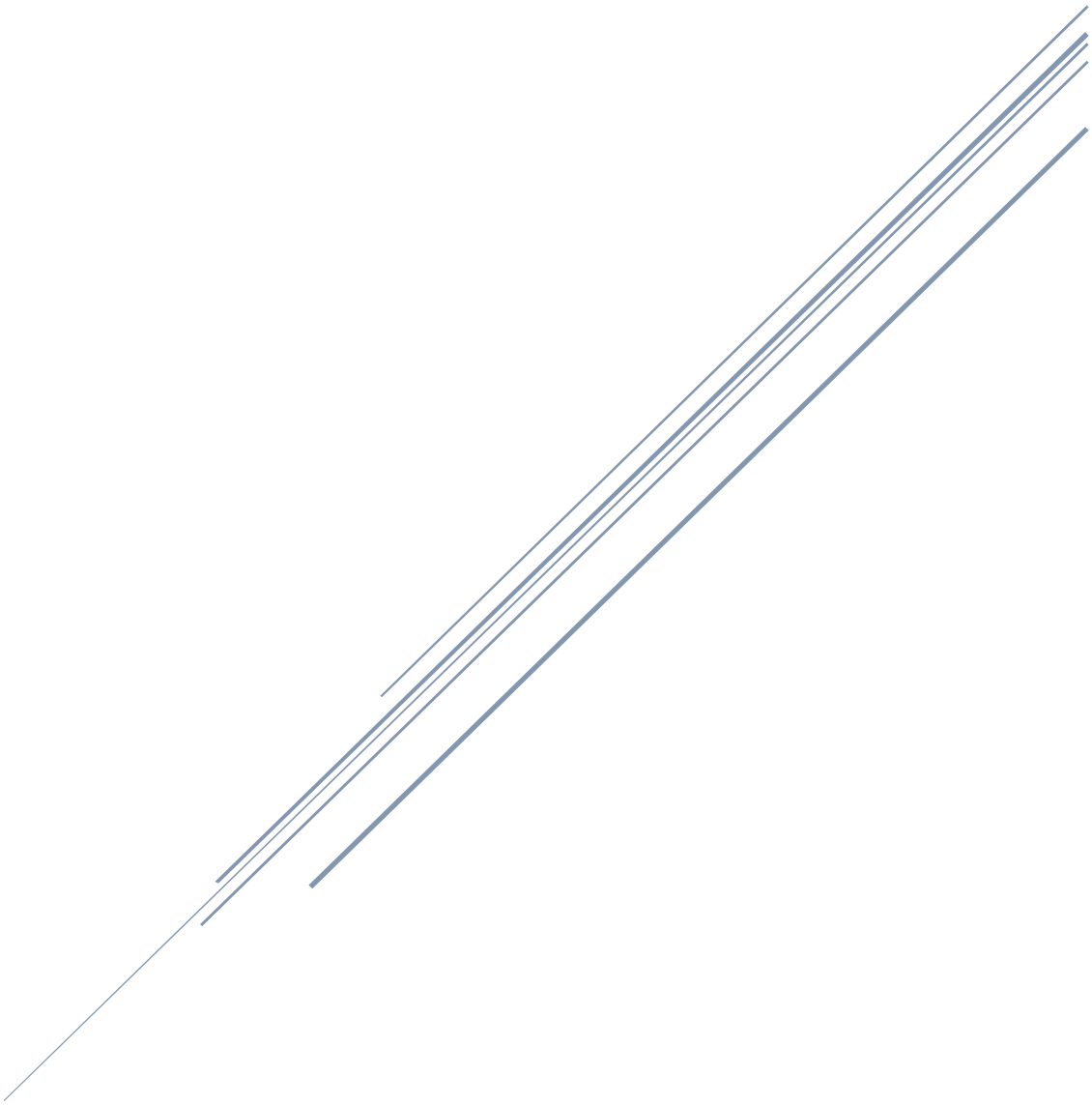
IWA 1947 - 2024

How Visionary Pioneers Created a Global Water Network



2024 Edition

Foreword

It has been humorously observed that 'it's hard to soar like an eagle when your surrounded by turkeys.' Conversely, one can take inspiration and energy from observing the greatness in others. The outstanding achievements of great minds and hard work are invaluable not only for the output, but for the role modelling that it offers us. I also believe that one cannot envisage the future without understanding the past.

These were the key drivers behind the idea to capture IWA's history, its people, and their accomplishments. I felt it important to recognise and respect their efforts and offer inspiration to others. I wanted to celebrate their contributions to the growth of IWA and its predecessors – a history of over 75 years – and their legacy in water science and practice.

I was thrilled therefore when IWA's former Executive Director, Paul Reiter, and a small group of IWA luminaries agreed to compile that history and to build a picture of the people who have shaped us over the years. This has now grown to include biographies of IWA's Distinguished Departed Pioneers. I am extremely grateful for the work in ensuring our heritage is not lost. This story will continue to unfold, as new generations make their mark on IWA and global water issues. And with that, our list of Pioneers will continue to grow. It is an inspiring history and an exciting future; one that should give us great optimism.

Tom Mollenkopf AO, IWA President
July 2024

IWA 1947 – 2024

How Visionary Pioneers Created a Global Water Network

Paul Reiter, Gustaf Olsson, Helmut Kroiss

The IWA History and Distinguished Departed Pioneer Initiative

This account begins with what was originally a bottom-up, global-scale action, taken by world renown experts concerned with water pollution and drinking water treatment in the aftermath and reindustrialization of WWII.

Two groups of leading water scientists, practitioners and engineers, concerned deeply about the human and ecological health of the world's freshwater resources, formed the International Water Supply Association (IWSA) in 1947 and shortly thereafter, the International Association of Water Pollution Research (IAWPR) in 1962-65. Both organizations were formed entirely by their own members' actions. From their inception, they were intended to be self-managed and self-funded – a fact that remains true more than 75 years later.

IWSA was more focused on the specific task of providing safe, reliable, and high-quality drinking water supplies available to both municipalities and industries embedded in these communities throughout the world. IWSA members, who often shared comparably advanced educational backgrounds to their counterparts in IAWPR, were often employed by the municipal authorities responsible for providing drinking water to the large cities. In some cases, these authorities managed the entire water supply chain from source to tap.

IAWPR whose name changed to IAWPRC (adding C for Control) in 1982 and again to IAWQ (International Association on Water Quality) in 1992, was focused more broadly on "used" water, the science and technology of water pollution mitigation and the long-term societal strategies for pollution abatement. At the time, a wastewater industry had not yet materialized. Not surprisingly then, the majority of the IAWPR early members were based in academic institutions and research laboratories. However, later a great number of practitioners joined, while the leadership mostly remained with academics.

Though operating separately over the 1947-1999 period, and prior to their merger and the creation of the International Water Association (IWA) in 2000, both organizations' work complemented one another. When viewed historically, they both had significant impact on the evolution of regional and global strategies related to best practice, water policy, and continental-level regulation of all aspects of water, most notably in Europe, North America, and Japan.

Part 1 – IWSA - IAWQ - IWA: A Concise History

In anticipation of the three organizations reaching their 75/60/ and 22nd birthdays at the 2022 World Water Congress in Copenhagen in 2022, IWA President Tom Mollenkopf launched an initiative aimed at achieving long overdue objectives related to the introduction presented above.

In response, a concise history for IWA's 75th birthday in 2022 was developed, titled *"The Founding and Evolution of IWSA and IAWQ 1947 -1999 and the Creation of IWA in 2000 and its Evolution through 2015".* The ambition was and remains, to provide a concise account of the critical details of the motivations, origins, leaders, challenges, and major accomplishments of these organizations as they traversed the ensuing 75 years.

By almost any of these measures, the International Water Associations stands tall by comparison to all other international organizations operating in the water space, as presented in Part 2 of the document. Active participation in all its events involves 10,000+ participants per year from approximately 120-130 countries. There is on-average one IWA Specialist Group conference each week somewhere in the world. At the same time, IWA's 15 highly regarded journals provide a huge reservoir of knowledge regarding just about any aspect of water science, technology, and management.

Part 2 - Honouring IWA's Distinguished Departed Pioneers and Their Legacies in the IWA history

In a member-driven organization, the organization's history is invariably about the people who conceived, built and maintained it. As the IWA History Document was presented at the IWA World Water Conference in Copenhagen in 2022, everyone present was reminded that:

What made IWA the powerful organization that it is today, and continues to distinguish it from all others, is the strength and integrity of its members and leaders.

This is as true today as it was over 75 years ago when IWSA and IAWPR were conceived and on their way to full functionality.

Thanks to the gracious support of about 20 “Senior Leaders”, which included Past Presidents, Distinguished Fellows and key outside sources, the development of the IWA history was expanded to include the designation of approximately 50 pivotal leaders, now deceased, that guided the early years of both Associations. They have now been formally designated as *Distinguished Departed Pioneers (DDP)* and form the backbone of the second part of the document, *The People Side of the IWA’s History.*

The history of IWA and its predecessors, as described in the IWA History document referenced above, reminds us of the scope of the global water challenges over the past 75+ years and the ability of individuals, communities, professional associations, nations and regions to solve overwhelming problems through collaborative action.

The history of IWA and its predecessors are a direct reflection of these global water challenges. The second half of the 20th century was a unique period in the development of modern water systems in the industrialized world. In this post-WWII era, the explosive growth of both domestic and industrial waterborne pollution was scientifically defined, comprehensively addressed, and then largely mitigated in most of the industrialized countries. Beginning in 1962, IAWPR’s members, journals, global and specialized conferences were central to this endeavour. Both the organizations and the external environment co-evolved during this exceptional period.

At the same time, water supply systems initiated in larger cities in the first half of the 20th century in high-income countries, were further built out and regionalized in smaller cities in the post WWII era. In large cities, earlier systems were rehabilitated, expanded and state-of-the-art control systems added. Disinfection regimes also matured and were standardized during this period. Like IAWPR, but beginning even earlier in 1947, IWSA members, journal and global and specialized conferences were key contributors to national, regional and global knowledge and standards development.

The readers of this document can get acquainted with outstanding pioneers, now deceased, that helped shape solutions to all aspects of very challenging urban water problems in higher-income countries (drinking water, industrial and domestic wastewater and urban drainage) in this pivotal second half of the 20th century. This evolutionary process continues today in lower-income countries with heightened support and knowledge exchange from the global water community, including IWA.

Honouring and Remembering IWA's Distinguished Departed Pioneers

To tell the story of the people that built IWA and its predecessor organizations IWSA and IAWPR/IAWPRC/IAWQ was and still is a challenging task. We have chosen a "bio" format to provide a picture of these individuals. We created a format for these bios that reveals their stories in a consistent and concise manner, with a specific focus on IWA and their professional contribution to the organization, while at the same time allowing for colour and wit to enter the picture.

These bios are labelled "Tailored Professional Tributes" (TPT) – a term and acronym that will henceforth be used in this document. In line with the TPT designation, the "IWA Distinguished Departed Pioneer Tailored Professional Tribute" format was formally adopted as the standard for the development and presentation of IWA DDP TPTs in this document and beyond.

Our default plan was to assign the writing of these TPTs to the person or persons closest to the individual in question, particularly in the context of their roles and activities in IWA. In practice, with the passage of time being the dominant explanation for departures from this ideal, the process of putting together a TPT sometimes met the ideal and for others, involved putting together pieces of the DDP's past, followed by a process of writing it up, followed by as much review as possible. On the review side, each TPT was separately reviewed by between two and three editorial team members.

What follows are the tributes to approximately 50 fascinating people – people who through their imagination, commitment and hard work pooled their talents and intellects to develop a very special organization that we are proud to call The International Water Association.

A Historical Reference for the Distinguished Departed Pioneers

The backbone of the history of IWSA and IAWPR/IAWPRC/IAWQ were a combination of the Associations' Presidents and World Water Congresses. A significant number of the Distinguished Departed Pioneers were also Presidents of their respective Association (shown in italics in the table). They are listed in the table below.

IWSA				**IAWPR / IAWPRC (80) /IAWQ (90)**		
Year	**Congress Locations**	**Association President**		**Year**	**Congress Locations**	**Association President**
1947		A Winter (GB)				
1949	Amsterdam	*C Biemond* (NL)				
1952	Paris	*R Brunette* (FR)				
1955	London	A Winter (GB)				
1958	Brussels	*L Pollet* (BE)				
1961	Berlin	K Hunerberg (DE)		1962	London	
1964	Stockholm	B Nilsson (SE)		1964	Tokyo	
				1965	IAWPR founded	*E Pearson* (US)
1966	Barcelona	F Briones (ES)		1966	Berlin	
1969	Vienna	K Megay (AU)		1968/69	Prague	*G Stander* (ZA)
				1970	San Francisco	
1972	New York	*F Merryfield* (US)		1972	Jerusalem	
1974	Brighton	*L Millis* (GB)		1974	Paris	
1976	Amsterdam	*C van der Veen* (NL)		1976	Sydney	*B Hawerman* (SE)
1978	Kyoto	*T Ishibashi* (JP)		1978	Stockholm	
1980	Paris	*G Dejouany* (FR)		1980	Toronto	*R Engelbrecht* (US)
1982	Zurich	*M Schalekamp* (CH)		1982	Cape Town	
1984	Monastir	A Frih (TN)		1984	Amsterdam	
1986	Rome	*J Dirickx* (BE)		1986	Rio de Janeiro	*P Harremoes* (DK)
1988	Rio de Janeiro	*W Richardson* (US)		1988	Brighton	
				1990	Kyoto	*P. Grau* (CR)
1991	Copenhagen	*H Tessendorf* (DE)		1992	Washington DC	
1993	Budapest	A Rustad (NO)		1994	Budapest	T Keinath (US)
1995	Durban	*P Giacasso* (IT)		1996	Singapore	
1997	Madrid	N Hood (GB)		1998	Vancouver	P Odendaal (ZA)
1999	Buenos Aires	see below				
Sept 1999	Post- Buenos Aires Congress through the October 2001 Berlin IWA Congress Vincent Bath and Piet Odendaal served as Co-Presidents of IWA					

Note that of the "new" IWA's ten Presidents, only one has passed -- Norihito Tambo -- in 2023. He was President during the 2001-2003 period, beginning with the IWA Berlin WWC in 2001. He has since been designated as an IWA Distinguished Departed Pioneer.

Acknowledgements – initiative key contributors

It is important to acknowledge the contribution of many individuals to this important initiative, the majority of which are IWA "Senior Leaders", including Past Presidents, Distinguished Fellows and key outside sources. Many of these were central to the development of both IWA's concise history and the Distinguished Departed Pioneer TPTs. They are listed below.

Inspiration and Support

Tom Mollenkopf, IWA President (following 2022 Copenhagen President's Initiative)
Kala Vairavamoorthy, IWA Executive Director

Development of IWA's History and First-List of IWA Distinguished Departed Pioneers (DDPs)

Researched, Compiled and Written by: Paul Reiter
Major Contributors: Helmut Kroiss, Michael Rouse, David Garman, Glen Daigger, Jerry Gilbert, Hallvard Odegaard, Joel Mallevialle, Jan Janssens, Saburo Matsui, Eugene Cloete, Willie Grabow, Hermann Hahn, Wolfgang Merkel, David Garman, Petr Grau, Vladamir Novotny, Helene Alegre, Enrique Cabrero
Final Reviewers: David Garman, Helmut Kroiss, Gustaf Olsson, Michael Rouse, Jan Janssens

The IWA Distinguished Departed Pioneer Tailored Professional Tributes (TPTs)

Layout: Paul Reiter, Gustaf Olsson, Helmut Kroiss
Delegation and Management: Paul Reiter with Norbert Jardin, Saburo Matsui, Glen Daigger, Michael Rouse, Theo Martijn, Theo van den Hoven, Joel Mallevialle, Diane D'Arraz, David Garman, Hallvard Odegaard
Final Editing: Gustaf Olsson and Helmut Kroiss

Individual TPTs: Author(s) and contributors listed on each TPT

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Keith Hayward (Initiative lead for IWA), Emma Gulseven, Keith Robertson

PART 1

IWSA - IAWQ - IWA: A Concise History

The Founding and Evolution of
IWSA and IAWQ 1947 -1999 and
the Creation of IWA in 2000 and
its Evolution through 2015.

This part of the history was presented at the
2022 IWA World Water Congress in Copenhagen
and is accessible at

https://iwa-network.org/iwahistory/

PART 2

Honouring IWA's Distinguished Departed Pioneers and their Legacies in the IWA history

Part 2 Layout

The Tailored Professional Tributes (TPTs)

Alphabetically Arranged

Section 2 A

IAWPR 1962-65 →1979

IAWPR – an introduction

Helmut Kroiss and Gustaf Olsson

The formation and development of IAWPR during its early years is a history of devoted individuals recognizing the need for international cooperation in order to deal with the massive water quality problems that had increased until the 1960s, to find solutions for water protection and to hasten implementation of these solutions.

The rapid recovery of the economy after WWII resulted in an increased wastewater production and discharge to receiving waters. This visibly deteriorated surface waters, since treatment was inefficient and, in many cases, non-existent. There were no international standards for basic items such as pollution parameters, treatment process understanding and design principles, operational requirements, control and automation, equipment development, laboratory requirements, solids handling and disposal.

For all these challenges an international exchange of knowledge and experience was recognised as necessary to enhance water pollution abatement on a global scale. International cooperation on the scientific level started in the UK, the country where historically wastewater treatment had a long tradition, and where many mechanical-biological treatment plants were already operating. Devoted water professionals took initiatives to meetings and conferences during the early 1960s, which led to the formation of the International Association on Water Pollution Research (IAWPR). In 1962 the first international conference on Water Pollution Research took place in London followed by the biennial Tokyo conference in 1964, where a steering committee was established with contacts to institutions and colleagues active in water research worldwide.

The founding members of IAWPR came from USA (J. Andrews, W. Eckenfelder, B. Berger, E. Pearson), Germany (G. Mueller Neuhaus), France (L. Coin), Israel (H. Shuval), Japan (S. Iwai), Austria (W. von der Emde), UK (S. Jenkins), Hungary (P. Benedek), and Czechoslovakia (V. Madera). At that time, it was very important that two countries from Eastern Europe “behind the Iron Curtain” were represented in IAWPR. The founding ceremony took place in Harrogate (UK) on June 26, 1965.

Erman Pearson (US) was elected as the first president. An important step forward for this new organisation was the launch of the journal *Water Research* in 1967, strongly supported by Sam Jenkins. On top of his presidency Pearson had a great influence on the younger generation and inspired many of his students to become leaders within IAWPR.

