



IMWA's Early History (1978–1985)

Rafael Fernández Rubio¹ · Roy E. Williams

Published online: 18 July 2021

© Springer-Verlag GmbH Germany, part of Springer Nature 2021

Motivation for this Article

This year 2021 marks the 40th anniversary of the publication of the first *International Journal of Mine Water*, the quarterly publication of the International Mine Water Association (IMWA), which today is entitled *Mine Water and the Environment*. In the third quarter of 2020, our Editor-in-Chief and dear friend Bob Kleinmann (USA) asked me to write a brief narrative of IMWA's prolegomena and early years. When that request came to me (Rafael), there were three of us surviving IMWA founding members... today, only half a year later, I am the only survivor, because at the end of December 2020, Raghu N. Singh (UK) passed away, and less than 2 months later, Jacek S. Libicki (Poland) left us. Therefore, of that small group of founders, I am the last one surviving, and in writing this story I am doing it as a tribute to those excellent fellow travelers, in the fantastic experience of IMWA: without them, this association, a true "club of friends", would not exist today.

This long-ago story begins and ends in the city of Granada (Spain), covering the first 7 years of IMWA's early history. The next chapters of this story remain to be written, which I hope will be elaborated with the input and co-authorship of colleagues who have been the artificers of the unforgettable pages of this history. Thanks to God, many of them are still with us today and I am sure they are the best reporters of these events.

In any case, with this story I only want to ensure that those beginnings are not forgotten and to leave a testimony of gratitude to the colleagues who left the mark of their best know-how in this effort. Like any human work, it has had its high and low hours, but undoubtedly leaves behind

an endeavor to unite, in friendship, all those who put their best in resolving the world's hydrological and environmental problems, to achieve the always desired sustainable mining.

With these notes, I hope to put on record that, in its founding endeavor, this association sought to strengthen bonds of friendship and fellowship, emphasizing all human and social implications, imbricated in an always complex scientific and technical fabric. Let us hope that this founding spirit will not be lost, and that it will always be the distinguishing feature of IMWA. This would be the best posthumous tribute to those of us who put all our energy and enthusiasm into this exciting task.

To write this account, I have rummaged through my saddlebags and dusted off old minutes, memoranda, and notes. I leave out many personal memories and many endearing anecdotes, which will go to the tomb with me. I can only leave a testimony of immeasurable gratitude to all those who accompanied and encouraged me in the wonderful dream of creating the International Mine Water Association, which consolidated affections that became unbreakable.

Historical Antecedents

IMWA was not born by spontaneous generation; it was the result of many reflections regarding the convenience of joining efforts, worldwide, without barriers or borders, among those who dedicate their maximum effort to solving hydrological and environmental problems in mining. This is the way IMWA has achieved unthinkable synergies, and how it has strengthened its leadership position, by enhancing friendships and collaborations of many colleagues, regardless of gender, race, nationality, religion, or professional background. This is how IMWA became the best source of new ideas and the best tool for the dissemination of solutions. In any case, at the end of a long maturation process, two meetings took place (in Spain and the United States), which were decisive in realizing the dreams and expectations of the years of gestation and providing the appropriate

Roy E. Williams—Deceased (April 6, 2007).

✉ Rafael Fernández Rubio
rfrubio@gmail.com

¹ School of Mines and Energy, Madrid Polytechnic University, Calle de La Luna, 45, Ciudad Santo Domingo, 28120 Madrid, Spain

framework for meeting with colleagues who contributed complementary and very enriching ideas.

The seeds of IMWA's conception were sown in Granada, Spain at a meeting of international scientists and engineers on the subject of water problems associated with mining throughout the world. After almost 3 years of organization, the *Symposium on Water in Mining and Underground Works* (SIAMOS, an acronym of its Spanish name: *Simposio del Agua en la Minería y Obras Subterráneas*) was launched on September 18, 1978, in the wonderful Alhambra site (Fig. 1) in Granada, Spain. It was my honor to promote and organize the meeting, with the full support of the National Association and the Higher Council of Colleges of Mining Engineers of Spain and the Honorary Presidency of the King of Spain.

