977. To hold an event with such an extensive international participation was far from easy under the then political conditions. Despite that, the number of attendants at the Prague congress broke the previous record – there were 1176 participants from 32 countries; also the number of contributions - 263 in total - surpassed those of all the previous congresses. The professional program was opened by a lecture from Prof. Kreidl entitled "Glass of the Year 2000" and it included numerous high quality lectures with some completely original findings relating to e.g. the kinetic theory of glass formation and optic waveguides. The congress also for the first time presented the Prof. Weyl's award, given to a young

researcher for extraordinary and innovative results and selected by a delegated committee of US representatives in ICG. The first award went to Dr. Peter Schultz (USA) for his work on the development of technology for optoelectronic glass fibers. The presented lectures and posters were, as was usual, summarized in several printed volumes. Another major feat was the compilation of a two-volume proceedings “Glass 77”, which contained 26 summary lectures provided by invited experts from all over the world and edited by Jiří Götz.



Figure 7a,b: 11th ICG Congress in Prague, 1977, opening speech given by Prof. Staněk

The International Congresses on Glass continued through the following years at regular three yearly intervals. In 1980 the 12th congress was held in Albuquerque, New Mexico, USA. The congress for the first time had a poster section which became an integral part of all subsequent congresses.

In 1983 the German DGG organized the 13th International Congress on Glass in Hamburg. At this very successful and well attended congress participants could also visit the exhibition “New Glass in Germany” to learn about the history of artistic methods of glass processing.

The next congress was held in 1986 in another Asian country – in New Delhi, India. The festive character of the opening ceremony at the congress was supported by a speech given by the Indian president, Mr. Giani Zail Singh. Despite the long distance from Europe and USA, the excellent professional standard of the congress was ensured through 177 lectures, 87 posters and 650 glass experts from all over the world.



Figure 8: 14th ICG Congress in New Delhi, 1986 – opening session

The 15th International Congress on Glass took place in Leningrad (now Sankt Petersburg, Russia) in 1989. The congress set new records, in terms of the numbers of participants and presented contributions (2017 participants from 35 countries and 561 contributions).

The following congresses were held after the political and social changes that occurred in Central and Eastern Europe after the fall of the Iron Curtain. Those countries, which succeeded in renewing the

cooperation of glass professionals at the national level and ensuring financial security for the activities of their national organizations, started to develop their international contacts even more intensely. The first congress held after the political changes at the turn of the 1980s and 1990s was the 16th International Congress on Glass in Madrid, Spain, in 1992. Preparation of the professional agenda was for the first time managed by a Scientific Committee whose members were outstanding experts representing the world's glass community and who selected contributions that guaranteed a high standard for all sessions.



Figure 9: 16th Congress in Madrid, 1992 – opening session

As a result of the turbulent development in countries of the former Soviet bloc, ICG was joined by new glass societies from the newly established states (Czech Glass Society - 1993, Slovak Glass Society – 1999). Moreover, memberships of several earlier ICG member states from the east and south of Europe became problematic due to organizational and financial difficulties. In the course of the 1990s, the membership of most of those countries was renewed, the international representation in ICG management bodies was consolidated and glass organizations from other countries were accepted into the ICG family.

In 1995 the organization of the international congress was for the first time entrusted to the Chinese Ceramic Society in celebration of the fiftieth anniversary of its founding. This congress for the first time in the ICG history granted the newly established ICG Presidents Award to three distinguished glass experts. The highest ICG award, it recognizes an extraordinary lifelong contribution to the development of glass science, technology or artistic processing of glass, contribution to international cooperation and results achieved in education of new glass professionals. The first laureates of the award were Prof. A. R. Cooper (USA), Prof. N. Kreidl (USA) and Prof. J. Staněk (CZ).



Figure 10: Gan Fuxi – President of the 17th Congress, Beijing 1995

The last international congress in the past millennium was held in San Francisco in 1998 on the occasion of the hundredth anniversary of the hosting organization – the American

Ceramic Society. The congress was attended by 900 participants who listened to high-quality lectures in professional sessions, as well as interesting introductory lectures on the role of glass in the 21st century and also an overview of ICG's scientific contribution on the occasion of its 65th anniversary.



Figure 11: 18th ICG Congress in San Francisco, 1998 – ICG presidents and officers

Sitting: Nicoletti, Pye, Schaeffer

Standing: Delande, de Waal, Soga, Cause, Petzold

International Congresses on Glass after the year 2000

In the new millennium glass professionals from all over the world met for the first time in Edinburgh, the capital of Scotland, in 2001. The congress was organized by the Society of Glass Technology; it was presided over by John Clark and the professional agenda was prepared under the management of Prof. Adrian Wright. Apart from the rich program of lectures and posters, the participants could also experience demonstrations of Scottish cultural heritage and, last but not least, specialities of the Scottish cuisine, dominated by a whisky distillery tour.