In 1969 the first IAWPR biennial conference took place in Prague, postponed by one year due to the invasion of Soviet Troops in 1968. At this conference Gerrie Stander (South Africa) was elected president. During his presidency the journal and publication series *Progress in Water Technology* was launched, linking scientific research with technology development and practice. Gerrie Stander also connected South African water research with the international community, creating openings for outstanding South African professionals. In 1976 Bertil Hawerman (Sweden) was elected president at a time when water pollution abatement had already become an important political issue, which was reflected in growing membership and international recognition of IAWPR. In particular, he acted to include the Scandinavian countries into the international water community. He also worked to establish more contacts with African countries.

In the early 1970s important political decisions took place around the globe. The following examples indicate their relevance for the progress leading to an exponential growth of water protection activities: creation of the US EPA in 1970, transformation of a water research laboratory to the Water Research Centre in Stevenage in UK, start of the Water Research Commission in South Africa, and the Clean Water Act in US (1972).

Mechanical-biological treatment processes for the removal of carbonaceous pollution (BOD_5) from industrial and urban wastewater was considered a priority remedial action. In the late 1970s a new problem attracted great recognition for the near future: the nutrient removal requirements at WWTPs for eutrophication abatement (South African Rivers and Lakes, Alpine Lakes in Europe, Great Lakes in North America). On the contrary, sludge and solids treatment and disposal remained a topic of discussion until today also being a matter of water and waste management at the same time. IAWPR was able to attract many of the personalities driving or acting behind these developments, including most of “water” professors and their staff at universities worldwide.

From the beginning IAWPR selected an organisational concept with strong bottom-up activities with interdisciplinary cooperation and a flat structure of the association. Already at the first conferences it was recognised that research results had to be linked with the implementation of research results, technology development and operation to enhance pollution reduction by meeting rapidly changing legal requirements.

Already in 1971, the first international Workshop on "Design and Operation of Large Wastewater Treatment Plants" was initiated by Willi von der Emde (Austria) and John Andrews (US) (Kroiss *et al.* 2021)[1] with focus on full scale knowledge and experience. The Vienna workshop on Large Wastewater Treatment Plants (LWWTP) became a role model for other specialised conferences, that also encouraged managers of large treatment plants and even public administration to join the Association.

There were lively discussions at the Vienna workshop about connections between design and operation, and the actions that followed also illustrate the "bottom-up" initiatives that have been crucial for the development of the Association. It was decided to arrange a specialized workshop on instrumentation, control and automation (ICA). People like Willi von der Emde and John Andrews acted like crusaders to develop the international cooperation.

The first conference on ICA under the sponsorship of IAWPR was held in London in 1973. Participants of the Vienna LWWTP workshop, Carmen Guarino (City of Philadelphia, USA), Tony Drake (Greater London Council, UK), John F. Andrews (Clemson Univ., USA) and Ron Briggs (Water Pollution Research Laboratory, UK) not only organized the 1973 conference, but also acted strongly on the international level to establish ICA. The strong leaders, representing both the utility industry and academia laid the foundation for the LWWTP and ICA conferences that would be organized every four years.

Another pioneer was Willie Grabow (Pretoria, South Africa), who together with others established the Water Virology Specialist Group within IAWPR and organized its first conference. These three bottom-up initiatives built the basis to formally establish Specialist Groups during the presidency of Dick Engelbrecht (1980 - 1986) as self-sustaining sub-organisations, where IAWPRC was responsible for quality control and organisational support but took no economic obligation. These groups had an interdisciplinary membership of experts from research, design, operation, utilities, authorities, equipment suppliers and others. They tackled complex problems and acted as breeding grounds for new specialist groups. This concept turned out to be very successful in adapting the development of the Association to emerging new topics of relevance and interdisciplinary co-operation by bottom-up activities.

[1] Kroiss H., Matsché N., Krampe J. (2021). 50 years of design and operation of large wastewater treatment plant conferences. A history of innovation and development. *Water Science & Technology*, 84, 2, 263-273.

Distinguished Departed Pioneers (Presidential TPTs)

Chronologically arranged

- Erman Pearson
- Gerrie Stander
- Bertil Hawerman

Erman Pearson

Professional Background

Erman A. Pearson (1920 – 1985) received his MS and PhD degrees from MIT in 1949 following his undergraduate studies at the University of Washington. The Civil Engineering Department at the University of California, Berkeley, was his professional base, from 1949 until his passing in 1985. His tenure at Berkeley was distinguished by the significant expansion and deepening of the sanitary engineering program under his leadership.

Dr. Pearson's broad research interests included a particular focus on assessment of the effects of wastewater disposal practices on marine and estuarine waters. This led in 1958, under his direction, to the first comprehensive study of a major estuarine system -the San Francisco Bay and contiguous waters. He was also a founder of the Southern California Coastal Water Research Project that played a key role in shaping policy and practice in the populous region.

Erman Pearson was also an active practitioner with an extensive range of consulting assignments. Perhaps the most memorable example of his marriage of research and practice was his serving three terms on the US EPA's Science Advisory Board, an activity of critical importance to implementation of major environmental statutes including the internationally groundbreaking USA 1972 Clean Water Act.

Major Contributions to IWA

Perhaps inspired by his Scandinavian ancestry and a year as a Fulbright Scholar at the University of Oslo, Dr Pearson was committed to and actively promoted professional collaboration at an international scale. Accordingly, he was one of the founders of IAWPR in 1962/1965 and served as its first President 1965 -1969. He both co-organized and presided over IAWPR's 5th biennial congress, held in San Francisco in 1970 – an event opened by then US President Ronald Reagan. In subsequent years, he continued his active participation in IAWPR in topics related to marine pollution.

Author: Michael Kavanaugh, USA

Major contributors: R Trussell, J Koon, and T Shea

Gerrie J. Stander

Professional background

Gerrie J. Stander (1911-1997) received his MSc and PhD from the University of *Witwatersrand* in water chemistry with a focus on anaerobic digestion. After working in water practice for the Councils of Pretoria and East London, he accepted a position at the SA Council for Scientific and Industrial Research (CSIR) in 1948. At the CSIR, he led the establishment of the National Institute for Water Research in 1957 and served as its Executive Director through 1971. He then co-led the creation of the SA Water Research Commission (WRC) and served as its first Executive Director from 1971 through his retirement in 1979. In the course of his career, he led the team that established the Windhoek Water Reclamation Plant in 1968, the first of its kind in the world.

Major contributions to IWA

Gerrie was one of IAWPR's 16+ founding members in 1965, served as one of its 1st Vice Presidents before becoming the 2nd IAWPR President in 1969, succeeding Erman Pearson. He held this position through 1976, making him the longest serving President in IAWQ's history. During his tenure as President, Gerrie also secured an interim location for the IAWPR secretariat within WRC Pretoria until a new permanent location was established in London in 1975.

Gerrie's important creations of CSIR and WRC were instrumental in facilitating a vibrant exchange through IAWPR/IAWPRC/IAWQ of innovative thinking and practice among water professionals, not only in South Africa but in the rest of the world. Many IWA leaders in science and practice from South Africa are evidence of this, including James Barnard, Eugene Cloete, Gerrit v R. Marais, George Ekama, Willy Grabow, Piet Odendaal and Vincent Bath.

Author: Paul D Reiter **Major Sources:** WRC Water Wheel (2001) and IWA WQI

Bertil Hawerman

Professional background

Bertil Hawerman (1920–2006) was one of the foreground figures among water professionals in Sweden. In 1960 he was appointed manager for water activities at the National Board for Roads and Water systems. In this position he was instrumental in providing financial funding for new wastewater treatment systems in Sweden.

Bertil had a lot of responsibilities related to water and wastewater on the national level and was deeply engaged in the environmental debates in the 1960s. His struggle to invest in treatment plants instead of letting “the solution of pollution be the dilution” cannot be overestimated. Bertil became the General Director of the Swedish Environmental Protection Agency.

Bertil was heavily involved in international activities and was the Swedish representative in the OECD plenary group for research on water and wastewater. He became the first manager of VAV, the Swedish Water and Wastewater Treatment Association in 1973. In this role he was instrumental in bringing forward research and development and generously supporting researchers. (I was one of them that enjoyed his encouragement from the very beginning).

Major contributions to IWA

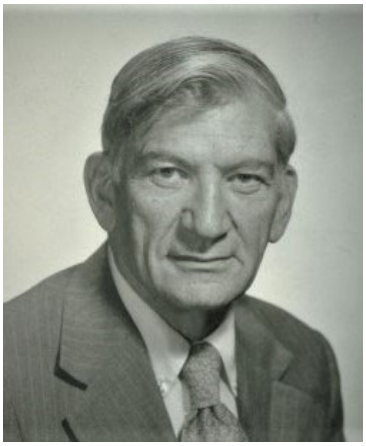
Bertil had a lot of international contacts, for example in the Helsinki commission, supporting African countries. Bertil became a true connector between Sweden and IAWPR. He was elected President of IAWPR 1976-1980. He fully supported that the 1977 ICA Specialist Conference in London reconvened in Stockholm. He managed to get the 1978 IAWPR Congress located to Stockholm. Bertil retired in 1986 but continued to work for improving the financing of research in water and wastewater.

Authors: Gustaf Olsson in consultation with Bjorn Rosen

Distinguished Departed Pioneers (Founder TPTs)

Alphabetically arranged

- Bernard Berger
- Pal Benedek
- Louis Coin
- Wesley Eckenfelder
- Shigehisa Iwai
- Sam Jenkins
- Vladimir Madera
- Gunther Mueller-Neuhaus
- C D Parker
- Hillel Shuval
- Wilhelm von der Emde



Bernard (Bernie) Berger

Professional Background

Bernard B. Berger (1912-2000) was born in New York City, earned a BS degree in 1935 from MIT and an MS degree in Sanitary Engineering in 1948 from Harvard. In the first half of his professional career, Berger worked as a civil engineer for twenty-five years in the United States Public Health Service, where he researched and advocated policies on pollution control, both in the US and abroad.

Berger then served as the Director of the Water Resources Research Center at the University of Massachusetts from 1966 to 1978, where he was regarded as a world-renowned expert on water supply management and the effects of pollution. While at the University, Berger served as the United States' water resources specialist in the executive office of Science and Technology. He also was a consultant to Israel in 1972 in the creation of the Israel Department of the Environment and as a consultant to South Africa on a similar project in 1975. The year after retiring from the University of Massachusetts in 1978, Berger earned an honorary Doctorate of Science degree and was inducted into the US National Academy of Engineering.

Major Contributions to IWA

Berger was one of IAWPR's founding members and served as IAWPR's first Secretary-Treasurer through its early years, as well as hosting the IAWPR Secretariat during this time. He then served as IAWPR's second Vice President during the Presidency of Gerrie Stander, beginning in 1969.

In parallel, Berger served on the Governing Committee of USANC (the USA National Committee of IAWPR) from its inception through 1976.

His role in linking the US community of water scholars with the prodigious output of IAWPR in the 1960s and 1970s was extremely valuable to all parties.

Author: Paul D Reiter **Contributing Source:** U Mass Library

Pal Benedek

Professional Background

Pal Benedek (1924-2016) graduated in 1947 as a Civil Engineer from what is now known as the Budapest University of Technology and Economics and obtained his university doctorate in 1970. From 1964 until his retirement in 1984, he headed the Water Quality Protection Department and the Water Quality Protection Institute VITUKI. During his career at VITUKI, he created the foundations of water and wastewater treatment in Hungary.

In the mid-1960s, the rapid eutrophication of Lake Balaton posed a huge research challenge for the Department. Under the leadership of Dr. Benedek, a number of experimental wastewater treatment technologies and plants were developed in collaboration with prominent biologists and chemical engineers which proved highly successful in addressing the challenges of Lake Balaton and elsewhere. In the 1970's, VITUKI became a national research center and under Dr Benedek's leadership was central to the establishment of water quality regulation in Hungary.

Upon his retirement from VITUKI in 1984, he served as President of VTK Innosystem, the company he founded in 1989.

Major Contributions to IWA

Dr. Benedek was one of the 16 founders of IAWPR in 1965 pictured in the Founder photograph. Like a number of the other founders, including an important subset from Eastern Europe (Madera from Czechoslovakia and Benedek from Hungary), Dr. Benedek was a pioneer within and through IAWPR collaboration in trying to both define the nature and scope of severe post-war pollution as well as develop early municipal and industrial treatment processes. He extended this international collaboration through close cooperation with WHO, including support for water and sanitation systems in developing countries.

It is noteworthy that both Dr. Benedek and Professor Madera were succeeded in both their leadership of their national institutes and within IAWPRC/IAWQ by Dr Laszlo Somlyody and Dr. Petr Grau respectively, who later served as IWA/IAWQ Presidents (Somlyody in 2004-2006 and Grau in 1990-1994).

Authors: Imre Takacs, Paul D Reiter **Major Sources:** Dr Benedek Wiki Site

Louis Coin

Professional Background

Louis Coin's (1907-1998) remarkable education included "triple-training" as a chemical engineer, and doctorates in both hydro-geology and medicine. He first worked at the Water Control Service of the Prefecture of the Seine where he acquired his formidable knowledge of the water resources and challenges of the Paris Region and many other French regions.

Dr Coin's exceptional knowledge and education was well suited to his major professional undertaking as the Chief Director of the Laboratory d'Hygiene de la Ville de Paris (LHVP) 1956-1974. This city-supported agency still remains unique both for its breadth of responsibilities and the sophistication of its work covering water, air and indoor spaces.

As Chief Director of LHVP over two decades, he skilfully blended scientific and administrative engagement. For example, in pursuit of a major challenge related to chemical and microbiological problems in water, he undertook pioneering action with the Institute Pasteur and the drinking water treatment industry to define the conditions for the application of ozone as a disinfectant.

After leaving LHVP, Dr Coin significantly contributed to major water issues again, including the Commission on Pollution of the Rhine, and the landmark EU 1980 directive for drinking water.

Major Contributions to IWA

Dr Coin was one of original founders of IAWPR in 1965 -- a natural given his expertise in all aspects of water and health. He was also a key contributor to WHO's 1966 global study on water and water pollution.

He played a significant role in the IAWPR scientific and technical programs, from its inception through the program design for the 1982 IAWPRC Cape Town WWC. He is remembered as an endearing character of great culture, conviction and technical authority with an enormous intellectual capacity, yet with an undeniable human warmth towards his colleagues.

Author: Paul D Reiter **Major Contributing Source:** Bernard Festy

Wes Eckenfelder

Professional Background

W. Wesley Eckenfelder (1928-2010), who was described as “the father of the modern approach to the use of biological processes for industrial wastewater treatment,” was professor of environmental engineering at Manhattan College, University of Texas at Austin, and Vanderbilt University.

A true pioneer, in the 1950s he designed his first activated sludge plant, which served as a model for industrial waste treatment, leading to his first book, *Biological Waste Treatment* (1961). What followed was more than 30 books and hundreds of research papers on industrial wastewater treatment, and a career as a renowned consultant to many industries, leading to pioneering contributions to treatability studies and the use of mathematical modelling for biological treatment. He founded more than 5 companies. and received 28 awards and accolades from professional societies. In December 1999, he was designated one of three people to be named “20th Century Pollution Control Pioneers” by *Environmental Protection* magazine.

Major Contributions to IWA

Wes Eckenfelder is remembered as one of the most colourful, charismatic, and influential pioneers in the 1962 (London) and 1964 (Tokyo) conferences that led-up to the formation of IAWPR. He was a founding member of IAWPR (1965) and played a leading role on the IAWPR Expert Advisory Panel on Industrial Waste Treatment, making his specialized expertise available for global dissemination for many years. He became the first editor of the newly formed *Water Research* in 1967 – a position he held through 1974. As a celebrated teacher and a brilliant communicator, Wes was a very popular speaker and lectured throughout the world. Widely recognized as an IWA ambassador, he influenced his colleagues and students to join IWA and become active members of the association.

Author: Rajendra Bhattarai, USA.

Shigehisa Iwai

Professional Background

Shigehisa Iwai (1916-1996) was and remains a legendary figure in Japan's water development history. He received his doctoral degree in Civil Engineering from Kyoto University. He was appointed Associate Professor of Civil Engineering at Kyoto University in 1941. After the war's end, during which he was interned as a POW, he returned to Kyoto University as a full Professor in 1948.

In 1958, Professor Iwai was asked to organize the Department of Sanitary Engineering at Kyoto University, following two years of study at Harvard University's Graduate School of Public Health (1951-52). He opened many programs, such as water pollution control, water supply and sewage works, night soil treatment, industrial wastewater treatment, municipal and industrial solid waste management. He retired from Kyoto University as Professor Emeritus in 1979.

Professor Iwai served as an advisor to many countries during his professional career and helped UNESCO in establishing a Sanitary Engineering program at the National Autonomous University of Mexico. He was decorated for his service by being invested into the Senior Fourth Rank of the Court after his death by the Japanese Government.

Major Contributions to IWA

Professor Iwai was one of the more than 16 pictured founding fathers of IAWPR. He participated in the first IAWPR Congress in 1962 in London. He proposed a second IAWPR Congress in Tokyo in 1964, supported by Professor Wes Eckenfelder. This highly successful congress, held in the midst of an historic water supply shortage in Tokyo, helped the formal launch of IAWPR in 1965.

Professor Iwai was editor of Water Research until 1982. He served as Japan's Governing Board member from the 1st to 8th IAWPR Congress in 1974.

Author: Saburo Matsui, Japan **Contributor**: Paul D Reiter

Sam Jenkins

Professional Background

Samuel H. Jenkins (1901 – 1983) - in the view of the three editors of the TPTs, Reiter, Kroiss, and Olsson – is the true father of IAWPR. His legacy deserves special attention among all the Distinguished Pioneers. Sam began his academic studies at the Victoria University of Manchester and was rewarded BSc in Technical Science with first-class honours in 1923. With a further scholarship he conducted research on the spontaneous combustion of powdered coal in connection with mine safety and was granted a master at Victoria University in 1942. Despite a promising career in fuel research, he became a chemist at the dyeworks of Robert Cawley & Co., Manchester.

He got his first contact with the field of water pollution in 1927 at the Rothamsted Experimental Station in Harpenden (40 km NW of London), conducting laboratory and pilot-scale investigations for the British Water Pollution Research Board, formed in 1927. Sam worked on chemical, nutritional and microbiological aspects of the aerobic and anaerobic decomposition of sugars, fats, and fatty acids. For this work he was awarded the Doctor of Philosophy in Biochemistry from the University of London in 1931. He confirmed the role of nutrients in biological treatment, and he participated in the development of alternating double filtration, high-rate filtration and activated sludge for milk waste treatment as well as a novel process where anaerobic pretreatment was followed by activated sludge.

Dr Jenkins joined the Birmingham Tame and Rea District Drainage Board (now the Severn-Trent Authority) in 1928 as Chief Chemist. He worked there until his retirement in 1969 on laboratory and full-scale investigations of a wide range of waste treatment processes, and their effects and the ecology of rivers. In 1941 he was awarded the Doctor of Science degree from the University of London.