In the foreword to the proceedings of that congress, I wrote: *"Nowadays, we need to employ all the resources of investigations and technology in order to achieve the best hydrological operations"*. But the most paradigmatic is to have written, from that pre-IMWA platform, what has become a happy reality: *"We hope that our unrelenting efforts will be a starting point for periodical meetings and the continuance of study groups... and it is further our desire that the SIAMOS in Granada should establish"* as the referent for *"fellow-workers can meet and interchange ideas about this fascinating theme of Water in Mining..."*. And in the final conclusion, which I had the honor to present at the closing session: *"It is desirable to form an International Committee that will see to the promulgation of these World Congress on Water in mining and Underground Work. This is desirable to provide the ideal environment for specialist to meet and to discuss studies on this import subject."*

The interest shown at the Granada meeting led to the decision to join forces with the already-planned First International Mine Drainage Symposium, which was held in Denver, Colorado, USA, in May 1979, just 8 months after the Granada congress (Argall and Brawner 1979). Together,

the papers presented at the Granada and Denver symposia revealed that significant technical progress was rapidly occurring in the field of mine water control and mine waste remediation. The participants included many individuals who would become key actors in the birth and development of IMWA: Adrian Brown (USA), Zsolt Kesserü (Hungary), Jacek S. Libicki (Poland), Dale R. Ralston (USA), Raghu N. Singh (UK), Vladimir Straskraba (USA), Barry N. Whittaker (UK), and Roy E. Williams (USA). As a continuation of that meeting in Denver, an intense international epistolary correspondence took place, in which the design and maturation of that initial proposal was developed, which gave rise to what we would rightly call the International Mine Water Association, closely identified from the beginning by its acronym: IMWA.

These individuals gave me the honor and responsibility to organize a Founding Committee to elaborate the Statutes and to launch and project this association. The IMWA logo was designed by my son Javier Fernández Lorca (a young architecture student at the time), with an image that brings together the global world, the omnipresent water and the presence of geological raw materials (Fig. 2).

To draft the IMWA Statutes, I convened a group of enthusiastic colleagues to a meeting (November 7–9, 1979), hosted by the University of Granada. This meeting was attended by the members of the Founding Committee: Zsolt Kesserü (Hungary), Jacek S. Libicki (Poland), Raghu N. Singh (UK), Barry N. Whittaker (UK), Roy E. Williams (USA), and me, the sextet that wrote the initial Statutes and By-Laws (Fig. 3). The other individuals who were invited but were unable to attend were: Balemale M. Bhat (India), Carrol O. Brawner (Canada), and Klaus H. Peretti (Germany).

With the provisional Statutes now available, the first mission that fell to me, as IMWA Secretary General-elect, was to make the Statutes and objectives of IMWA well-known to the broad world of mining and related



Fig. 1 The fortress and palaces of the Alhambra in Granada, where IMWA was founded (Photo R. Fernández Rubio)



Fig. 2 The original IMWA logo, designed by Javier Fernández Lorca

institutions. IMWA's main objectives were initially established to cover the needs of solving water problems related to mining during mine exploration, planning, construction, operation, and closure, while, in the spirit of joining the efforts of those involved in scientific research and technological development, to promote the professional training of individuals who would further the field and support consulting and service companies. These five objectives are still valid, more than 40 years after initially written:

1. To improve exploitation of mineral deposits consistent with the desirable standards of safety against water hazards.
2. To increase protection of the environment against the impact of mine drainage and related activities.
3. To improve the utilization of mine waters.
4. To improve technology and economy of mine drainage control operations.
5. To create a forum for international exchange of information concerning the latest developments in the field of mine water problems.

IMWA Activities: 1980–1985

As a basic tool for the organization of congresses and technical meetings, the publication of a periodical journal with an eminently practical content, and the promotion of personal contacts among the members of this association were proposed. All this would be supervised and guided by the Executive Council (EC) through annual meetings and very frequent creative personal contact between all its members, encouraging teamwork over individual actions. Within this framework, personal and epistolary contacts were encouraged, which proved to be very effective in confronting the challenges of a mining industry that develops every day at greater depth, with larger dimensions, in more complex situations, and with stricter environmental and social requirements.