In 2004, after thirty years, the congress returned to Japan. It was organized by the Ceramic Society of Japan and its president was Prof. R. Ota. Apart from lectures and discussions in sections, there were several additional professional meetings; among them, the Symposium on Nanotechnology particularly provided a platform for presentation of findings from this newly developing field. The success of the congress was supported by a rich cultural program in which the participants learned about the long and eventful history of Kyoto.



Figure 12: 20th ICG Congress in Kyoto, 2004 – Fabio Nicoletti, Alev Yaraman

The following congress in 2007 was organized in Strasbourg, the seat of the European Parliament. The opening ceremony of the congress was attended by officials of the town government, Bas-Rhin Department, Alsace region and by the Deputy Minister in charge of the glass industry. The professional agenda started with a round table discussion on the topic "Glass Products for the Future". The congress was successful thanks to its president J.P. Houdaer and Prof. R. Vacher, who headed the scientific committee during preparations of the professional agenda.



Figure 13: 21st ICG congress in Strasbourg, 2007 - Council meeting

In 2010 the International Congress on Glass for the first time took place in South America, in Brazil (Salvador, Bahia). The remoteness of the venue affected the number of participants but not the professional standard of lectures and posters. The organizers and the president of the congress, Prof. Edgar Dutra Zanotto, succeeded in bringing in leading experts whose lectures documented the current status and the anticipated development in traditional and newly developing areas of glass science and technology. The topic of the round table discussion was highly relevant: “Glass, energy and environment”; it documented completed work and successfully inspired a continuation of preparations for a broader overview of the topic.



Figure 14: 22nd ICG Congress in Bahia- Brasil, 2010, opening session – Klaus Bange receives the W.E. Turner Award

From left: Belmonte, Zanotto, Simurka, Nicoletti, Vacher, Bange



Figure 15: ICG presidents in 1985 - 2012

W. R. Prindle (1985-1988), H. Arribart (2006-2009), J. P. Cause (1988-1991), J. Petzold (1991-1994), H. A. Schaeffer (2000-2003), A. Yaman (2003-2006), N. Soga (1994-1997), L. D. Pye (1997-2000), F. Nicoletti (2009-2012), Shou Peng (2012 -).

In 2013, after 36 years, Prague (CZ) hosted the International Congress on Glass for a second time, rounding off the eighty years of history from the first congress in 1933. It was already the 23rd International Congress on Glass and it was organized by the Czech Glass Society. Thanks to the organizing committee and its president, Prof. A. Helebrant, the congress was successful and a respectable culmination of the eighty year long tradition. The congress was attended by more than 700 participants who could listen to 17 invited and 338 regular lectures and discuss 132 posters. The round table with the title “Glass for Sustainable Society” presented information about “Roadmaps of Glass for Energy and Information Technologies”. The authors of the overview, Klaus Bange, Himansu Jain and Carlo G. Pantano, summarized the results of the Functional Glasses Workshop on properties and applications of glass for energy and information technologies, held in Sicily in January 2013. After a broader discussion among glass experts they presented their final overview in a special block called “Research and Development of Glass for Energy and Information Technologies”. In such a way, the world’s glass community received a comprehensive, well-founded and inspiring overview of the highly topical issues within glass research, glass technology and opportunities for new applications.



Figure 16: Opening ceremony - 23rd International Congress on Glass , Prague

From left: Koudelka (CZ), M.Choudhary (USA), P.Šimurka (SK), Shou Peng (China), Helebrant (CZ), Vacher (France), Nicoletti (Italy), Beránek (CZ)



Figure 17: 23rd ICG Congress – Prague 2013

D. Pye – Keynote address, A. Duran , M. Choudhary and P. Šimurka

Scientific, social and cultural benefits of ICG congresses for the glass community