He was elected Associate Member of the Royal Institute of Chemistry in 1925 and a Fellow in 1931. He joined the Institute of Sewage Purification (now the Institute of Water Pollution Control) in 1938 and was elected Fellow in 1944 and President in 1957. He was active in these organizations until the time of his death.

Major Contributions to IWA

Sam Jenkins is an outstanding personality in the IWA history. He served IAWPR from its inception and was member of the committee organizing the first International Conference on Water Pollution Research, London, 1962. He played a significant role at the Tokyo conference in 1964. The formal formation of IAWPR took place not until 1965, when two significant international conferences already had taken place. A grassroot network had been established, and Sam´s almost prophetic attitude was a critical factor. IAWPR was formed with the key mission "to eliminate all water pollution" and not primarily to become a hierarchical organization.

Sam Jenkins had the early vision that publishing is a lifeline of a professional organization, both to reach out with the knowledge and to form a major economic basis for the organization. He joined the Editorial Board of the *Air and Water Pollution* in 1962*,* becoming its Editor in 1964. When *Water Research* was established in 1967, he became its Honorary Executive Editor. He made a brilliant contribution to *WR.* He personally reviewed every submitted paper and his superb style and critical ability established *WR* as one of the top journals in the field. I have some personal experiences of his generosity and gentle style, when he carefully instructed us young water professionals how to present our conference contributions in the 1970s. Sam also became the editor of the new IAWPRC journal, *Water Science and Technology.* A special issue of *WST* was produced in 1982 to honour his 80th birthday.

The planning and organization of the early IAWPR conferences were primarily driven by the grassroots. Important decisions were taken among members. Sam Jenkins played a major role in the organization of biennial and specialized conferences, and in the publications of their proceedings. He was most often present at the conferences and many planning meetings and was considered as the "head office" and could encourage and support the decisions and plannings. Sam Jenkins was truly committed to the best of IAWPR from its inception until his last day in life. Sam was elected Honorary Member of IAWPRC in 1974.

Sam became a role model for many water professionals. I have a personal memory where he attended a seminar that I gave in Berkeley at his son David's department. Sam was approaching 80 years, and still he was the one in the audience asking most questions out of an admirable curiosity. This gentle and kind man was driven by an inner force to learn, produce, and excel.

He was active to the end. Sam died suddenly of a heart attack at the age of 81. On the day before his death, he had travelled a round trip by train from his home in Birmingham to the headquarters of IAWPRC in London. On the day following his death he was to have flown to Madrid for four days of IAWPRC meetings. His desk and home office floor were piled high with papers and books for review, plans for future conferences and current correspondence.

Author: Gustaf Olsson, Sweden

Major source of information: David Jenkins' (1935-2021) tribute to his father

Vladimir Madera

Professional Background

Vladimír Madera (1905 - 1997) graduated from the College of Chemical-Technological Engineering (VSCHT) in 1926, while simultaneously studying microbiology.

He began his career at the Prague sewage treatment plant as head of the chemical laboratory and founded one of the first microbiological laboratories for wastewater in Europe. Subsequently, he worked in the Prague magisterial sewage agency, becoming its manager while planning for the new Prague mechanical-biological wastewater treatment plant.

In 1953, he transferred from Prague Technical University to the newly independent VSCHT, becoming the first professor of the Department of Water Technology and was awarded the rank of Doctor of Sciences. He became department head in 1957. In 1962, he was appointed Rector of the Technical University of Applied Sciences where he served until his retirement in 1975.

Professor Madera died in the decade that Dr Petr Grau, his student and professor successor, served as President of IAWQ (1990-1993) with significant influence.

Major Contributions to IWA

Professor Madera was one of the original IAWPR founders in 1965. He served as IAWPR's first Vice President, alongside IAWPR's Founding President, Professor Erman Pearson 1965-1968.

In late 1960s, Professor Madera, as Chairman of the Czechoslovak Water Quality and Wastewater Associations, organized the still memorable 4th IAWPR Congress in Prague, scheduled for spring of 1968. A few weeks prior to the opening of the Congress, the Warsaw Pact armies invaded Czechoslovakia. Foreign delegates enroute to Prague were stopped at the border. Thankfully, the Congress could be postponed for a year, and was successfully conducted in the Spring of 1969, before the fall of the Iron Curtain in the Fall of 1989. In spite of Eastern Bloc travel restrictions, Professor Madera was able to remain actively engaged in IAWPR over his career.

Authors: Vladimir Novotny, USA and Jiri Wanner, Czech Republic

Gunther Mueller-Neuhaus

Professional Background

Gunther Mueller-Neuhaus (1922-1971) graduated in civil engineering and was one of the pioneers in wastewater management and treatment in Germany after World War II. In 1946, he joined a precursor of the German Wastewater Association (ATV, today DWA) and continuously served this association as board member and president until he died much too early in 1971. He was instrumental in making ATV not only a powerful platform for wastewater experts in research and practice but also as reliable consultant of public authorities in Germany. In 1955 he initiated wastewater operator training courses within ATV, an activity which is still an important task of the association today.

At the time of his death, he was chair of the Institute of Water Management and Public Health Engineering at TU Munich/Germany. Although one of his last publications dealt with separate sludge stabilisation, his focus and contributions were related to sewer construction, maintenance and management. He died before his great project at TU Munich -- a large-scale research and development laboratory in Garching/Munich -- was put into practice.

Major Contributions to IWA

Mueller-Neuhaus started early in his career in connecting with international wastewater experts and water associations. Accordingly. he was one of the founding members of IAWPR in 1965. As member of the Board of IAWPR he organised the first official IAWPR conference in Munich in 1966, where his opening lecture on water quality management is remembered many years later. In his contributions to IAWPR, while promoting the importance of water research, he also placed a great emphasis on the importance of implementing research and development results into practice.

Author: Helmut Kroiss, Austria

Cecil David (Guy) Parker

Professional Background

Cecil David (Guy) Parker (1912-1981) was a key figure in the development of the modern Australian water industry and in the formation and development of IAWPR. His university training in chemistry took place at Adelaide University in the early 1930's. Guy went on to pursue a professional career in water science, research and practice beginning with his role as a Senior Chemist and Bacteriologist at the Melbourne and Metropolitan Board of Works (MMBW).

In this role, Guy Parker discovered a major source of corrosion in cement wastewater collection pipes and wrote the seminal article on the subject in 1945 that is still cited in 2020. His discovery of five new strains of sulphur related bacterium led to a new genus being named after him - *Guyparkeria.gen.nov.*

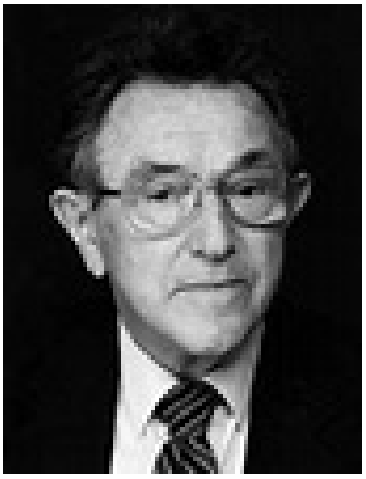
He was one of four cited co-founders of the Australian Water Association in 1961 and served as its President in 1966. In 1962, Guy Parker established CD Parker Pty Ltd, one of the major water consulting firms established in Australia in this era – firms that continued for over 50 years.

Major Contributions to IWA

Guy Parker was one the 16+ original founders of IAWPR in 1965. In the early years of IAWPR, Guy played several leadership roles in the new organization. At the same time, he was a key link between Australian water science and research, and the larger international community embodied in IAWPR.

On the scientific and technical side, Guy was one of the pioneers of the embryotic understanding of water biology and the biochemical interactions in wastewater conveyance and treatment system. In this context, he was one of the early members of the precursor group to IAWPRC's first Specialist Group -- the IWA Health Related Water Microbiology SG.

Author: Paul D Reiter **Contributors:** David Garman, Darryl Day



Hillel I. Shuval

Professional Background

Hillel Isaiah Shuval (1926 – 2013) was born in Washington DC, USA. After completing his undergraduate studies in Sanitary and Water Resources Engineering at the Universities of Cornell and Missouri, he settled in the newborn Israel in 1948. In 1952, he completed his Environmental Health Engineering and Public Health graduate studies at the University of Michigan.

From 1958, he served as Director of Environmental Health in the Israel Ministry of Health, and in 1965, he joined the Hebrew University as Director of the Environmental Health Laboratory and later founded and led the Division of Environmental Sciences through 1988. From 1995, he chaired the Environmental Health Sciences Department, the Hadassah Academic College. He was also a senior consultant to the World Bank, WHO, UNEP, and the EU.

Shuval's research included the control of water-borne enteric viruses; microbiological and epidemiological aspects of marine pollution; health effects of nitrates; and the kinetics of bacteria and viruses in soil, on crops and in air-borne aerosols exposed to wastewater irrigation. Shuval initiated and led Israel's environmental health and preventive medicine programs, guidelines and standards in parallel to his research. He was a prominent voice in the numerous aspects of the Middle East water conflicts, and co-edited “Water and Peace in the Middle East” in 1994.

Major Contributions to IWA

Hillel Shuval was active in various international organizations; the International Association of Water Pollution Research (IAWPR) was his favourite. He was of IAWPR’s founders in 1965 and served Vice President 1968-1976. He was Congress President of the highly regarded 1972 IAWPR Jerusalem World Congress.

Later, he served on the IAWPR Expert Advisory Panel on Water Quality Standards and Biological and Chemical Methodology. The WHO recognized his innovative research in developing the 2005 WHO health guidelines for wastewater reuse in agriculture.

Author: Avner Adin **Major Contributors:** Geula Sharf, Paul D Reiter

Wilhelm von der Emde

Professional Background

Wilhelm von der Emde (1922-2020) received his doctoral degree in civil engineering at Hannover (Germany) university. From 1958 to 1964 he was head of the Hamburg wastewater department. From 1964 to 1987 he served as Professor for "Water Supply, Wastewater Treatment and Water Protection" at the Vienna University of Technology. He was an internationally recognised expert for design and operation of mechanical-biological wastewater treatment plants and one of the pioneers in standardising the design of nutrient removal activated sludge plants. He markedly contributed to optimise vocational training for treatment plant operators.

Major Contributions to IWA

Willi von der Emde was one of the founders of IAWPR where he served several years at the board in different functions. Together with John Andrews and their colleagues and friends in Europe, US, UK, South Africa, and Japan he successfully started the Vienna IAWPR Workshop series on "Design and Operation of Large Wastewater Treatment Plants" in 1971. This workshop led to the development of one of the first and still powerful Specialist Groups which also became a role model for many other Specialist Groups until today in IWA. During the presidency of Engelbrecht he markedly contributed to the successful development of the Specialist Groups as bottom-up activity of the members, with organisational support by the Association's headquarter. He also strongly supported the creation of the journal "Water Science and Technology" for publications on scientific research and its practical application.

Author: Helmut Kroiss, Austria

Distinguished Departed Pioneers (TPTs)

Alphabetically arranged

- John Andrews
- Korokuro Hirose

John F. Andrews

Professional Background

John F. Andrews (1930-2011) was Professor of Environmental Science and Engineering. He received his PhD in 1964 in Environmental Engineering from the University of California Berkeley. John taught at the University of Arkansas, Clemson University in South Carolina, University of Houston in Texas, and Rice University, Houston. He was a guest lecturer in Japan, China, England, and Canada.

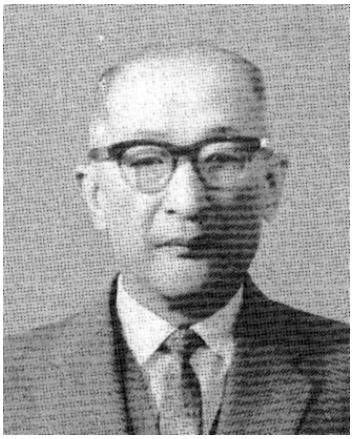
John served as the U.S. editor of Water Research. Already in the 1970s he was one of the true driving forces to increase the collaboration between WEF and IAWPR (the predecessor of IWA).

Major Contributions to IWA

Together with an international group led by Professor Wilhelm von der Emde he initiated the Vienna IAWPR Workshop series on "Design and Operation of Large Wastewater Treatment Plants" in 1971, leading to the vital specialist group on the same theme.

John was a leading force to establish the IAWPR specialist conferences on Instrumentation, Control and Automation (ICA), the first one held in 1973 in London. John, together with Heinrich O. Buhr and Thomas M. Keinath (later the IWA President), organized a workshop at the Clemson University, S.C., in September 1974, addressing *Research Needs for Automation of Wastewater Treatment Systems.* The workshop was sponsored by the USEPA but appeared to be a landmark in the early ICA development for wastewater treatment systems. John continued tirelessly making ICA recognized in the water profession for the next two decades. He was pioneering dynamics and control in wastewater treatment and presented one of the early dynamic models of the activated sludge system. He recognized the potential of control of these dynamic systems and pushed hard within IWA to see more instrumentation, control, and computer applications in wastewater treatment.

Author: Gustaf Olsson, Sweden



Korokuro Hirose

Professional Background

Korokuro Hirose (1899-1964) was Professor of Sanitary Engineering, at the University of Tokyo. He graduated from both the Faculty of Engineering in 1923 and Medicine in 1930 at the University of Tokyo. He received two PhD degrees in Engineering and in Medicine in 1940 from The University of Tokyo. Dr. Hirose was promoted to Professor of the Department of Civil Engineering, at the University of Tokyo in April 1942. He received a Fellowship from the Rockefeller Foundation and studied for two years under Professor Gordon M. Fair at Harvard University from 1932 to 1934. He also studied for 7 months in Germany following his studies in the USA.

Prof. Hirose published many textbooks on Water Supply and Wastewater Engineering. He was thought by many to be the founder of the academic activities of modern Sanitary Engineering in Japan.

Major Contributions to IWA

Professor Hirose organized the Second International Congress of IAWPR held in Tokyo in 1964 with the participation of representatives from many research fields related to water pollution in Japan, including sanitary engineering, civil engineering, hygiene, chemistry, fisheries, and oceanography. It was a very difficult project, because the Japanese National Organization for Water Pollution Research had not yet been established, and the preparation time was very short after the first IAWPR Conference in London in 1962. The number of participants were over 600 from 25 countries and regions.

The members of this organizing committee became the core members of the Japanese National Committee of IAWPR, IAWPRC, IAWQ and IWA and founded the present Japan Society on Water Environment in 1971.

Author: Tomonori Matsuo, Japan

Section 2 B

IAWPR 1980 →1989

IAWPRC – an introduction

Gustaf Olsson

IAWPR had a remarkable development in the 1980s and became a truly significant international actor in water systems. Recognizing the “control” aspect, IAWPR advanced into IAWPRC in 1982. The widening responsibility and competence of the Association motivated still another rename to IAWQ in 1992.

The impressive expansion of IAWPR had a lot to do with strong and visionary leadership. In 1980 Bertil Hawerman handed over the presidency to Dick Engelbrecht. Dick had a profound impact on the continued development during his six years IAWPR/IAWPRC presidency. Poul Harremoes was elected president at the Rio biennial conference in 1986 and had an exceptional impact on the further growth and development during his four president years. Stepping down in 1990 he had served over 12 years as vice president and president. In 1981 Tony Milburn became the first full-time Executive Director. For more than two decades he was a key player in the expansion of IAWPR/IAWPRC/IAWQ and through the merger of IAWQ and IWSA in 1999 to the creation of IWA. Tony retired in 2002 to be succeeded by Paul Reiter. These leaders not only had true visionary influences but also managed to create the important feeling of companionship within the Association.

As new president Poul Harremoes shared his vision of the next IAWPR decades. He saw the need for both grassroot initiatives and leadership. He recognized how IAWPR had an important role to play to preserve the environment and how a sustainable society had to be a focal point. So far, the activities had been dominated by handling domestic and industrial water pollution. However, the concept of water environment means more than treating polluted water or understanding eutrophication. Groundwater pollution had to be included among the concerns. The responsibility for the environment is not only a matter of corrective measures but also a priority using preventive measures. This will require fundamental changes to many of our values; socially, individually, and collectively.

Harremoes reminded us that new organic chemicals, the greenhouse effect, the ozone layer degradation, deforestation, and the desertification are all related to water. He warned that our greatest risk is complacency based on successes in the past and noted the difficulties to understand which changes were required with respect to water pollution for the next century. The future in relation to the environment will require such drastic measures that it will make changes to society significant, and that "these demands will be considered irrational by the profession. We have to get out of our way to give young engineers and scientists room to analyse the situation, assess their values and evaluate their options." Today, as we experience the climate crisis, Harremoes' vision was prophetic.

During the 1980s there were five biennial conferences, establishing IAWPR/IAWPRC on five continents, in Toronto 1980, Cape Town 1982, Amsterdam 1984, Rio de Janeiro 1986, Brighton 1988 and Kyoto 1990. In particular, the Rio conference was a true landmark of the international expansion. Early on, the need to balance research and practice was recognized. The biennial conference programs have included a combination of specialist seminars, general sessions, posters, and equipment exhibitions.

The bottom-up approach having been established in the 1970s was a truly ingenious idea. Later it became a role model of other associations. Visionary professionals had already created specialised meetings, and this was now manifested as formal Specialty groups during Dick Engelbrecht's presidency. Poul Harremoes had presented a scientific development plan in 1980, recognizing the IAWPR members' need for more specialisation. The idea of specialised interest groups was discussed at an informal lunchbreak meeting between Dick Engelbrecht, Sam Jenkins (retired Executive Director), Tony Milburn, and Willie Grabow at the Toronto Biennial in 1980. Grabow had established the Water Virology Specialist Group three years earlier. The experiences from the successful Large Wastewater Treatment Process (LWWTP) workshops in 1971, 1976 and 1980, organized by Willi von der Emde, were also decisive. Von der Emde had not been present at the Toronto meeting, but as a treasurer he had close contact with Engelbrecht. The leaders agreed to try out the idea of specialty groups, however not without trepidation. They were not sure what they might be letting loose. It turned out to be one of the best decisions they ever made. This showed the key factor of a successful Association: confidence on the part of the leadership in the skills and good intentions of the grassroot initiators to provide opportunity. In the early 1980s there were already more than a dozen specialist meetings per year.

The Instrumentation, Control and Automation (ICA) group had already met two times, in 1973 (attracting 225 people) and in 1977, both times in London. The 1973 ICA meeting had been inspired by the 1971 LWWTP workshop. As remarked in earlier chapter, the true active pioneer organisers represented both utilities (Carmen Guarino, City of Philadelphia, USA and Tony Drake, Greater London Council, UK) and research institutions (John F. Andrews, Clemson University, USA and Ron Briggs, the Water Pollution Research Laboratory, UK). John and Ron enthusiastically continued their ICA leadership until the late 1990s.