At IMWA's annual EC meetings, priority was given to combining synergies to enhance IMWA's activity. At the EC meeting at Nottingham University (UK) (April/1980),

Fig. 3 Meeting of the IMWA Founding Committee at the University of Granada in November 1979 (from left to right: Raghu N. Singh, Barry N. Whittaker, Zsolt Kesserü, secretary, Rafael Fernández Rubio, Jacek S. Libicki, and Roy E. Williams)



organized by Prof. Raghu N. Singh and Prof. Barry N. Whittaker, some modifications were introduced in the Statutes. IMWA was established as a non-profit, scientific, and technical organization whose responsibility was to distribute information on scientific and technical progress in the field of mine drainage, control, and remediation. The mission of IMWA was broadened to include other types of water-related problems associated with tailings, mine waste disposal, revegetation, and slope stability. The expanded objectives included the need to solve water-related problems common to mining during the exploration, planning, construction, operation, and abandonment phases. Thousands of copies of IMWA's statutes and by-laws were subsequently mailed to institutions, companies, and specialists, with a worldwide distribution, which made the creation of IMWA known in many mining places of the world.

A function of IMWA was to hold an international mine water congress every 3 years for which the proceedings would be published. At the Nottingham EC meeting, a proposal presented by Dr. Zsolt Kesserü to organize and hold the first IMWA Congress in Budapest in 1982, which would include IMWA's first General Assembly meeting, was approved. The proposed Congress included an attractive program of technical visits to mining sites, with important actions related to water and to the risks caused by its irruptions in karst domains. These field visits were established in the middle of the Congress, following the SIAMOS model, and included in the registration fee. In addition to showing the participants technical aspects of great interest related to water and mining, these allow participants to establish new relationships in a very relaxed atmosphere and to strengthen bonds of friendship.

At the subsequent EC meeting in Budapest (May 1981), Dr. Zsolt Kesserü (Hungary), outlined in detail the program for the first IMWA Congress (to be held a year later), under the auspices of the Hungarian Academy of Sciences. It was proposed that IMWA Congresses should address the broad topic of Water in Mining, while conferences between congresses could be devoted to specific monographic topics.

The first official Congress of IMWA was accordingly held in Budapest, Hungary. This first Congress was particularly well attended by delegates from what were then known as "Eastern Bloc" countries. Held from April 19 to 24, the Congress was sponsored by the Department of Geoscience of the Hungarian Academy of Sciences, and organized by the Hungarian Mining and Metallurgical Society and by the Central Institute for Mining Development of Hungary. Some 250 delegates attended, and 95 papers from 17 countries were presented.

The IMWA General Assembly was held on April 22, 1982 (until this date, the Founding Committee had acted as the Executive Council). The activities developed by the Founding Committee were presented, the resignation of

Klaus Peretti (Germany) was made public, the candidates for the EC were presented, and the election of the first Executive Council was carried out, by secret ballot. The constituent members of the first Executive Council were elected, consisting of: President: Prof. Carroll O. Brawner (Canada) (absent); Senior Vice-President: Dr. Roy E. Williams (USA); Vice-President: Dr. Ernest ja Kipko (USSR); Secretary General: Prof. Rafael Fernández Rubio (Spain); and as EC members: Stephen Hancock (Australia), Zsolt Kesserü (Hungary), Jacek S. Libicki (Poland), Barry N. Whittaker (UK) (absent), Dan Keally (USA) (absent); Acting Treasurer: Dr. Antonio Pulido (Spain) (absent); and as Editor of the IMWA Journal: Dr. Raghu N. Singh. The Provisional Statutes were unanimously approved without modifications and the proposal of Granada as the venue for the second IMWA Congress was accepted.

At the EC meeting in Wroclaw (Poland), (September 6–9, 1983), organized by Dr. Jacek S. Libicki, the resignation of IMWA President Carroll O. Brawner (who was never able to attend any IMWA event, due to his busy schedule) was presented; it was decided that Senior Vice-President, Prof. Roy E. Williams (USA) should act as President until the next election. By this time, IMWA already had 130 corporate and individual members, from 28 countries. The need to get more articles to be published in the IMWA journal was put on the table. The EC members were received by Poland's Director General of the Ministry of Mines and Energy, who encouraged IMWA to be very active for the benefit of mining everywhere in the world.