The benefits of ICG congresses, which have contributed to closer ties within the world’s glass community and to the development of glass research and industry, can be evaluated only from the current viewpoint, recognizing that we have only a limited knowledge of the historical context in which the individual congresses were held. It is beyond dispute that the very idea of holding the

congresses every three years was a pioneering one for its time and that its initiators demonstrated substantial foresight when they predicted the need to organize such exacting events. The later developments proved that the idea was not an unproductive illusion but that it reflected the actual interest and desire of the then representatives of glass communities from the individual countries to share regularly information and news about glass research. The congresses have been providing opportunities to establish personal contacts which, as we can see now, cannot be replaced even by easy electronic communication. Consequently, they have contributed to mutual understanding of the condition of glass research in the individual countries, to a feeling of fellowship within the scientific community, a community that is not large but is firmly tied together by its common interest in glass. The natural trend from largely social meetings to working sessions has increased the standard of research worldwide. Still, the social and cultural importance of the congresses has remained an inseparable aspect of them over their eighty years of existence, as is documented by pictures from various congresses held at different times (Figure 18, 19). Clearly, the social and accompanying events have always had a relaxed atmosphere, producing many long-term friendships and enabling mutual professional cooperation. For many participants their presence at one of the international congresses meant their entry into the international community, both professional and personal, and made it possible for them to understand not only professional issues but also the working and living conditions in many parts of the world.



Figure 18: 9th ICG Congress, Versailles 1971

Front: Schaeffer, Back: Prof. Schröder and wife



Figure 19: 23rd ICG Congress, Prague 2013

From left: Mazurin, Koudelka, Varshneya

In the course of the years the congresses have also become the opportunity to award individuals with outstanding results in research, education of new experts and in industrial applications. Apart from the above-mentioned highest ICG honor (ICG President's Award), more ICG awards are now presented during the opening ceremony of the international congresses: the Woldemar A. Weyl International Glass Science Award, the ICG Prize in Memory of Prof. Gottardi and the ICG W. E. S. Turner Award.

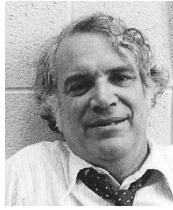


Figure 20: The first laureates of the ICG President's Award

From left to right: Prof. A.R. Cooper, Prof. N. Kreidl and Prof. J. Staněk (photo from the Prague congress in 1977)



Figure 21: The ICG Presidents Award winners - Prague 2013 - Sakka, Matoušek



Figure 22: P. Schultz, the first laureate of the Prof. Weyl award (11th ICG Congress in Prague, 1977)



Figure 23: Winners of ICG V. Gottardi Prize (22nd ICG Congress in Bahia, 2010)

From left to right: E. Zanotto, R. Keding, M. Tatsumisago, A. Duran, A. Tucci , R. Beerkens, D. Krol, R. Brow, A. Clare, J. Deubener, F. Nicoletti



Figure 24: R. M. Brill (US) and J. M. Parker receiving the ICG W.E. Turner Award from Henk de Waal and Alev Yaraman (20th ICG Congress in Kyoto, 2004)

In recent years panel discussions and round tables have found a firm place at the ICG congresses. They address topical issues of glass technology and glass production in a broader context of the worldwide developments. These new forms of communication have substantially enriched the program of ICG congresses and have become very popular with their participants.



Figure 25: 21st ICG Congress in Strasbourg, 2007, round table

From left: Schaeffer, Yaraman, Ajdari, Yamamoto, Langfeld, Cornejo, Jain

The professional standard of contributions presented at the congresses reflects results of research in the individual countries. The orientation and content of the contributions are influenced by the needs of the industry and of course they mirror developments in glass science and glass technology. The technical committees managed by the Coordinating Technical Committee play an irreplaceable role in the exchange of knowledge and provide a comparison of the experimental methods used in different countries and an evaluation of their accuracy. The setup of technical committees reflects the relevance of individual research topics and therefore we have seen a continually expanding number of technical committees with newly arising research topics. The output from the technical

committees naturally has become an integral part of the professional agenda of the international congresses and is reflected in the focus of the content and the standard of the presented contributions. The work of the technical committees serves as an inspiration for researchers in the participating countries and thus it influences the standard of glass research worldwide.

The eighty year period since the 1st ICG congress in 1933, which included 23 congress sessions in total, has witnessed numerous developments in glass science and technology. The findings summarized in the proceedings from those congresses in printed, and in recent years also in electronic formats, illustrate this continual improvement of knowledge concerning glass and its technology and they are, along with specialized glass journals, a source of information for the current generation of glass researchers. The organization of International Congresses on Glass will without doubt remain well into the future a relevant and significant part of the activities of the International Commission on Glass.

References

1. W.E.S. Turner, *"History of the International Commission on Glass" Proc. III. Int. Cong. on Glass, 1953*
2. P. J. Gilard, *"50 years ICG 1933-1983, ICG, Charleroi 1983*
3. Henk de Waal, *"ICG 2000. History and Vision" ICG, Delft 2000*
4. J. M. Parker, A. Duran, *"Winds of Change. A History of ICG 1933-2010" Madrid 2010*
5. J. Matoušek, *"Eighty-year tradition of International Congresses on Glass", Sklár a keramik 64, (2014) (in Czech).*

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