The problem owners had initiated these meetings, and more and more academics joined. The remarkable accomplishment is how IAWPR managed to attract many of these personalities coming together. Of natural reasons wastewater dominated the scene. However, water quality certainly had a wider relevance. For example, within the ICA group several attempts were made to include instrumentation and control problems in water supply and water distribution. Many groups had a truly interdisciplinary membership, demonstrating the need to look outside specialist “silos”.

The links between drinking water and wastewater research, technology and management were recognized by Poul Harremoes. Attention to water protection, supply, and distribution strongly supported the link which was one of the driving forces for the future merger of IAWQ and IWSA.

In the mid-1980s the number of specialist groups had grown to 21. Details of activities were refined in due consultation with IAWPRC head office in London. Communication and collaboration with the head office took place in a pleasant and constructive spirit serving the best interests of all concerned.

All of this has been accomplished by a body of volunteers, giving of their most precious and valuable resources – their scarce time, their energy and their professional skills, working largely in what spare time they can afford from heavy work commitments. Maybe the combination of ideals and entrepreneurial culture together with the conviction that all members are our friends and equals, whatever their nationality creed or culture.

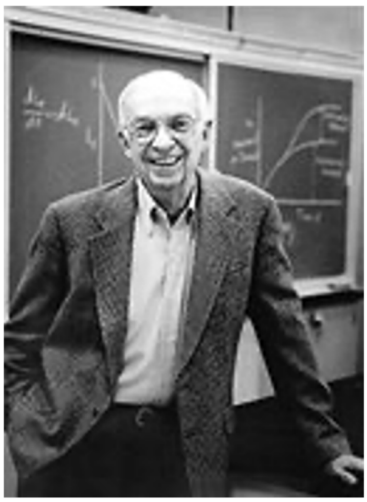
Publications provide a crucial contact between IWA and its members. Already in 1967 *Water Research* was established as a journal with Dr Sam Jenkins as its Executive Director and Wesley Eckenfelder as its Editor. It had developed from the *Journal of Air and Water Pollution*, a Pergamon Press journal. Sam Jenkins was known having reviewed every single paper submission to WR. Now *Water Research* is a world leader in its field. The series *Progress in Water Technology* had published the proceedings of the specialised conferences. In 1981 the publication was transformed into *Water Science and Technology*, at that time publishing all the IAWPRC conferences. It has developed into a flagship journal of IWA, together with 14 other peer-reviewed journals.

Tony Milburn introduced the *Water Quality International* magazine to improve communications with members. Having been just a typewritten newsletter from 1977 it was developing into a typeset and printed version in 1981. This now was growing into what became the WQI in 1987, a lively, widely read, and respected magazine. Another important communication was established in 1987, the *Scientific and Technical Reports.*

Distinguished Departed Pioneers (Presidential TPTs)

Chronologically arranged

- Richard Engelbrecht
- Poul Harremoes



Richard S. Engelbrecht

Professional Background

Richard S. "Dick" Engelbrecht (1926-1996) was the Ivan Racheff Professor of Environmental Engineering at the University of Illinois at Urbana-Champaign. After receiving the PhD degree from the Massachusetts Institute of Technology in 1954, he joined the faculty at the University of Illinois, where he built the Environmental Engineering Program into a national and international leader. Dr. Engelbrecht's research initially focused on public-health microbiology, but later expanded to technology addressing the emerging challenges of hazardous wastes. Dr. Engelbrecht received prestigious awards and accolades in the US and abroad too numerous to recite here, but notably included his election to the U.S. National Academy of Engineering (1976) and his inclusion into the Order of the Sacred Treasure from the Emperor of Japan (1993).

Major Contributions to IWA

Dr. Engelbrecht unleashed an era of significant growth and maturation of IWA's predecessor organizations (IAWPR/IAWPRC) and thus laid the foundation for IWA to become today's leading international organization for water. Dr. Engelbrecht was the IAWPR/IAWPRC President 1980 – 1986, and his stellar service to the organization began before and continued after his presidential term. As President, Dr. Engelbrecht indefatigably travelled the world to recruit new national members: national and individual membership began their exceptional growth during Engelbrecht's tenure. Major markers of the growth of IWA in the 1980s were the initiation of long-term strategic planning, the advent of the Specialist Groups, the launch of *Water Science & Technology* (1981), the organization's renaming as the International Association for Water Pollution Research and Control (IAWPRC, 1982), the first regional conference (Asian-Pacific, Tokyo 1985), the first biennial conference in a developing country (Rio de Janeiro, 1986), and the launch of *Water Quality International* (1987).

Dr. Engelbrecht's is and will be remembered as a truly monumental leader and contributor to IWA and its global impacts.

Author: Bruce Rittmann, USA

Poul Harremoes

Professional background

Poul Harremoes (1934-2003) was Professor of Environmental Engineering at the Technical University of Denmark (DTU). He received MSc degrees from DTU in 1957 and Massachusetts Institute of Technology in 1959. Under his leadership (from 1969) the Department of Environmental Science and Engineering grew into an internationally leading institute and was awarded the 1992 Stockholm Water Prize. Vision, innovation and collaboration between individuals working towards the same goal were the hallmarks of his career, and he was one of the most inspiring speakers and environmental 'influencers' of his time.

Poul Harremoes worked with oxygen depletion in rivers and biofilm kinetics in wastewater treatment in the 1970s, modelling of sewers and receiving water discharges during rain in the 1980s, modelling and control of integrated urban drainage systems in the 1990s, and uncertainty, risk and environmental ethics in the 2000 decade. He also had a leading role in the establishment and organisation of the Danish Ministry of Environment in 1972 (the first of its kind in the world). As a member of the Scientific Committee of the European Environmental Agency (1994-2002) he masterminded the development of the precautionary principle, and he received the Heineken Prize for Environmental Sciences in 2000.

Major contributions to IWA

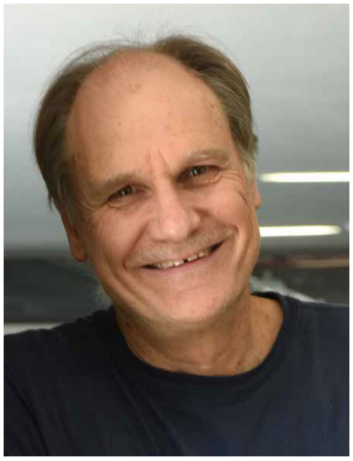
Internationally Poul Harremoes set his footprint as president in the 1980s of IAWPRC - now IWA, the International Water Association, where he completely reconstructed the activities emphasizing the development of specialised conferences and specialist groups. Poul was a founding member of the IAHR/IWA Joint Committee on Urban Storm Drainage, which in 2005 instituted the Poul Harremoes Award for the Best Paper by a Young Author – that is awarded at the committee's triennial conferences for the presentation of novel and ideally provocative ideas relating to developments in urban drainage. At every biennial IWA World Water Congress there is a reminder about his remarkable influence on IWA, the Harremoes lecture.

Author: Peter Steen Mikkelsen, Denmark

Distinguished Departed Pioneers (TPTs)

Alphabetically arranged

- George Ekama
- Ernst Kuntze
- Gerrit van Rooyen Marais
- Junichiro Matsumoto



George Ekama

Professional Background

George Ekama (1949-2023) was born in The Netherlands. His family left the post-WWII Netherlands in the 1950s for a new life in South Africa. George earned his Bachelor with honours from the University of Cape Town (UCT) and then worked to pay back the student bursary he had received. "To keep his neurons from dying out" he enrolled for evening classes, where he met Professor Gerrit Marais. George joined Marais' group at UCT and completed an exceptional PhD in 1978. George and Gerrit were to become giants in biological wastewater treatment. George was Professor from 1991 until his retirement in 2019. He continued his active research until a severe stroke in 2020 ended his career.

Major Contributions to IWA

George was happiest in the lab and had a deep impact on IWA. Biological nutrient removal research, developing at UCT from the 1980s on, was a key part of the celebrated IWA Activated Sludge Models. George was a major contributor to and editor of the IWA best-selling book *Biological Wastewater Treatment*. More than once, he told IWA colleagues at conference discussions "to keep the main thing the main thing", reminding us to remain focused.

George received the IWA Project Innovation Award in 2012 and in 2013 he was awarded the South African Order of Mapungubwe Silver by the President. In 2017 the South African Academy of Science named him among 53 scientists across all fields who are 'Legends of South African Science'. George was listed as a Water Research Commission 'Legend' in 2021. His impact on the water profession was monumental. Still, he was modest about his achievements and preferred to highlight teamwork and dedication. He was last celebrated at the 2023 IWA Water Resource Recovery Modelling Seminar, Stellenbosch, South Africa.

Authors: Gustaf Olsson, Sweden and Kate Ekama, South Africa

Ernst Kuntze

Professional Background

Ernst Kuntze (1920-2014) was Head of the Wastewater Division in the City of Hamburg. He studied Civil Engineering in Hannover and began his professional career 1950 at Ruhrverband. Since 1963 he was responsible for the planning and construction of the sewerage system in the City of Hamburg, one year later for the whole wastewater management in Hamburg. He received an honorary doctorate from Aachen Technical University in 1973. Ernst Kuntze was president of the German Association for Wastewater (ATV) between 1969 and 1985 and one of the driving figures in establishing a strong training and educational system for personnel in the wastewater sector. One of the awards of today's German Association for Water, Wastewater and Waste (DWA) is named after Ernst Kuntze.

Major Contributions to IWA

Ernst Kuntze was not only intensively engaged in German associations, but also on an international level. From 1972 to 1978 he acted as vice president of the International Association on Water Pollution Research (IAWPR) and was an active member in several specialist groups. Between 1981 and 1984 Ernst Kuntze was the founding president of the European Water Pollution Control Association (EWPCA) with a major focus on the European water sector but was at that time seen also as a competitor to IAWPR. Beside other awards, he received honorary memberships from the Water Pollution Control Federation (WPCF) in 1978 and the Swiss Association on Water and Wastewater (VSA) in 1979. Ernst Kuntze was also very instrumental in developing IFAT which is today the world leading trade fair for water, sewage, waste and raw materials management.

Author: Norbert Jardin, Germany

Gerrit v R. Marais

Professional Background

Gerrit van Rooyen Marais (1927-2005) was professor at the University of Cape Town, South Africa.

Early in his career he made significant contributions to low-cost water supply and sanitation, for example in Zambia. In the 1960s he developed a novel instrument for measuring dissolved oxygen in oxidation ponds and was awarded a prize in 1967 by the South African Institute for Civil Engineers for the most innovative paper. He was member of the Expert Committee on Environmental Sanitation of the World Health Organization and was invited as a Distinguished Foreign Professor by the American Society of Sanitary Engineering. In 1989 he was elected Fellow of the Royal Society of South Africa.

Major Contributions to IWA

Marais' research at the University of Cape Town has had a major influence within IWA on biological nutrient removal, filamentous bulking, and anaerobic digestion. In 1983 Gerrit was appointed by IAWPRC (the predecessor of IWA), together with four other researchers (Willi Gujer, ETH, Switzerland; Les Grady, Clemson University, USA; Tom Matsuo, University of Tokyo, Japan; Mogens Henze, DTH, Denmark) to serve as an International Task Group for modelling biological wastewater treatment systems. The group created the Activated Sludge Model in various versions (ASM1, ASM2 etc.). The models have been the cores for development of numerous biological wastewater treatment models since 1986. The stepwise ASM development was built on the original approach in 1976 by Marais and his colleague George Ekama.

Author: Gustaf Olsson, Sweden

Junichiro Matsumoto

Professional Background

Junichiro Matsumoto (1923-2006) was Professor of Civil and Environmental Engineering. He graduated from the Department of Civil Engineering, The University of Tokyo in 1947, and received his Master's degree from the Department of Sanitary Engineering, John Hopkins University, USA and his PhD from The University of Tokyo in 1961. He worked as Associate Professor of Sanitary Engineering from 1955 to 1963 and as Professor from 1964 to 1986 at Tohoku University. He also served as Professor of The University of Tokyo (1973-1983) and Nihon University (1986-1993). He was an internationally recognized expert in water pollution control and anaerobic biotechnology. He served as the President of Japan Society on Water Environment (1983-1985) and Vice President of Japan Society of Civil Engineers (1984-1985).

He was decorated for his services with the Order of the Rising Sun, Gold Rays with Neck Ribbon, Third Class, Japanese Government, in 1999.

Major Contributions to IWA

Dr. Matsumoto served as the regional editor of *Water Research* from 1982 to 1989, as Vice President of IAWPRC (the predecessor of IWA) from 1984 to 1986 and the Chairman of the editorial committee of *Water Science and Technology* from 1985 to 1988 to strongly support academic exchange and development of water environment.

He also served as the Congress Chair of the 15th IAWPRC Biennial Congress in Kyoto in 1990.

A major contribution of Dr Matsumoto was the expansion of the IAWPRC's international collaboration into the Asian region in the 1980s. He was the leading force in establishing the IAWPRC Asia Conference series, the first of which was held in 1985 in Tokyo, the second one in 1988 in Bangkok and the third one in 1991 in Shanghai.

Author: Tatsuo Omura and Yu-Yu Li, Japan

Section 2 C

IAWPR 1990 →1999

IAWQ – an introduction

David Garman

The emergence of a number of forces of change in the water environment just prior to the 1990s decade did not leave IAWQ unchanged. The changes throughout this decade also led to the emergence of a new set of leaders – both organisationally and thought leaders.

The successive presidents reflected this shifting culture leading to the later integration of the major water and wastewater associations. In parallel the Association and its membership also changed.

Peter Grau's dynamic leadership followed on from the winds of change brought into the Association by Poul Harremoes. Poul's foresight on the need for more research on urban stormwater and hydraulics established these areas as emerging factors related to climate change and followed on from his vision for energy efficient wastewater systems.

Peter's thought-provoking analyses of wastewater management systems that ran contrary to accepted practice – that bigger is better - translated into an invigorated and expanding specialist group culture and new Board committees. His successor in 1996 was Tom Keinath from the US, at that time the largest country member, further expanded the world view of the Association and moved the emphasis towards a strong academic input with a renewed emphasis on the fundamental science of processes and for improved education in this area.

Piet Odendaal became the IAWQ President in 1998. As a leader of a large public research organisation in South Africa he re-emphasised the relationship between research and operations. The coincidental leadership of IWSA with a South African President foreshadowed the concept of integrated management of water systems and integration of the Associations.

There were many winds of change in the water industry. The EU enacted the Water Framework Directive which introduced pollution load management for river basins including lakes and the affected coastal waters in order to prevent eutrophication. IAWQ became more closely aligned with IAHR (International Association for Hydro-Environment Engineering and Research), WWC (World Water Council) and the role of groundwater in water supply.

The Stockholm International Water Institute (SIWI) became influential in developing policy, awareness and recognition of the need for reliable water supply and sanitation for low- and middle-income nations with IAWQ providing technical input and representation on key committees. This was a major shift to a wider role for IAWQ in international water management with the organisation contributing to both the academic and the industrial spheres.

All these contributed to the significance of the changes occurring in the Board and within membership engagement. Just as great; changes were happening in the administration of water systems.

The implementation of privatisation in the UK led to a re-evaluation and re-working of utility ownership structures and operating performance on a worldwide basis but particularly in Australia, France, Germany and the Netherlands. With increased emphasis on performance and public accountability invoking new investments in capital works with improved control, and a greater emphasis on return on investment, this became an era of reform. Public awareness of the lack of proper 'best available technology' infrastructure in some important areas of water, and particularly wastewater, led to the emergence of governance as a key issue.

In the UK context with Michael Rouse and his UK colleagues foreshadowing changes to management worldwide with the more independently run water and wastewater operations becoming under greater oversight and regulation that more closely resembled their privatised equivalents.

Specialist groups had been developing already in the 1970s and the number had grown significantly. It seemed that at every Board meeting throughout the 90's a new specialist group was approved. This was to set the role of an increasingly active participation of members through their own specialty interests and lead to the emergence of a bottom-up approach for involvement and management direction.

The increasing sophistication of modelling and control systems initiated in the prior decade came to the fore with the advent of more powerful computers and advanced on-line sensors. This had a profound impact on the ICA specialist group, both in terms of content and membership, and led to the creation of spin-off specialist groups in modelling and analysis in systems as well as process levels.

The sophistication of models for the understanding of the biological reactions in the activated sludge system led to the formation of task groups leading to the highly influential Activated Sludge Models. Furthermore, new working groups were formed in infrastructure management.

The modelling development highlighted the limited understanding of the fundamental biological processes that are driving these processes. It prefaced the emerging topic of DNA and genomic analysis as a water management tool going into the next decade.

Managers with strong performance in water and wastewater, strongly performing organisations with an ability to translate research into practice with integration of researchers into management processes became the new imperative for leading utilities. In this era of change we also saw private and public organisations develop strong internal or national research capabilities to deal with the issues arising operations. The more forward-thinking individuals were integrating catchment management and multidisciplinary skills as a source water control tool.

With efficiency becoming the catch phrase, water distribution loss became an important measure of supply, energy, and resource effectiveness. Variations in resource security were beginning to emerge as unprecedented droughts arose and water re-use and integration went from being 'unacceptable' to being at least a desirable offset for supply. Accordingly, water loss management saw a resurgence of interest in data collection, infrastructure reviews and novel control management.

Under Tony Milburn's leadership, IAWQ's publishing activities were combined into a private company that was a wholly owned subsidiary of IAWQ. IAWQ Publishing expanded rapidly, fulfilling the need for new books and journals in this new era encouraging members to disseminate their views for the benefit of water and society. This change in IAWQ's publications would underpin the finances and expansion of operations of IAWQ into the next decade, when and where IWA Publishing would become a cornerstone of the new organization.

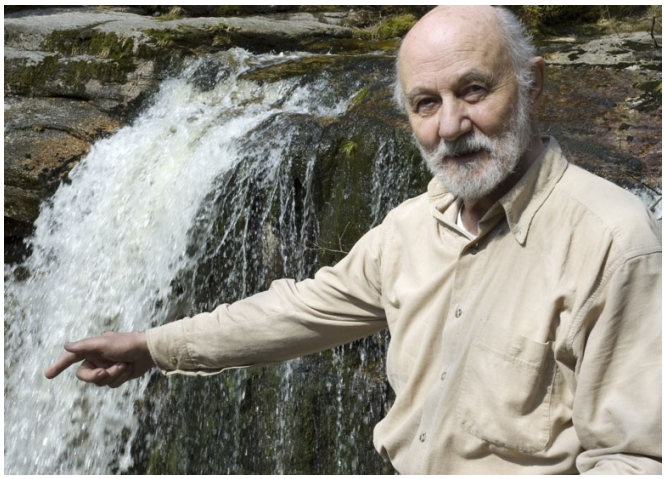
Following nearly a decade of rapid change as outlined above, the Board of IAWQ and management increasingly came to consensus on a vision of 'one water', with a growing emphasis on water use efficiency and water re-use, as water scarcity emerged as an issue in even the most water rich countries. Promotion of rapid knowledge transfer to operating authorities and strong organisational cultures and corporate management, especially with the influx of private capital, outsourcing of operations and the need for strong governance became the bylines for the decade.