The 1984 EC meeting was held at the Higher Technical School of Mining Engineers (Madrid Polytechnic University), which I was responsible for organizing (September 10–15, 1984), was attended by Stephen Hancock, Zsolt Kesserü, Ernest ja Kipco (with his interpreter, Vitaly Sabora), Jacek S. Libicki, Raghu N. Singh, Roy E. Williams, and myself. Detailed information was given on the planned organization of the Second IMWA Congress, to be held in Granada (Spain), in 1985, sponsored by the National Council of Mining Engineers of Spain. It was reported also that IMWA now has 140 corporate and individual members. It was decided that IMWA Congresses would be held every 3 years and the proposal of Stephen Hancock to organize the third IMWA Congress in Melbourne (Australia) in 1988 was accepted.

A series of actions were adopted to increase the availability of articles for publication in the IMWA Journal, in which most of the EC members would be involved. A set of proposals to increase membership was also agreed upon, with actions to be carried out regionally by EC members.

I received the gratitude of all the participants for the organization and hospitality, and for having obtained, from the National Electricity Company, the coverage of the EC members' expenses of lodging and maintenance, in Spain,

and to cover all the cost of the trip to the northwest of Spain (Galicia), visiting the rehabilitated Roman gold open pit mines of Las Médulas (León), 2000 years ago (a World Heritage site), the largest coal mine in Spain (As Pontes, in Galicia), and the city of Santiago de Compostela, final destination of the Jacobean Route, with accommodation in the exclusive and unique Hostal de los Reyes Católicos.

I close this review of IMWA's first years with the 1985 EC and Congress in Granada (Spain) in September 1984. The EC members who attended were: Zsolt Kesserü, Ernest ja Kipko, Jacek S. Libicki, Raghu N. Singh, Barry N. Whitaker, Roy E. Williams, and myself.

It is reported that IMWA had increased its membership to 39 corporate members and 179 individual members. And what has become an annual tradition was begun mid-Congress IMWA symposia and meetings. Thus, Raghu N. Singh offered to organize the 1986 EC meeting and conference in Nottingham, UK and Dr. Jacek S. Libicki proposed that IMWA would be one of the supporting institutions for the *Hydrogeology of Coal Basins Symposium* in Katowice (Poland) in September 1987, with IMWA members receiving discounted registration fees in return. Finally, it was agreed that the third IMWA congress would be held in 1988 in Melbourne (Australia), as proposed by Stephen Hancock, coinciding with the Australia Bicentennial Celebration.

The General Assembly elected a new EC composed of the President (Rafael Fernández Rubio), Secretary General (Tom Atkinson), Vice-Presidents (Roy E. Williams, Ernest ja Kipko, Jacek S. Libicki, and Stephen Hancock), and EC Councillors (Zsolt Kesserü, Shang Chang Chi, Don Armstrong, and Vladimir Straskraba) and Treasurer (Raghu N. Singh). And the EC “*expressed its appreciation to Prof. Fernández Rubio for his continuous and tireless efforts in carrying out IMWA Business*”.

Once again, the success of Congress would not have been possible without the strong support of the National Association of Mining Engineers (Spain), joined by the Government of the autonomous region of Andalusia; the Provincial Council and the City Council of Granada, as well as the Geological and Mining Institute of Spain (Geological Survey), and the support of the School of Mines of Madrid, where I had moved my professorship and my residence. The proceedings included a total of ninety-three papers from 25 countries (those that arrived after the deadline were published in the IMWA journal).

In my speech in the opening section, I recalled the adventure that Christopher Columbus started in this city (where he signed with the Catholic Monarchs of Spain the capitulations to undertake the journey that would lead him to the unknown lands of America). Because IMWA was born here, it carries in its vocation the illusion of extending throughout the world.

From the red hill, which is decorated with the Arab palaces of the Alhambra, where the Congress was held, I let my feelings fly “...*where water is peace and well-being, where water is art and music, where water is creation and life...*” to end my speech with a call to deep friendship, among those of us who dedicate our best know-how to solve the hydrological problems in mining... with a: *Amigos para siempre!* (Friends forever!).

Acknowledgements I dedicate these memories to my wife Ana María Lorca (+ 1983), with whom I shared the IMWA dream; to my sons and daughters, Sergio, Javier, Myriam, David, Blanca, and Ana who gave me the gift of their strong and continuous support and passed on their dreams and illusions to their children, and to the many IMWA colleagues who entered the category of: friends forever!