The technical trends and utility restructuring discussion above presaged the converging interests of drinking water utilities, wastewater utilities and those that already did both. The existence of two organisations with common membership in many cases led to the conclusion that there could be greater strength in a single organisation with multidisciplinary interchanges while preserving the strengths of both entities.

The factors above set in motion a systematic and increasingly detailed discussion of a potential merger of IAWQ and IWSA that spanned several years. A joint committee of the two organization was formed to develop a detailed picture of the process and begin to define a new organization that joined IAWQ and IWSA, to be called IWA. A final decision to merge and create IWA was reached at the IWSA Congress in Buenos Aires. IWA was formally created in August of 1999.

Distinguished Departed Pioneer (Presidential TPT)

- Petr Grau



Petr Grau

Professional Background

Petr Grau (1932-2022) graduated from University of Chemical Technology (UCT) in Prague. He returned to UCT Prague in 1967 as a researcher and later Assistant Professor at the Department of Water Technology. During this time, he attended the University of California at Berkeley, where he received his PhD. He subsequently became a full professor and later (1974) Department Chair of Water and Environmental Technology, succeeding Professor Madera (IAWPR founding member in 1965).

His professional and teaching activities included lecturing at the University of California, Berkeley, and University of Adelaide, Australia. He also received significant awards from the AAESP (US) and the AWA (Australia).

Major Contributions to IWA

Professor Grau represented Czechoslovakia and then the Czech Republic as a member of the IAWQ Governing Board during the years 1975-1998. In 1980-85 he chaired an *ad hoc* committee preparing a unified notation for the description of biological treatment processes, and in 1988-90 he chaired a group of specialists for the population dynamics of activated sludge. Within IAWQ, he devoted more than a decade of service to the Association's management and leadership including his service as Vice President (1988-1990) and then President (1990-94).

During his presidency he established a close co-operation between Stockholm International Water Institute and IAWQ for the development of the Stockholm Water Week Program and the prestigious Stockholm Water Prize, awarded for the first time in 1991. This cooperation is still relevant and successful for both organizations.

Authors: Jiri Waner, Czech Republic and Vladimir Novotny, USA

Distinguished Departed Pioneers (TPTs)

Alphabetically arranged

- Denis Ballay
- Ken Ives
- David Jenkins

Denis Ballay

Professional Background

Denis Ballay, (1944-2004) who graduated as a Civil Engineer from Ecole Polytechnic (1969) shared a lifelong commitment to water, sanitation and ww treatment provision in small communities and local agriculture-related industries in France. Over his career, he had an extensive set of assignments working in numerous French provincial and national agencies.

Initially, he led a team of engineers upgrading village treatment plants which progressed to his heading the "Hydraulics-Forests-Sanitation" department of the Seine-Maritime Directorate of Agriculture in Rouen. He subsequently led the direction of Cemagref to provide scientific based policy in rural land water and environment.

In 1992, the Minister appointed Denis as Director of ENGREF (National School of Rural Engineering of Water and Forests). His leadership was pivotal to ENGREF's success in setting new benchmarks in integrated rural water management. As water quality expert to the General Council of Rural Engineering, Water and Forests he cemented a life-long expertise of rural water management.

Major Contributions to IWA

Denis' work on standardization management of water and sanitation services in France expanded internationally with ISO224 leading to close ties with IAWPRC. Denis was a significant contributor to IAWPRC activities from the late 1980s through the formation of IWA in 2000.

As a leader in integrated catchment management, he championed these topics in the IAWPRC agenda. The French water industry worldwide expansion made his perspectives on science, policy and water management well adapted to the IWA future.

As Congress President for IWA's inaugural 2000 WWC in Paris he delivered an extraordinary event. He was a beacon of applied knowledge on the comprehensive management of the water cycle. His ability to demonstrate a work-life balance confirmed that he was a true leader.

Author: David Garman

Major Contributing Source on Professional Background: Daniel Loudiere, Journal of Water Science, 21-2, 2008

Ken Ives

Professional Background

Kenneth James Ives (1926-2009) studied civil engineering at University College London (UCL) and then spent seven years with the Metropolitan Water Board in London. There he formed the basis of his PhD. In 1955 he returned to UCL as a lecturer and became professor of health engineering in 1967 and Chadwick professor and head of department in 1984, retiring in 1992.

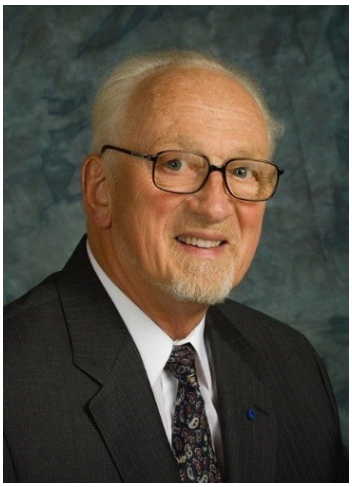
He began his research into the science underlying water filtration at UCL and continued with Gordon Fair at the Harvard School of Public Health in 1958-59. Ives was among the pioneers of using computers to model sand filter behaviour. . Later he used advanced fibre optic techniques and high-speed video recording to observe particle movements within the pores of a filter bed. His experimental column designs were adapted for use in pilot- and lab scale investigations in water treatment plants.

Ives organised a series of NATO Advanced Study Institutes in Cambridge between 1973 and 1982. These resulted in a book, *The Scientific Basis of Filtration*, which became known as ''The Gospel According to St Ives''. Ives was appointed CBE in 1996.

Major Contributions to IWA

Ken was engaged within both IWSA and IAWPRC from the 1980's into his final professional years in IWA. Ken was Editor-in-Chief 1983–1995 for *Water Research, while* concomitantly serving as UK Regional Editor through 2001. Mogen Henze, succeeding as editor-in-chief, witnessed "that much of the reputation that *WR* has today is due to Ken's work focusing on the quality of the papers published, both with respect to language and to scientific content." He will be remembered as one of the great scientists of water filtration. His regular presence in his final years at IWA HQ was a great inspiration to all.

Author: Paul D Reiter **Contributing Sources**: Mogens Henze, The Telegraph



David Jenkins

Professional Background

David Jenkins (1935-2021) was Professor of Civil and Environmental Engineering at the University of California, Berkeley. He received his PhD in Public Health Engineering from King's College, University of Durham, England in 1960. Throughout his career, David was fondly known as "FlocDoc" for his advancement of the activated sludge process. In his academic career spanning over 6 decades, David left a rich legacy of ideas, practical solutions, and contributed to numerous industry leading publications and references in the wastewater field. His legacy is also assured in the numerous students and practitioners who have been trained by David and continue to make significant advances in the industry using the "David Jenkins way". Accordingly, David was elected to the US National Academy of Engineering in 2001.

Major Contributions to IWA

David Jenkins held various leadership and scientific roles in IWA. He was Chair of the USA National Committee of IWA and a member of the IWA Governing Board from 1990-92. He was a member of the IWA Program Committee and Chair of the Specialist Group on Nutrient Removal. Among his many scholarly contributions to IWA, David along with Jiri Wanner (Prague) compiled the book "Activated Sludge – 100 Years and Counting", based on the invited papers of the conference in Essen, Germany in 2014. The scale of his contributions can be evidenced from the list of IWA honours he received. For his outstanding service to IWA, David was recognized with Samuel H. Jenkins Medal in 1992, a prestigious award named after his father, a legendary IWA pioneer. He received the Arden-Lockett Award (2001), IWA Global Award (2010), and Distinguished Fellow (2014), which symbolize the significance his contributions to IWA.

Authors: Krishna Pagilla and Paul Pitt, USA

Section 2 D

IWSA 1947 →1975

IWSA 1947-75 – an introduction

Paul Reiter

Origins and Mission of IWSA

The International Water Supply Association (IWSA) was created in two steps starting with an organizational meeting in the UK in 1947, and completed in 1949 in Amsterdam in conjunction with IWSA's first world conference. The founders were a coalition of individuals from the Netherlands (Krul and Biemond), the UK (Millis and Winters), France (Brunotte) and Belgium (Pollet). All of the founders are included in the IWA Distinguished Departed Pioneers (DDPs) TPTs presented below.

Simply put, one of the major motivations of the founders, in the context of the post-WWII period, was to "build back better" to borrow a political phrase from current times, and in doing so, to benefit from international knowledge sharing and collaboration.

IWSA was different from its close cousin, IAWPR in that by the 1950's, water supply treatment and distribution technology had largely matured over the previous 50 years. Thus, IWSA was focused on the betterment and extension of water supply, while IAWPR was more about scientifically characterizing the pollution challenge facing the world and inventing remedial actions and technology as wastewater treatment. Not surprisingly then, IWSA members came out of established water supply companies, national agencies related to water supply and consultants to the water supply enterprise. In contrast, most but not all IAWPR's members came from academia. These differences in the two associations, both in their core mission and the professional background of their members, would prove to be a major challenge when IAWQ and IWSA merged in 1999 to form IWA.

Sources of Leaders and Members

In line with the discussion above, the majority but not the totality of senior IWSA leaders came from large urban publicly owned and operated water supply authorities. For example, Cornelis Biemond, IWSA's first President was the managing director of the city of Amsterdam's water supply authority. People like Biemond, Pollet (Brussels), and later van der Veen (Amsterdam), Schalekamp (Zurich), Dirickx (Antwerp) and Tessendorf (Berlin), were all major figures in the cities that their utilities served.

The complexities of running a publicly owned company that was expected to operate flawlessly “24x7”, protect lives, conserve public expenditures by keeping rates low, manage 50–250-year-old assets, find new water resources from far away while keeping local elected officials satisfied, is a skillset that few individuals possess. Not surprisingly, these great utility leaders made for great leaders of their adopted international association, IWSA.

The notable exception to the general case of IWSA leaders and their origins described above was in Japan and France. In Japan, there is a unique three-way linkage in drinking water utility management in which the national ministries, the cities, and academic specialists are all actively involved in the utility enterprise. In the case of Japan, while IWSA leaders came from academia, true to the model outlined above, IWSA President Ishibashi (1978-80) had a strong background beyond academia in local utility service and in the Japanese Ministry of Health. Other examples of multi-faceted academic leaders in IWSA include Professors Magara and Goto, and most prominently, Professor Tambo from the late 1970’s in IWSA and then later as President of IWA after the merger (2001-2003). French IWSA leaders in turn, with exception of IWSA founder Brunotte, tended to come from one of the two large French water companies, then known as Lyonnaise des Eaux (later Suez) and Company General des Eaux (later Veolia). For example, Guy Dejouany served as IWSA President (1980-82) during his tenure as Managing Director of Company General des Eaux during 1976-96.

Organization of Member Engagement and Activities

IWSA was organized into four major committees that mimicked the major departments that one would find in almost any drinking water utility. These committees included: Distribution; Operations and Maintenance; Water Quality; Management and Finance.

Each of these “headline” committees had sub-committees, offering a more specific point of engagement to members. If one permutes the IWSA committees/sub-committee structure, there were about 20 working groups in IWSA. These groups were conceptually comparable to what emerged in IAWPRC as Specialist Groups, but in IWSA they were not similarly empowered as in IAWPRC/IAWQ in the post-1980 period.

The model of collaboration and communication within these committees and sub-committees revolved around “national reports” from member countries, specific to each of the committees, that were assembled for each biennial congress. These national

reports were presented and debated by the members at the congresses or in specialty conferences[2].

IWSA's heavy reliance on the biennial congresses and the national report framework was labour intensive for participating countries and utilities. In hindsight, this probably weakened IWSA's reach to more water supply companies and grow its membership.

This fact was particularly true with respect to members from developing countries that possessed the resources to contribute to the IWSA biennial congresses. To mitigate this reality in the developing world and building the initiative of great individual IWSA presidents/leaders (e.g., van der Veen, Dirickx, Richardson), IWSA set up regional conferences and alliances with regional associations in South Asia, East Asia, and Africa. In their time, they made a difference bringing IWSA close to a global organization. Sadly, few survived at the time of the IWSA and IAWQ merger in 1999 except for ASPAC in East Asia, which was originally established by President Ishibashi of Japan.

Technical Issues and Trends

IWSA was focused on the aforementioned four "pillars" of utility and water system organization. This persisted throughout its lifespan. In the early years of IWSA, more emphasis can be seen from the journals on network infrastructure and maintenance (pipes, storage, etc.).

In the early 1970's, owing to advances in instrumentation and detection that could determine organic compounds in the nanogram range, concerns about treatment and disinfection of water supplies began to rise closer to the top of the agenda.

This led to a boost in the research on contamination prevention and the formation of water treatment and specifically, on disinfection biproducts and alternatives techniques for disinfection (ozonation, UV-irradiation etc.) instead of relying entirely on chlorination. (See more on this in Part Two of the IWSA introduction).

[2] In contrast, IAWQ's biennial congresses relied almost entirely on individual contributions, presented as a paper or poster. Later in its life, IAWQ added Specialist Groups with their own set of conferences to the mix.

The End of the Era

The end of this era (1947-1975) marked a turning point in the leadership of IWSA. A significant element of the formal leadership of IWSA in the first 25 years of IWSA was expressed through the founders. In 1974, the IWSA President in this era was Leonard Willis 1974-76, long time Secretary General of IWSA. A second generation of leaders emerged with the Presidency of Cornelis van der Veen in 1976.

This second generations of leadership paved the way for an invigorated Association and energetic and memorable set of leaders, a number of which were designated as Distinguished Departed Pioneers.

Distinguished Departed Pioneers (Presidential TPTs)

Chronologically arranged

- Cornelis Biemond
- Rene Brunotte
- Fred Merryfield
- Leonard Millis
- L Pollet

Distinguished Departed Pioneer (Founder TPT)

- Wilhelmus Krul

Cornelis Biemond

Professional Background

Cornelis Biemond (1899-1981) was trained as a Civil Engineer at Delft University. He initially served as Chief Bridge Officer for the City of Amsterdam overseeing 1900 bridges and constructing 100 new ones before being invited to serve as the Managing Director of the Amsterdam Water Supply Authority -- a post which he occupied from 1937 through 1965.

During his three decades of service, he undertook four enormous challenges. The first was undertaking a new approach to Amsterdam's chronic water supply shortages, accomplished through augmentation of the dune aquifers with Rhine River water through an elaborate aquifer-recharge system. It took nearly 40 years to fully implement this complex system – a process completed by his successor, and subsequent IWSA President, Cornelis van der Veen.

Second, Cornelis Biemond maintained Amsterdam's water supplies without interruption through the entirety of WWII. Third, he undertook new alliances in the post-war reindustrialization of Germany, Switzerland and France to protect Rhine River water quality, leading to his founding RIWA, the Association of River Water Companies, in The Netherlands and the *International Association of Waterworks in the Rhine Basin (IAWR*).

Major Contributions to IWA

His fourth major, self-imposed challenge was to ensure that all work undertaken by the Amsterdam Water Authority benefited from the best international practice and vice-versa. He shared this ambition with leading drinking water authorities in Britain, France and Belgium. In partnership with Professor Krul at Delft University, and the aforementioned national partners, Cornelius Biemond was a leading force in the conception and formation of IWSA in 1947, and its inaugural World Congress in 1949 in Amsterdam. He was a longstanding voice within IWSA related to the protection of source water quality and pollution prevention and remembered as a great leader, gifted coalition builder and visionary thinker.

Author: Paul D Reiter **Major Contributors:** R Biemond (SE), M Gast (NL)

Rene Brunotte

Professional Background

Rene Brunotte (1897 – 1980's?)
Details of Rene Brunotte's professional history are insufficient to provide a comprehensive summary in this account. What is clear from available historical records, however, are the following elements of Rene's profession accomplishments:

An engineer who worked for the National Rural Forestry, Agriculture and Water Agency, and was committed to the betterment of the small communities and rural areas of the Alsace region of France.

An individual who directed the delicate, hyper-dangerous and civilian-manned de-mining operation in eastern France immediately following WWII, and in so doing, is regarded as national hero.

One of the four national founders (The Netherlands, Britain, France, Belgium) of IWSA in 1947, and who served as IWSA's second President from in 1952 to 1955 (see more below). A principal instigator in the initial establishment of the Interministerial Commission on the Phreatic Aquifer of the Rhine Plain in 1954 leading to the eventual creation of today's International Commission on the Protection of the Rhine (ICPR).

An individual credited with establishing and later directing (in 1960) the National School of Engineers of Rural Works and Sanitation in Strasbourg – focused on small communities and rural needs.

Major Contributions to IWA

Rene Brunotte was both a founder of the IWSA, and simultaneously organized the second IWSA Congress in Paris in 1952, was chair of the program committee for the Paris Congress, while serving as President of IWSA between 1952 and 1955.

He brought to IWSA his lifelong passion related to the betterment of all through the integrated provision of water to communities and agriculture, with a special emphasis on small communities and rural areas. He is said to have closed his address to IWSA General Assembly in 1955 with the phrase *Ad pacem per aqua --Peace through water.*

Authors: Paul D Reiter and Diane d'Arras **Contributing Sources:** War-time docs

Fred Merryfield

Professional background

Fred Merryfield (1900-1976) emigrated to the US from England in 1915, returned to England as an RAF Pilot in WWI and thereafter earned his degree in Civil Engineering from Oregon State College in 1923 and his Masters in Water Resources from University of North Carolina, in 1930.

He was an early member of OSU's faculty beginning in the 1930's and helped build the school's civil and environmental engineering program until his retirement from the university in 1965. An early advocate for comprehensive approaches to river basin management, he is also credited for diagnosing and then undertaking physical and institutional measures to restore the health of the Willamette River. His leadership and advocacy in this arena was significant in the creation of the Oregon State Department of Environmental Quality.

In parallel to these activities, and his work at the University, in 1946 he and three others founded what was to become the globally prominent consulting firm CH2MHill, where he worked until second retirement in 1970.

Major contributions to IWA

Given Fred's origins and leadership history, he was not surprisingly a prominent figure in the London-based International Water Supply Association (IWSA), where he served as President from 1972-1974 and played a part in organizing IWSA's first US World Congress in New York City (1972). His second wife Anne, a water-resources biologist, was also a prominent member of IWSA. Like a number of other important IWSA leaders (e.g., Cornelis Biemond), Fred was active in the area of source water protection for drinking water and having been a past-President of AWWA in the US, served as an important link between IWSA and AWWA in these areas.

Author: Paul D Reiter **Major Contributors**: Arlen Borgen, Bob Chapman (US)

Leonard Millis

Professional Background

Leonard William Francis Millis (1908-1986) was professionally educated in the early 1930s in London and received a BSc degree in Economics.

He was the Managing Director of the British Waterworks Association (BWA) from 1939 to 1974. During Millis's tenure, the BWA was a central authority on standards and some elements of regulation and provided linkages between waterwork members who supplied drinking water throughout Britain.

Beyond the already broad scope of BWA's role in water supply, Millis played a key role in water supply throughout the difficulties facing Britain during the WWII period. In the post-war period, he was engaged in both the creation and administration of the International Water Supply Association (IWSA) alongside his duties at BWA.

He retired in 1974 as BWA's Managing Director. He was knighted in 1977.

Major Contributions to IWA

IWSA's origins are attributable to a collaborative effort of Millis, working from the platform of the British Waterworks Association, and Professor Krul of the Netherlands, who worked at a national level in the Netherlands to expand and regionalize drinking water provision. Together, they sought to develop an international association that could promote best practices in the provision of drinking water in the aftermath of WWII and beyond, on a worldwide scale. Their early efforts were joined by France and Belgium, leading to the formal formation of IWSA in 1947 and the completion of this effort in 1949. Following the creation of IWSA, Millis served as its first Secretary General in parallel with his duties at BWA. Millis held this position until his retirement in 1974, after which he served as IWSA's 11th President for the period 1974-76.

Author: Paul D Reiter **Contributor:** Keith Hayward

L Pollet

Professional Background

Editor's note: Details of Pollet's professional history have not been after found after extensive searching. The editors are hoping for help in completing this TPT from members reading this document.

What is known is that Pollet was the Managing Director of the Brussels Water Authority during the period of his IWSA Presidency 1958-1961

Major Contributions to IWA

Pollet was a founder of IWSA, the fourth President of IWSA between 1958 and 1961, and simultaneously organized a very successful IWSA World Water Congress in 1958 in Brussels, contemporaneous to the 1958 World's Fair at the same site.

Author: Paul D Reiter

Wilhelmus Krul

Professional Background

Wilhelmus F.J.M. Krul (1893-1981) is nationally renowned in The Netherlands for his central role in establishing The Netherlands as one of the world's leading drinking water suppliers in terms of universal access, water quality and the organization of the sector at the municipal and industrial levels. This followed from his leadership as the Managing Director for the National Governmental Institute for Drinking Water Supply (RID) – a post he held from 1922 to 1947. The agenda for the RID included expansion of coverage of residential water supply from cities to smaller towns, villages, and rural areas.

At the same time, RID was responsible for aggregating the highly fragmented waste supply network in the countries into a regionally-rationalized collection of approximately 200 public drinking water supply authorities.

In 1947, Wilhelmus Krul was invited to serve as an Extraordinary Professor at Delft University, focusing on drinking water supply. Under his leadership and direction, in 1950 the Technical University Delft created a Faculty of Civil Public Health including drinking water supply, sewage water collection and treatment. Professor Krul retired from TU Delft in 1963.

Major Contributions to IWA

Concurrent to his roles at TU Delft from 1947, Professor Krul shared with Cornelis Biemond (Managing Director at the Amsterdam Water Authority) a belief in the value and importance of pursuing best practice and research in water supply at an international level. Accordingly, they partnered in promoting the formation of the International Water Supply Association (IWSA) in 1947, in collaboration with key drinking water authorities in Great Britain, France and Belgium. Professor Krul also contributed to the formation of KIWA in 1948, a globally recognized research organization that was an important research partner to IWSA, and later to IWA as KWR.

Authors: Bert Roebert (NL), Paul D Reiter **Contributors:** Theo Martijn, Maarten Gast (NL)

Section 2 E

IWSA 1976 →1999

IWSA 1976-99 – an introduction

Paul Reiter and Andy Richardson

Post 1975 -- A New Generation of Leaders

As stated at the conclusion of Part One, a second generation of leaders emerged with the Presidency of Cornelis van der Veen in 1976.[3] In his time, van der Veen paved the way for an invigorated Association and energetic and memorable set of leaders. Among these leaders are the Distinguished Departed Pioneers Ishibashi (JP), Dejouany (FR), Schalekamp (CH), Dirickx (BE), Richardson (US), Tessendorf (DE), and Giacasso (CH).

These leaders brought with them key members of their professional staff which expanded the membership ranks and capabilities of IWSA. They would play key roles in the successor organization to both IWSA and IAWQ following the merger in 1999.

Technical Issues and Trends

As stated in Part One of the IWSA introduction, IWSA was focused on four "pillars" of utility and water system organization. The work of these committees and their associated working groups formed the backbone of content and deliberations at IWSA Biennial Congresses.

In the early 1970's, owing to advances in instrumentation and detection that could determine organic compounds in the nanogram range, concerns about treatment and disinfection of water supplies began to rise closer to the top of the agenda. Specifically, disinfection biproducts and the emergence of trace chemicals and their appropriate treatment became a focus of research and the implementation of new treatment technologies – notably carbon and ozonation.

Responding to these challenges, a joint research program between USA and Europe was launched in the 1975 to 1980 period with results presented in two conferences, one in Europe (Karlsruhe, 1977) and one in USA (Washington, 1979). Dave Preston, AWWA (American Water Works Association) Executive Director, is said to have played a key role in this effort being launched.

[3] van der Veen was the successor to IWSA's first President Cornelis Biemond, as the Managing Director of the Amsterdam Water Authority

Leading researchers and professionals from this period included Helmut Sontheimer (Germany), Werner Stumm (Switzerland), Ken Ives (UK)) and Charles O'Melia, Mel Suffet and Gary Amy (USA). Of these individuals, Ives and O'Meila (both now deceased), were designated as IWA Distinguished Departed Pioneers.

A follow-up to this effort in the early 1990's, inspired by Bill Richardson then President of IWSA, and strongly supported by Jack Manion at AWWA was called the "Atlantic Workshops". It represented a concerted effort by AWWA and IWSA to forge a stronger technical partnership between the associations. The first of the Atlantic Workshops was held in Toronto Canada June 1990. The second workshop was held in San Diego California in November 1990 at AWWA's Water Quality Technical Conference.

In parallel to the growing interest in water treatment science and technology, advances in membrane technology gave rise to both the feasibility of large-scale desalination, and both potable and non-potable reuse of wastewater. It should be noted that at this point, the lines between IWSA's mission and the of its close cousin, IAWQ, were increasingly one of shared common interests.

A Reinvigorated Focus on Water in Developing Countries

One of the hallmarks of this era was a shared belief within the IWSA members that the Association should be doing much more to aid in the development of water supplies in Africa, South Asia, East Asia and Latin America. This no doubt was a reflection of the growing gap between improving circumstances of water supply and treatment in the developing counties, which made up most of IWSA members, and the deteriorating conditions in developing countries, particularly in large urban areas.

This sentiment was beginning to be seen and heard at a global level at the United Nations. In response, beginning in the later 1970's, the UN began a high visibility campaign to raise awareness and create an action plan to address the global water challenges ahead in the developing countries, where post-WWI population was exploding and urbanization ramping up.

This campaign, still in motion, included two seminal events:

- The 1977 UN Water conference held in Mar del Plata, Argentina, where a goal was established *to bring clean water and sanitation to all people in the world by 1990*.
- The follow-up UN event held In Dublin, Ireland in 1992, resulted in the declaration four principles and ten action items related to the achievement of WASH goals.

The Mara del Plato and Dublin declarations together began to frame a global set of WASH objective and urgency that had not existed before this period and began what was clearly a new and more confusing era in water.

As the leading international association of drinking water professionals, IWSA clearly felt the need to establish a view on these developments and its own action agenda.

Many of the IWSA Presidents in this era, including van der Veen, Ishibashi (East Asia in particular), Dejouany, Schalekamp, Dirickx and Richardson (Latin America in particular) were to play key roles in IWSA's collective effort to address these challenges, in a manner appropriate to the Associations capabilities.

To begin the process of IWSA's formal engagement with the UN and the new global goals, former IWSA President van der Veen led the creation of the IWSA Committee on Cooperation in Development (Cocodev) which was the vehicle used by IWSA to participate in the overall scheme for realizing the WASH goals. WHO served as the lead agency in what was called the Global Promotion and Cooperation for Water Supply and Sanitation (GWS) and from the beginning, the World Bank represented a chief partner to WHO in its responsibilities.[4] Van der Veen was a key participant in the opening 1983 meetings, led by WHO, on strategies for addressing the original UN 1990 goals. Past-President Dirickx followed up in the early 1990's with an initiative to establish a formal, World Bank supported initiative unique to IWSA potential contributions, which ultimately did not succeed.

In hindsight, the UN approach to reaching five decades of overlapping goals, beginning in 1977 through the 2015 Millennium Development Goals relied on action by multi-lateral organizations (UN agencies, World Bank, Regional Banks, etc.) and national governments. IWSA in contrast was a bottom-up association of members (local or sometime national utilities, companies and individuals) with no authority in the UN/national government context. Anything that the IWSA could do to support the 1977 global goals relied on its own very limited internal resources or external funding, with the former case prevailing. In this context, through the 1980's and 1990's IWSA was able to support the larger global goals through largely self-funded regional outreach to Africa, East Asia, Latin America in the form of regional cooperation partnerships (with no funding), the establishment of

[4] This situation reinforced WHO's long-standing partnerships with IWSA, IAWPR and ultimately to IWA. It also led to a closer, yet episodic relationship, between IWSA and the World Bank, principally supported by John Briscoe (IWA DDP), Jan Janssens and Piers Cross (IWA DDP).

regional conference series, and through the dissemination of information. Partnerships were attempted in various regions in sub-regions of Africa, South Asia, East Asia and in Latin America.

IWSA's challenge was not aided by the appearance in the 1990's of a number of new organizations which were conceived in furtherance of UN goals on water and sanitation. The most notable of these was the World Water Council and the Global Water Partnership, both in 1996, and both with major sponsor/donor funding. The advent of more voices in the development space served to complicate rather than simplify IWSA's potential role during this time.

Sadly, after 15 years of these heartfelt efforts and the hard work that many of the aforementioned Distinguished Departed Pioneers and IWSA invested in regional development and conference series, only two survived at the time of the merger in 2000: ESAR, the Eastern and Southern Africa regional group of IWSA, initiated by President Bath and based at Rand Water in South Africa; and the East Asia Group and regional conference series ASPAC, initiated by President Ishibashi from Japan. Both were still functioning at the end of this era and the time of the merger[5].

Utility Efficiency and Effectiveness – Restructuring, Consolidation and Privatization

Another significant event during this period was the UK's 1974 decision to massively consolidate its water related utilities geographically which included combining water and wastewater operations in not all but a handful of utilities. This decision was followed in 1989 by the wholesale privatization of utilities in England and Wales.

In parallel, the maturation of wastewater treatment and associated utility formation throughout the 1980's, at least in larger cities in the industrialized countries, led to much higher wastewater bills to residences and industries for dramatically improved water quality. At the same time, the long-standing bill from the drinking water authorities was creeping up, or in some cases dramatically expanding, due to system renewal and/or expanded treatment linked to rising standards of drinking water quality. The bottom line was a rapidly growing price tag to residences and industries for environmental infrastructure related to water management.

[5] Following the merger, President Tambo successfully merged ASPAC(IWSA) and Asia Waster Quality (IAWQ) into ASPIRE, which had it debut conference in 1995. ASPIRE has proven to be a venerable standing group and had its 9th Congress in Kaohsiung, Chinese Taiwan in October 2023.

In hindsight, these decadal changes in the price paid for water and wastewater treatment, appeared to have unleashed a worldwide debate in the 1990's, inspired in part by UK policies, about the virtues of "privatization" in both developed and developing countries. In the end, it sparked widespread geographic consolidation in many of the countries that made up IWSA members.

The emergent emphasis on utility efficiency and effective also spurred great interest and widespread adoption of utility-wide performance measures. Accordingly, IWSA added performance measures to its biennial program in the later 1990's. It was not after the IWSA-IAWQ merger into IWA, that the formal discussion of utility performance measures, utility restructuring, and privatization were incorporated into the programs of the biennial congresses.

The Merger

The technical trends and utility restructuring discussion above foreshadows the blurring lines between purely drinking water utilities and wastewater utilities. In fact, by the late 1990's, it was commonplace to see merged drinking and wastewater utilities in some countries.

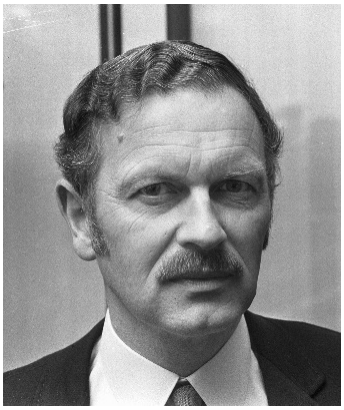
On the scientific side, a major foreshadowing event occurred in Jonkoping Sweden in April 1990 where IWSA and IAWPRC held a joint specialized conference on coagulation, flocculation, filtration, sedimentation, flotation and disinfection regarding both water and wastewater treatment. Despite the long-time existence of the Particle Separation Group, which straddled to the two associations, - the Jonkoping conference represented a milestone of change and integration. In a nutshell, the municipal and industrial water industry had matured and was now better aligned, and for some, fully aligned.

Following a nearly a 50-year run for IWSA, and a 35-year run for IAWQ, and a lengthy negotiation between IWSA and IAWQ, a formal merger in August of 1999 was achieved. The result of their merger led to the creation of an almost entirely new organization, the International Water Association (IWA) in 2000.

Distinguished Departed Pioneers (Presidential TPTs)

Chronologically arranged

- Cornelis van der Veen
- Tamon Ishibashi
- Guy Dejouany
- Maarten Schalekamp
- Jan Dirickx
- William Richardson
- Heinz Tessendorf
- Pierre Giacasso



Cornelis (Cor) van der Veen

Professional Background

Cornelis van de Veen (1922-1994) received his professional training in Civil Engineering at Delft University in the Netherlands. After working in Public Works Amsterdam, he assumed the position of Managing Director at Amsterdam Water Supply Authority in 1965, succeeding Cornelis Biemond who was one of IWSA's founding members and IWSA's first President.

As Managing Director, he was responsible for completing a multi-decade project for Amsterdam's drinking water that included extractions of water from the River Rhine, the treatment and then recharge of this surface water into a complex of coastal aquafers and lakes around Amsterdam.

Major Contributions to IWA

Cor van der Veen was a very prominent member of IWSA, which included his service as IWSA President 1976-1978 and his organizing the 1976 IWSA Biennial Congress in Amsterdam.

Within IWSA, he is remembered in three major areas. First, he was a leader within IWSA in the area of innovative water resources in the context of a large-scale urban water supply. Second, and related, he greatly enhanced efforts undertaken by Cornelius Biemond to both reduce and prevent upstream pollution on the Rhine, including the growth and sustenance of the IAWR in the Rhine Basin, for which he later served as President. Third, for his tireless efforts within IWSA to promote solutions to the challenges of water supply and sanitation in developing countries, represented in part by his chairing and major involvement in the IWSA Standing Committee for Cooperation in Developing Countries.

Cor van der Veen had a unique and very successful capacity in mobilizing public opinion for the importance of a reliable water supply in both the developed and developing countries.

Author: Paul D Reiter **Major Contributions:** Maarten Gast, Theo Martijn

Tamon Ishibashi

Professional Background

Tamon Ishibashi (1917-1990) made a major contribution at a time of rapid progress in the settlement of Japan's social infrastructure. He was a researcher of sanitary, waterworks and environmental engineering, as well as an administrator of waterworks and sewage systems for national and local governments. He graduated in Civil Engineering, University of Tokyo in 1940, and was employed by the Waterworks Bureau of Fukui City in 1946. He then moved to the Ministry of Health and Welfare in 1950, where he served as head of the Waterworks Division. In 1957, he spent six months as a researcher at WHO in the USA. He also studied water pollution administration in European countries, and after returning to Japan, he helped to develop legislation to prevent water pollution in Japan. He was appointed Professor in the Department of Urban Engineering, University of Tokyo in 1964, and retired in 1977.

After his Presidency in IWSA (1978-80, see below for more), Professor Ishibashi formed the Japanese Branch of the International Ozone Association (IOA) in 1983 and successfully organized the 7th International Congress of the IOA in Tokyo in 1985, where became President of IOA. For his decades of service to Japan in the water field, he was awarded the Order of the Sacred Treasure, 2nd class, from the Japanese Government, in 1988.

Major Contributions to IWA

Professor Ishibashi organized the 1978 IWSA World Water Congress in Kyoto, Japan, the first one in Asia, and then served as President of IWSA from 1978-80. In 1977, the year before the Kyoto WWC, Professor Ishibashi conceived and organized the first Regional Conference on Water Supply in Western Pacific, held in Bangkok, Thailand. This conference later developed into the Asian Pacific Regional Water Supply Conference series (ASPAC).

Author: Shinichiro Ohgaki, Japan

Guy Dejouany

Professional Background

Guy Dejouany (1920-2011) was a graduate of the Ecole Polytechnique and the Corps des Ponts et Chaussées. In 1950 he joined the Compagnie Generale des Eaux (CGE) and became Director in 1961, Deputy Managing Director in 1965, Managing Director in 1972 and CEO in 1976. That year, the CGE Group's turnover reached 958 million euros, and CGE was viewed as a leading pioneer in all aspects of water and wastewater services and technology.

The 1980s marked the rapid expansion and internationalization of the CGE Group. Guy Dejouany was said to have created *"one branch per day"* in expanding the CGE Group. In 1984, the CGE stepped into audio-visual becoming Vivendi, then in 1987 into mobile telephony creating SFR. Générale de Santé, also launched in 1987 became the first group of private clinics and hospitals in France. Finally, CGE expanded into construction, becoming Vinci.

When Guy Dejouany retired twenty years later in 1996, the CGE Group's turnover was approximately 25 billion euros. In 2000, CGE was split into six pieces, one of which was Veolia Environment, which carried on CGE's historical service offerings in water, wastewater, solid waste, energy and transportation.

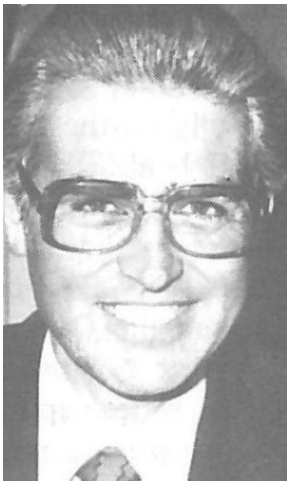
Major Contributions to IWA

CGE and its leaders in the water field under Guy, were very prominent members of IWSA during the period prior to and including CGE's expansion and remained so after his retirement and the formation of Veolia Environment and the creation of IWA.

Guy Dejouany was President of IWSA from 1980 to 1982 and concurrently organized and served as Congress President for one of IWSA's most celebrated World Water Congresses in 1980.

Guy Dejouany is remembered within IWA's history for his sustained contributions to IWSA and his great leadership in the water industry in pivotal times.

Authors: Dominque Gatel and Paul D Reiter



Maarten Schalekamp

Professional Background

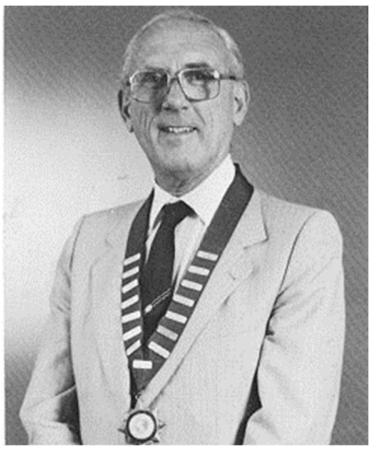
Maarten Schalekamp (1930 – 1998) was born as a Dutch citizen and studied civil engineering in The Hague and Delft in 1949-56. From 1956-68 he worked as a civil engineer in Swiss cities and in 1969, was appointed Managing Director of the Zurich Water Authority.

His first and enduring challenge was tackling the huge and long overdue expansion of the Zurich Water supply system, which included both modernizing the treatment system and adding new sources of supply. During the construction and expansion of the Lengg Lake waterworks, the biological slow filters were preserved. It has also remained a special feature of Zurich to this day and a preserved achievement from earlier years. At the same time, Zurich was a pioneer in introducing ozone treatment to its drinking water. Maarten's vision and creativity are reflected in this mix of old and new solutions.

Major Contributions to IWA

Maarten was viewed by many senior leaders in IWSA as one of the top leaders and presidents of IWSA's second generation of leaders (1976-99). He viewed collaboration with other utilities in Switzerland, Europe and at the international level as essential. Accordingly, he was heavily involved with IWSA, where he was President from 1982 to 84, and with the IAWPRC, the International Ozone Association (IOA) and the Swiss Industry Association SVGW. IWSA benefited from his hosting a number of international conferences in Zurich, the most prominent of which was the 1982 IWSA Biennial Congress, which he also organized. He is also credited with personally helping to make IWSA's 1984 Congress in Tunisia, the first in Africa, a success.

Author: Paul D Reiter **Major Contributor:** Hans Gonella



Jan Dirickx

Professional Background

Jan Dirickx (1922 – ?) was a national and international leader in water supply. He attended the Catholic University Leuven and received his Civil Engineering degree in 1946. He began his career at the Antwerp Water Works in 1949, rising through challenging positions leading to his appointment as Managing Director in 1969.

Antwerp, like Amsterdam, faced rapid post-war growth in water demands. The cities were faced with the imperative to engineer a major augmentation of surface water from distant, trans-boundary sources. This undertaking dominated Dirickx's tenure at the Antwerp Water, including conveyance, treatment, and upstream pollution mitigation of the Maas River in an international context. Consequently, Jan was heavily involved with EUREAU from its inception.

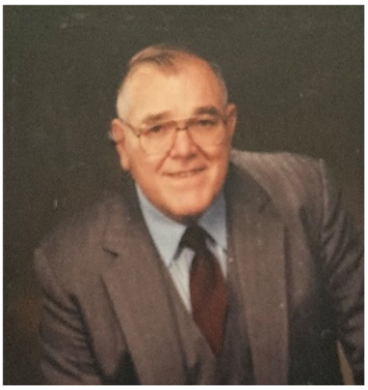
Jan was a beloved figure in the Antwerp Water Authority for which a book was developed by his admirers on his retirement (1988).

Major Contributions to IWA

For three decades Jan Dirickx was a central figure in IWSA's development. He was part of the second generation of highly active IWSA leadership, initiated by van der Veen in 1976, which included IWSA Presidents Ishibashi, Dejouany, and Schalekamp. He served as IWSA President 1986 -1988.

Dirickx was passionate about how IWSA should meet the challenges of water supply and sanitation in the emerging developing countries worldwide. He established the IWSA COCODEV (Committee for Cooperation in Development) initiative in the early 1980's. In 1986 Dirickx was central to the establishment of an historic agreement between IWSA, WHO and the World Bank to help shape and fund IWSA's contributions to the UN Water Development Goals. In 1989, he led the establishment of the IWSA Foundation for the Transfer of Knowledge and organized its first dedicated conference in 1991.
Jan is remembered within IWA for his leadership, commitment, and his spirit.

Author: Paul D Reiter **Contributor:** Jan Janssens



Bill Richardson

Professional background

William H. Richardson (1929 -1997) was the Managing Partner of Alvord, Burdick & Howson, at the time a leading international water engineering firm. He received his BS in 1952 in Civil Engineering from the University of Illinois. He made lasting contributions in four specific areas, including: Water Supply Projects for Developing Countries, Large Domestic Water Supply Projects, Expert Witness Testimony and Author and Co-Author for several technical publications, papers, textbook chapters, AWWA (American Water Works Association) Standards and guidelines for water systems design and operation.

Bill was President of AWWA, is in the Water Industry Hall of Fame and helped found Water for People.

Major contributions to IWA

Bill actively led AWWA's support and participation in the International Water Supply Association (IWSA) to help propel its growth globally. He was at the time only the second American to become President of IWSA – 1988 -1991. His enduring contributions to IWSA included strengthening IWSA's technical publications with the introduction AQUA and Water Supply for greater member participation trough technical article submissions, as well as establishing better communications between IWSA and the international water community for the betterment of the worldwide water practice. During Bill's time as President of IWSA, he helped create the first IWSA World Water Conference held in Latin America – in Rio de Janeiro, Brazil in September 1988. He also worked extensively and participated in many events to strengthen and gain IWSA membership in Latin America, Japan and the Asia-Pacific Region, India, and across Africa.

Author: Andrew W. Richardson, USA

Heinz Tessendorf

Professional Background

Heinz Tessendorf (1931-2021) was the technical managing director of Berliner Wasserbetriebe, responsible for drinking water supply and wastewater treatment in the City of Berlin. He studied Civil Engineering and got his Ph.D. in 1962 at the Technical University of Berlin. He started his professional career at Berlin Water Works in 1961. Since 1971 he was the technical managing director of Berliner Wasserbetriebe. Beside his international engagement, Heinz Tessendorf was very active in German associations. He was a board member (1972-1998) of the German Association for Wastewater (ATV) and president (1984-1987) of the German Association for Water and Gas (DVGW).

Major Contributions to IWA

Heinz Tessendorf has been very active throughout his whole career in national and international organisations, believing that the knowledge exchange will bring new insights for his work in Berlin. He was a thoughtful leader of different committees in the International Water Supply Association (IWSA). He was elected as president of IWSA at the World Congress of the association in Copenhagen in 1991 for the two-year-period until 1993. In recognition of his strong leadership and his profound support of the international corporation between national and international associations Heinz Tessendorf has been awarded with an honorary membership from the American Water Works Association (AWWA) and the International Water Supply Association (IWSA). During his time as president (1983-1985) of the European Federation of National Associations of Water Services (EurEau) he was very instrumental in improving the co-operation between IWSA and EurEau.

Author: Norbert Jardin, Germany

Pierre Giacasso

Professional Background

Pierre Giacasso (1940 – 2010) grew up in Geneva. He attended ETH Zurich with Professor Grassmann, obtaining a degree in process engineering.

After finishing ETH, he spent the next 15 years working in the chemical industry for Hoffmann-La Roche in Basel. Thereafter, he joined the Services Industriels de Genève (SIG) where he became Director of the Water Department in 1983. With his huge and practical experience, his taste for challenges, his keen intelligence, his Cartesian and structured mind, he was the ideal man to tackle the task SIG had entrusted him with - namely to implement the renovation of the canton's drinking water system. The urgency of this mission followed from the 1976 drought which led to restrictions on water consumption.

Pierre Giacasso was appointed to the Committee of the Swiss Gas and Water Industries Society (SGWIS) at the 1983 General Assembly from which he rose to its President from 1992 to 1995. His commitment went far beyond the borders of Switzerland. His linguistic and professional skills made him a valuable ambassador for the Swiss water industry in neighbouring countries and in international organizations.

Major Contributions to IWA

For many years, he was a member of the International Water Supply Association (IWSA), where he served as President from 1995 to 1997. He was deeply committed to the integration of the water supply and wastewater sectors and the transformation of the IWSA into the new International Water Association (IWA) in 1999.

Pierre will be remembered as one of both a popular and influential force in water, both in Europe and Switzerland, at a critical time in IWA's emergence.

Authors: Gerard Luyet and Paul D Reiter **Contributors**: Danish Water Forum

Distinguished Departed Pioneers (TPTs)

Alphabetically arranged

- Leonard Bays
- Heinz Bernhardt
- John Briscoe
- Francois Fiessinger
- Keiji Goto
- Charles O'Melia
- Ken Roberts

Leonard (Len) Bays

Professional Background

Leonard (Len) Bays (1930 – 2009) completed his university training undertaken in Lancashire and London with degrees in both mathematics and chemistry.

He initially worked for the Northwest Regional Water Authority as Chief Chemist and then was the Chief Chemist at Bristol Water from 1963 through 1983. Thereafter, he accepted a position as Sectary General of IWSA (see below).

Major Contributions to IWA

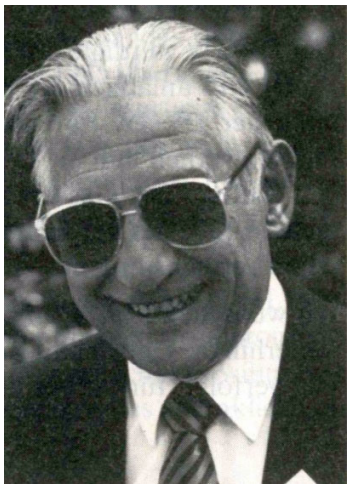
Len Bays came to IWSA in 1983 as the first full-time Secretary General of the Association. His appointment followed Leonard Millis' long standing tenure as Secretary General of both The British Waterworks Association and of IWSA.

Len augmented the renewed energy of the Association found in the second generation of leaders which began in 1976 under President van der Veen. In his new role, Len ushered in a number of important changes to IWSA throughout the Presidencies of Schalekamp, Dirickx, and Richardson. These changes included upgrading IWSA journal Aqua, modernizing the Associations standing committees related to content, adding specialty conferences and workshops and creating a better developed sense of IWSA in a regional context.

In this same time period, major changes were taking place on the global water scene, triggered by the UN declaration designating the 1980's as "the decade of water". Len Bays is credited with facilitating strong action in partnership with a series of Presidents, particularly Dirickx and Richardson, in exploring and enacting new roles for IWSA in the context of the UN goals. One element of this effort was the creation of the Foundation for Translation of Knowledge within IWSA in 1988.

Len Bays retired in 1995 and remains a highly regarded individual and Secretary General by those that were part of this important era in IWSA's development and their successors.

Author: Paul D Reiter **Contributors:** Michael Rouse, Andy Richardson



Heinz Bernhardt

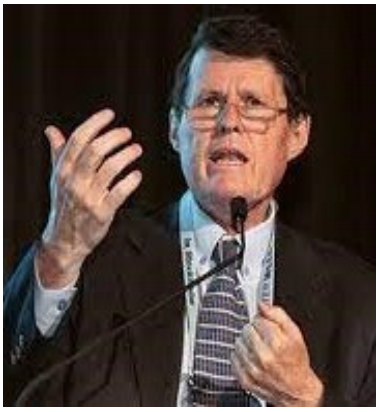
Professional Background

Heinz Bernhardt (1929-1996) studied chemistry in Marburg, where he graduated with a doctorate in 1957. Directly after his studies, he started his career at Wahnbachtalsperrenverband, where he became manager of the new treatment plant at the Wahnbach Reservoir. In 1960, he was appointed technical director, and held this position until his retirement in 1994. He was very active in several technical committees of the German Association for Water and Gas (DVGW), among others as chair of the technical committee for drinking water management for 29 years. He published very intensively in national and international journals on all aspects of drinking water management. Among numerous awards, he received an honorary professorship from Aachen University of Technology in 1973.

Major Contributions to IWA

Heinz Bernhardt was very active in several national and international organisations. He was one of the founders of the German Association of Drinking Water Reservoirs (ATT) in which he led the scientific committee for 25 years. He had a great number of friends in all parts of Europe and in many countries abroad. His involvement in the standing committee on water quality and treatment of IWSA and his activity as scientific and technical editor of Aqua were very fruitful. He steadily improved the journal to the renowned status it has today. In 1993, Heinz Bernhardt received an honorary membership of IWSA.

Author: Norbert Jardin, Germany



John Briscoe

Professional background

John Briscoe (1948-2015), a native of South Africa, earned a bachelor's degree in civil engineering at the University of Cape Town in 1969, an M.S. in environmental engineering in 1972, and a Ph.D. in environmental engineering at Harvard University in 1976. Before coming to Harvard, he worked as an engineer in the government water agencies of South Africa and Mozambique; an epidemiologist at the Cholera Research Center, now ICDDR,B in Bangladesh; a professor of water resources at the University of North Carolina; and, for 20 years, at the World Bank, focusing on water resources, irrigation, hydropower, and sanitation.

Major contributions to IWA

John's career and fields of service transcended the divide between high- and low-income countries in all aspect of water. He served as a unique and invaluable senior advisor to IWSA/IAWQ and IWA, in their continuing attempts to reach out, and through their members, make meaningful contributions to the advancement of water and sanitation in developing countries. In addition, and of great importance to IWA, John served as one of the principal liaisons between IWA, the World Bank and other key multi-lateral institutions.

John was a participant in and contributor to IWSA's and IAWQ's biennial congresses throughout the 1980-2004 period (before and after IWSA and IAWQ's merger that created IWA. For example, he delivered IWA Grand Award Keynote to IWA's 2004 World Water Congress in Morocco. John served as key member of both the IWA Council of Distinguished Water Professionals and an IWA Distinguished Fellow and was awarded the IWA President's Award in 2009, prior to receiving The Stockholm Water Prize in 2014.

Author: Paul D Reiter

Sources: Professional background adapted from John Briscoe Wiki Site

Francois Fiessinger

Professional Background

Francois Fiessinger (1944-1997) spent the majority of his career at Lyonnaise de Eaux, where he became a world expert on water treatment processes, and in combining both research and operations. He obtained a MS degree from Rutgers University, U.S. in 1966. He joined Lyonnaise in 1971 with the task of improving water treatment based on the Seine River in France.

In 1980 he was given the role of expanding Lyonnaise des Eaux's analysis and research laboratory into an international research centre named CIRSEE and became its R&D Director in 1984. CIRSEE developed into a globally recognized point of reference in integrating advanced water process systems from research to operations. Francois focused on fostering university collaboration throughout Europe, the U.S., Japan and South Africa, in part through the IWSA.

He published widely and in 1985, was awarded a PhD in Environmental Engineering at the University of Nancy, France. He was one of the pioneers on ultrafiltration membrane technology resulting in the major plants being installed in Europe and the U.S. Throughout his career he encouraged young researchers and developed the Francois Fiessenger Scholarship in support of this interest.

Major Contributions to IWA

Francois's network of both public and private sector researchers and process operators made him an ideal chairman of the IWSA Scientific and Technical Council -- from 1988 to 1993. His charismatic personality achieved wide enthusiasm and cooperation resulting in significant progress in international understanding of the need and the availability of advanced engineering processes.

He held strong views on the importance of integrated water and wastewater management, but sadly due his untimely death in 1997, did not witness the integration of IWSA and IAWPRC/IAWQ.

Author: Michael Rouse **Contributor:** Patricia Renaud, Suez CIRSEE

Keiji Goto

Professional Background

Keiji Goto (1927-2013) started his career as a waterworks engineer at the Tokyo Metropolitan Waterworks (TMW) in 1949. Steep population and economic growth in Japan followed the reconstruction of destroyed land and infrastructure after the end of WWII.

In this context, Japan had to develop new waterworks facilities to meet the ever-increasing demand for water. In this period, Dr. Goto acted not only as the key professional engineer of TMW but was also a key contributor in the development of national-level tools supporting the construction of new waterworks facilities, in particular the Waterworks Facility Development Guidelines and the Waterworks Operation and Maintenance Manual, published by the Japan Waterworks Association. Reflecting his contributions to both waterworks, science, and practice, he was invited to be a professor at Toyo University. He received his PhD from Hokkaido University under the supervision of Professor Tambo in 1982.

Dr. Goto contributed to many Japanese Government grand aids projects such as the Indonesia Group Training Project implemented from 1973 to 1975. These projects had major impact on the development of waterworks in many Asian countries. He was awarded the Order of the Second Treasure for his contribution to the Government in 2013.

Major Contributions to IWA

The 1979 Kyoto IWSA World Congress, chaired by the IWSA President Professor Ishibashi, was a great success. Building on this event, Professor Ishibashi established the first IWSA Asia-Pacific Water Regional Conference series (ASPAC). Dr. Goto followed this up by acting as the regional director of ASPAC, and in so doing, enhancing regional activities in the water sector with an emphasis on cooperation. This ASPAC regional conference series was incorporated under the leadership of Professor Tambo into today's IWA-ASPIRE regional conference.

Author: Yasumoto Magara, Japan

Charles (Charlie) O'Melia

Professional Background

Charles R. O'Melia (1934-2010) was one of the world's leading authorities on water treatment science and practice. Born in New York City, Charlie's fascination with the city's bridges and skyscrapers initially led him to study civil engineering at Manhattan College. Later he decided to focus on the emerging field of environmental engineering.

O'Melia earned his master's degree in environmental engineering in 1956 from the University of Michigan followed by his PhD 1963. Charlie carried out research as a postdoctoral fellow and lecturer at Harvard University, working with Professor Werner Stumm from 1964 to 1966 on the chemistry of coagulation and filtration in water treatment. His seminal work with Stumm at Harvard resulted in transformational and award-winning publications.

After Harvard, Charlie joined the Department of Environmental Science and Engineering at the University of North Carolina (UNC) and was promoted to full professor in 1970. In 1971 Charlie and his first doctoral student at UNC developed the first theoretical microscopic model for particle filtration -- pioneering work that has since become standard textbook material and is widely used to predict filter performance. In 1980 Charlie accepted a position at Johns Hopkins University. Under his leadership over 30 years, the department significantly expanded and rose in stature and is now consistently ranked as one of the best in the US.

Major Contributions to IWA

Chalie O'Melia was a key figure in the group of water scientists that made up the Joint IWSA IAWQ (later IWA) Particle Separation Group and was a prominent contributor to a wide range of IWSA, IAWQ and IWA Conferences. He is remembered for his pioneering contributions to the theories of coagulation, flocculation and filtration leading to improved water-treatment practices throughout the world.

Author: Paul D Reiter

Contributing Source: Menachem Elimelech's tribute, American Academy of Engineers

Ken Roberts

Professional Background

Kenneth Frederick Roberts (1923-1995) was born in Lancaster, England, and attended Manchester University where he received an honours degree in civil engineering. In 1947, he joined the Bristol Waterworks Company as a staff engineer. Inside Bristol Water Ken had a rapidly progressing and highly successful career and rose to become Deputy Chief Engineer and then General Manager in 1971.

He was a central figure in the pivotal Ogden Commission which recommended a massive consolidation in England's water authorities, put into effect in 1974. Hundreds of water and wastewater authorities were consolidated into ten river-basin-based combined drinking and wastewater authorities, with additional basin management responsibilities. Wessex Water Authority, one of the ten, emerged with Ken Roberts as the Chief Executive. Wessex was recognized as a highly effective, smoothly running organization, but also for its radical approach to the application of technology, a commercial outlook and performance measurement. Ken retired in 1988.

Ken was also a central figure in the Chartered Institute for Water and Environmental Management (CIWEM), where he played leadership roles for over 45 years, including as President in 1979-80. He was appointed CBE in 1979.

Major Contributions to IWA

Ken was a very important figure also internationally in both IWSA and in EUREAU, where he served as it first UK President (1985-1988).

Ken was a both a prominent utility member of IWSA through Wessex Water and served on IWSA's Executive Committee and as Chairman of the Finance Committee. Ken served as a crucial link between IWSA, CIWEM in the UK and EUREAU in the EU, strengthening all three organizations over several decades with long- lasting positive influences.

Author: Paul D Reiter **Major Source**: CIWEM Journal 1995

Section 2 F

THE NEW IWA 2000 →2010

The New IWA – an introduction

Paul Reiter and Gustaf Olsson

Preface

The history of the creation and development of the IWA, following the merger of IWSA and IAWQ, can be found in Part Two the history document covering IWSA, IAWQ and IWA over the period 1947-2015. It is available online at https://iwa-network.org/iwahistory/

What this introduction to the newly formed IWA Part One 2000-2010 uniquely focusses on, is the *people* who were instrumental in making it possible to move the new IWA from a wish to a reality in the first decade of its life.

Unlike the introductions to IWSA (1947-1999) and IAWPR→IAWQ (1962-1999), where most of the main characters in the history are deceased (and are accordingly now regarded as IWA "Distinguished Departed Pioneers"), most of the main characters in the history of the newly formed IWA presented below are thankfully still alive, although many would be accorded an "emeritus" status today.

A New Association in the Making

In 2000, IWA in its formation, had the advantages of many "new world" countries in their respective formation. It had a wealth of institutional structures and leaders to draw-on from its "parents", IWSA and IAWQ. At the same time however, it was free to chart its own course anew, and invent or revise new structures to suit its objectives.

However, more than 35 years of predecessor history (50 years in the case of IWSA) would seem to argue against a rethinking of some version of the predecessors' basic templates in forming the new IWA. Yet that rethinking is exactly that happened in the case of the new IWA.

How did this happen? As a major participant in the process and a first-hand observer, Paul Reiter believes *it was largely because of the extraordinary people who led the new IWA.*

In the critical early years 2001-2004, the key transitional period between the old and the new, these extraordinary people included IWA leaders/Presidents Piet Odendahl and Vincent Bath, Norihito Tambo, and Michael Rouse. Also included in this list is Tony Milburn, who realized that major change was in the making in 2000, and both played a significant role in enabling the pivotal 2001 Windsor meeting to happen and afterward, gave Paul Reiter the latitude to turn all that was learned into IWA's first four-year strategic plan.

All the specialist group (SG) chairs met in Windsor. This was a crucial event to strengthen the SG development and quality control. Later, the SG leaders have met at all the Biennial Congresses. This has markedly contributed to maintain high quality of specialist conferences as well as a sound SG management. Even the issue of eliminating inactive SGs was solved. Already in Windsor it was discussed how to enhance co-operation between SGs for conferences, which has resulted in many joint events. This thinking had been raised by Poul Harremoes and was strongly supported after the merger.

In retrospect, the 2001 Windsor meeting, involving almost all the different leaders and interests of the two predecessor organizations, proved to be the decisive step in laying the foundations for a "blended culture" of members and their historical ways of working. It also provided the foundation for IWA's first, four-year Strategic Plan for 2002-2006 as well as a 20-year IWA vision. This plan included restructuring working groups and the governance of the new IWA, in a manner different from that envisioned in the merger talks.

As the new IWA got rolling, a host of other senior leaders from both the predecessor organizations played key roles. A partial list of them and their contributions (most are Distinguished Fellows) include: Jerry Gilbert for encouraging me to move to London to help getting IWA on its feet and for financing the post-merger period; David Garman on his vision for a regionalized new IWA and for insuring a successful 2002 WWC in Melbourne; Harro Bode for crucial help in establishing the new Water Utilities Leader Forum, and navigating the 2001 Berlin WWC; Wolfgang Merkel and Helmut Kroiss for overseeing the transition of the WWC programs development; Gerard Payen for greatly helping to guide IWA's vision and in putting in place IWA's new Strategic Council. And it's obvious that there many more stories that are beyond the scope of this introduction.

From the effort, vision and knowledge of all these people, the new IWA that emerged over these crucial first few years was an organization that embraced a bold, yet pragmatic view of itself as a global voice and vehicle for water professionals. An organization that was capable of supporting the rapidly changing needs of an urbanizing planet, building on over 50 years of collaboration involving top professionals in both research and practice around the world.

To enable this ambition, IWA constructed a new, member-centric governance structure, and sought to create a portfolio of mechanisms for members to continue the scientific and technical path underway for more than 50 years. At the same time, IWA developed new mechanisms for member collaboration on addressing new highly integrated problems like climate changes adaptation, water and health, and novel sanitation systems in low-income countries.

To put all of this off required a courageous and talented set of presidents. As mentioned, they included Piet Odendahl and Vincent Bath who presided over the transition through late 2001, Norihito Tambo (2001-mid 2003), and Michael Rouse (mid 2003 -late 2004).

The External Environment

The early years of the new IWA coincidentally marked a period of extraordinary change in the external world affecting IWA. First was the accession of new countries to the EU including Poland, The Czech Republic, Hungary, Slovenia and later Romania, Bulgaria, Estonia, Latvia and Lithuania. Helmut Kroiss, Jiri Wanner, Hans Sailer, and Walter Kling were exceptionally helpful in getting IWA ready to open up these new frontiers. This was manifested at the Vienna WWC in 2008 that successfully brought in the eastern European countries, particularly the Danube region, to become committed participants of IWA activities.

Second, was the concomitant “coming of age” of the EU as a strong force in environmental policy making regulation and programmatic activities – all of which had a significant positive impact on IWA and its members. Out of this process emerged the EU Framework Directive in 2000 and the EU Technology Platform, ideal entry points for IWA and its many European members, in particular Andrea Tilche. IWA played an important formal role in the Platform’s development through Mike Farrimond, Paul Reiter, and key members of the Global Water Research Coalition.

Third, was the emergence of The People Republic of China as an eager participant in IWA. They proposed and were chosen to host the 2006 WWC in Beijing. This Congress marked the beginning of a huge expansion in Chinese member participation in IWA – an expansion that has continued over many years. IWA Presidents Tambo and Rouse, as well as Xiaochang Wang were essential individuals in helping IWA figure out how to work in this new environment.

The preparation and conduct of the 2006 Beijing WWC also helped to stimulate concomitant interest on the East Asia and Pacific Region, the regional development of which had been spearheaded in the 1970's and 1980's by IWSA President Ishibashi, and IAWPRC President Sumotomo. Under the leadership of IWA President Tambo (2001-2002), the ASPIRE regional group and conference series were implemented in 2005. In parallel to these events, a strong relationship between the Singapore PUB and IWA developed, leading to the joint development of the IWA-PUB Conference series as part of the creation of the Singapore Water Week in 2005. Shortly thereafter, in conjunction with PUB and the ASPIRE leadership, IWA's first Asian office was established in Singapore in 1997 under the direction of Ryan Yuen.

In 2001, the UN's adopted the 2015 Millenium Development goal of a 50% reduction in the number of people without access to safe drinking water compared to a baseline measure. From a water and development perspective, this action framed world-wide action towards meeting this goal and had a profound impact on the IWA relationship with external agencies in the UN family (WHO, UNDP, UNESCO) and with the World Bank. In this context, Jan Janssen, John Briscoe and Piers Cross from the World Bank (Briscoe and Cross are both IWA DDPs) were instrumental in facilitating IWA's meaningful contributions to this and other development efforts.

The later development of the biennial IWA Development Congress (WCDE) in 2009 in Mexico City, was a direct result of this initial thought process – an initiative that in execution, owes a great deal of thanks to Blanca Jimenez.

The Second Half of the Decade

In its second four-year plan strategic plan (2006-2010), IWA was on a solid foundation and greatly benefited from President Garman's leadership and experience.
At this point, IWA could look to expand its programmatic offerings, and at the same time, enhance its linkages with external partners, like the Stockholm International Water Institute (SIWI), regional banks (ADB and IADB) and other international NGOs (IUCN, ISMAE).

IWA had a solid string of very successful World Water Congresses during this time, including the Beijing WWC in 2006 (Baoxing – Congress President), the Vienna WWC in 2008 (Kling -Congress President) and the 2010 Montreal WWC in 2010 (Jones - Congress President).

In 2006, the opportunity arose to consider moving IWA's operational hub from central London to Den Haag in The Netherlands. After careful consideration by the staff and the Board of Directors, the decision was taken to accept the Netherland's offer of support and enthusiasm for a new operational hub in the Hague. This move, managed by Ed Hulshof, now an IWA DDP, proved to be financially advantageous for both IWA and the affected staff, and provided a new venue for IWA, on the European continent and closer to the where the majority of its members lived and worked.

In parallel to the aforementioned actions, the IWA Fellows Program was created within IWA at this time, with significant leadership from Helmut Kroiss, Gustaf Olsson and Glen Daigger. This creation of the Fellows Group was a very significant step in recognizing the years of dedicated service and continuing contributions of IWA's most outstanding members. In later years, the Fellows Program subsumed the Council of Distinguished Water Professionals as the IWA Distinguished Fellows Group, and yet later in 2023, the IWA Distinguished Departed Pioneers were linked into the Fellows Program.

Topically speaking, among others, the Cities of the Future and the Smart Water Utilities programs were created, consistent with the vision underlying the merger. In parallel, efforts were undertaken to link related Special Groups into topical clusters, spearheaded by the bio-cluster chair, Mark von Loosdrecht with major support from Helmut Kroiss.

At the end of the Montreal WWC in 2010, IWA celebrated its 10th Anniversary. What a decade!

Distinguished Departed Pioneer (Presidential TPT)

- Norihito Tambo

Norihito Tambo

Professional Background

Norihito Tambo (1933-2023) was a leading pioneer of water science and technology in Japan and a top global figure in water supply and sanitation. He started his career at Hokkaido University as a Lecturer (1957). He received his Doctorate of Engineering in 1965 and was appointed Full Professor in 1968.

Professor Tambo and his group at Hokkaido University made outstanding contributions on particle separation in water system design and water quality benchmarking. He contributed to over 200 publications and was formally credited for a seminal article in Water Research related to Particle Separation and Treatment Processes.

He served as President of Japan Society of Civil Engineers. He also served in educating Asian water engineers through support for JICA training programs in Indonesia (1973-1975) and Asian Institute of Technology (1979). In 1995, Norihito Tambo refocused his primary attention to university administration and became the 15th President of Hokkaido University (1995-2001) and then as the 5th President of the Open University of Japan (2001-2007).

Major Contributions to IWA

Norihito Tambo contributed scientifically to both IWSA and IAWQ from the mid-1970's through 2000 and one of the founders of the influential Particle Separation Group.

As Vice-President of IWSA in 1997, he was a key figure in the merger process of IWSA and IAWQ. He served as IWA's first President from 2001 through mid-2003. His skills, leadership and commitment as President was essential to the successful and decisive first IWA years.

As President, Norihito Tambo skilfully orchestrated the creation of ASPIRE through the merger of IWSA's and IAWQ's East Asia regional groups and conference series. Norihito Tambo will be fondly remembered as one of IWA's great leaders, a man of generous spirit alongside great achievements and a true mentor to all of those around him.

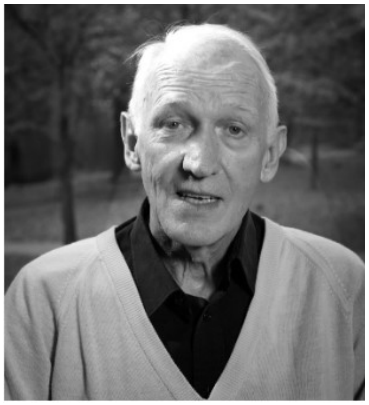
Author: Yoshimasa Watanabe

Contributors: Hallvard Odegaard, X Wang, Paul D Reiter

Distinguished Departed Pioneers (TPTs)

Alphabetically arranged

- Piers Cross
- Ed Huslhof
- Tony Milburn



Piers Cross

Professional Background

Piers Cross (1951-2017), a South African with a background in social anthropology and public health, was the founding CEO of the Mvula Trust which, in the Mandela years (1990s), helped South Africa rapidly scale up rural water and sanitation delivery. Piers went on to work for the World Bank Water and Sanitation Program (WSP) for over 20 years, where he was the Principle Regional Team Leader in both Africa and South Asia, and ultimately rising to Global Program Manager for WSP.

Over a 30 years career he has become a leading international spokesperson/strategist on water and sanitation issues which included in his last decade, advising and working with many of the world's leading water and sanitation agencies, donors and NGOs, including IWA.

Major Contributions to IWA

Following the creation of IWA in 2000, the new organization sought to expand its contributions to water and sanitation in developing countries beyond conferences and publications. In this context, Piers Cross, John Briscoe and Jan Janssens, all from the World Bank, were instrumental in advising and enabling IWA on appropriate roles in a number of regions throughout the world.

Through his leadership at WSP Africa, Piers provided essential guidance to IWA in establishing a presence and role in IWA's Southern and Eastern Africa Region (ESAR). Of significance to IWA in these early years was WSP's role in the IWA World Water Congress in Marrakech in 2004. Later, Piers' guidance and support was critical to IWA in establishing an appropriate role and set of contributions by the professional community embodied within IWA, to the complex challenges of developing high-science, low-cost regional sanitation options in throughout the world.

Author: Paul D Reiter **Contributing Source:** IRC (NL)

Ed Hulshof

Professional Background

Ed Hulshof (1948-2022) combined chemistry, economics and practice in his academic education.: Organic Chemistry, Utrecht University; Chemical Technology, Delft University; Economics, Hasselt University (Belgium) and Production Management, INSEAD. (Paris).

His professional career spanned 25+ years in the chemical industries in the Netherlands (1974-2000). He transitioned to the water field in 2001, as CEO of the WML Drinking Water Authority in Limburg (2001-2006).

Major Contributions to IWA

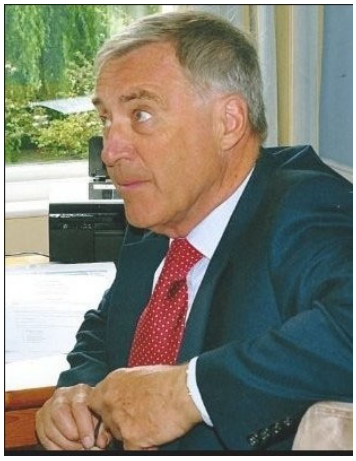
Ed played a key role in IWA's post-merger development through over a decade of volunteer service to IWA. Initially, while at WML, Ed supported the 2nd Specialist Group/Member Segment meeting in April 2005 in Maastricht -designed to build forward on the pivotal dialog arising from the 2001 Windsor meeting.

Following the decision to move IWA's operational base to the Netherlands in 2007, Ed was asked in a pro-bono capacity to manage all aspect of the Netherlands-side of the relocation. This complex move, facilitated significantly by Ed's masterful management of the many seen and unforeseen challenges arising, went according to plan, budget, and schedule. The smooth transition enabled IWA to continue to expand and flourish.

Drawing on his intimate knowledge of IWA, Ed served as the chair of IWA's Finance and Investment Committee for 12 years, becoming the longest-standing treasurer of IWA spanning four presidents In this capacity, and building on key foundational work undertaken by IWA's early treasurers, Ed was instrumental in: further developing, integrating and codifying procedures for IWA's risk and asset management; multi-office fiscal procedures; biennial budgeting and reserves management; and global HR procedures.

Although generally working behind the scenes, Ed Hulshof's contribution to today's IWA was profound and essential to the success of the post-merger IWA organization over 20 years.

Author: Paul D Reiter



Tony Milburn

Professional Background

Tony Milburn (1942 – 2023), a civil engineer by profession, initially worked on flood relief schemes and water resource projects on the Wye River Authority. He then moved to the UK National Water Council, where he led training programmes for the water and wastewater industry, both in the UK and abroad. He also worked as a water resources consultant, including for the World Bank and international governments on capacity development programs in the water supply sector.

Major Contributions to IWA

Tony came to IAWPR in 1981 as IAWPR's Executive Director.
In the 1980's, Tony was the administrative leader of a very successful visionary team over this pivotal period in IAWPR's evolution that included Dick Engelbrecht and Paul Harremoes as Presidents, building on Sam Jenkins' decades of work leading the Association's publications.

This transformation included modernizing the Association including reorganization of the entire administration and operating structure. Tony implemented a change to the Association's charitable status that put the Association's finances on a more secure footing. As part of modernization, Tony introduced *Water Quality International* to improve communications with members. Tony also managed implementation of the Specialist Groups, started under President Engelbrecht, and refined and enhanced under President Harremoes. In addition, *Water Research*, which came to be the Association's most prestigious journal, was launched in 1982.

Under his leadership as Executive Director, IAWPR evolved into IAWPRC in 1982, into IAWQ in 1992 and through the merger of IAWQ and IWSA in 1999 to the creation of IWA and IWA Publishing. Tony's final contribution was to serve as IWA's first Executive Director, retiring in 2002 to be succeeded by Paul Reiter.

Tony is fondly remembered as one of the true pioneers of IAWQ and today's IWA.

Authors: Paul D Reiter and Keith Hayward **Contributor**: David Garman

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