A luncheon to honor the G. R. E. A. T. S.

Tuesday, January 17, 2023

Grouters dedicated to Research, Education, Advancement of Technology, and Service
12:30 – 1:00 pm:  
Introduction and Lunch

1:00 – 2:40 pm  
Presentations of G.R.E.A.T.S. Awards

**Sam Bandimere**, Consultant  
Introduced by Joe Harris, Keller

**Donald Bruce**, Ph.D., D.GE, C.Eng., L.G., L.E.G., Geosystems L.P.  
Introduced by Allen Cadden, P.E., D.GE, Schnabel Engineering

**George Burke**, P.E., D.GE, Keller  
Introduced by James Drew Hussin, P.E., Keller

**Raffaella Granata**, M.Sc., TREVI S.p.A.  
Introduced by Paolo Gazzarrini, P. Eng., Sea to Sky Geotech

**Clif Kettle**, B.Sc., FGS  
Introduced posthumously by Stephane Gonichon, Eqiom

**Håkan Stille**, Ph.D., Royal Institute of Technology (KTH)  
Introduced by Ulf Hakansson, Ph.D., Skanska Sweden

2:40 – 2:45 pm  
Closing Remarks
Sam Bandimere

Sam Bandimere is a consultant and has more than 40 years of field and management experiences for geotechnical grouting and associated specialty drilling projects. In 1975, Bandimere founded a specialty grouting company that became instrumental in the development of the compaction grouting Denver System, which is still an industry standard today. In 1996, he sold his grouting company and became a specialty international field grouting consultant, dedicated to the support of other grouting companies and engineering firms in their geotechnical grouting applications. Bandimere’s establishment of the field demos for the Fundamentals of Grouting Course facilitated numerous technical papers and the advancement of the compaction grouting and permeation grouting applications. In 2016, Bandimere was chosen to be chair of the Compaction Grouting Standard Committee of the Geo-Institute of ASCE, charged with the update to the Compaction Grouting Consensus Guide. The update was completed in 2019 and is listed in the ASCE/Publications as document 53-19. Bandimere was one of the founding members of the International Concrete Repair Institute (ICRI), a former member of the ACI Grouting Committee 552, and since 1985, has been an active member of the ASCE Grouting Committee.

CONTRIBUTIONS TO THE INDUSTRY:

Sam’s innovations in low mobility grouting techniques are a principal reason why compaction grouting is a reliable ground improvement method and one of the more widely used ground improvement techniques around the world today.
Donald Bruce is president of Geosystems, a consultancy specializing in the more practical aspects of micropiles, drilling, grouting, anchoring, diaphragm walls and deep mixing. He works throughout the world, principally as a member of boards of consultants, in emergency responses and as litigation support. He has acted as principal investigator for the FHWA on state-of-the-art publications on micropiles and deep mixing, and for the Center for Energy Advancement through Technological Innovation (CEATI) on rock anchors for dams. Bruce is a chartered engineer and fellow of the Institution of Civil Engineers in the U.K., and a licensed professional geologist and engineering geologist in the U.S. He has published over 350 technical papers and coauthored 3 textbooks. He is an active member of many professional societies, including ASCE, ADSC, DFI, USSD, ASDSO, AEG and ISM. Bruce has received the Kapp, Baker and Terzaghi Awards from ASCE. He was the ISM’s 2009 Lizzi Lecturer and USSD’s 2019 Legacy Lecturer. He has been a co-organizer of International Conferences on Grouting and Deep Mixing (1992, 2003, 2017 and 2022) and for Quality in Construction (2005). He holds degrees in geology and geotechnical engineering from Aberdeen University, Scotland.

CONTRIBUTIONS TO THE INDUSTRY:

Donald’s contributions extend to every facet of the grouting industry and have been so vast that even highlighting the major ones would extend this letter by many pages.
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Donald A. Bruce, Ph.D., D.GE

CONTRIBUTIONS TO THE INDUSTRY:

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George Burke, P.E., D.GE

George Burke worked over 30 years for Hayward Baker, a Keller Company. He was the senior vice president – engineering for 20 of those years, and previously held positions as vice president of Hayward Baker Environmental, manager of Hayward Baker’s Jet Grouting Division and project engineer for Special Projects. Burke is widely recognized for his contributions toward the development, design and application of jet grouting and mechanical soil mixing in North America. He is a member of DFI and ASCE and was an active participant on the ACSE Grouting Committee when it developed the 1st Jet Grouting Guidelines, as well as on DFI’s Soil Mixing Committee. In 2009, he was confirmed as a Diplomate of the Academy of GeoProfessionals, followed by receiving the 2010 Wallace Hayward Baker Award from the Geo-Institute of ASCE for the development of jet grouting and soil mixing technologies. He also received the 2017 Distinguished Service Award from DFI for his contributions to the deep foundations industry. Burke delivered a keynote presentation at the DFI-ICOG 2012 International Conference on Grouting and Deep Mixing Conference, and in 2013, he co-authored the Jet Grouting chapter of the 3rd edition of Ground Improvement edited by Klaus Kirsch and Alan Bell. Burke received bachelor’s and master’s degrees in civil (geotechnical) engineering from Drexel University.

CONTRIBUTIONS TO THE INDUSTRY:

George’s contributions to jet grouting technology through research and development, teaching, design and implementation are the epitome of what this award represents.
Raffaella Granata has been with Trevi – Italy since 2004 as technical advisor at the Design, Research & Development Department. Before joining Trevi, she worked for Rodio and was responsible for the geotechnical laboratory, where she studied the performances and behaviors of grout mixes and developed new formulations and types of mixes. Over the past 35 years, she has been involved with construction, design and technical supervision for a number of projects around the world, including tunnels, dams and levees, and confinement of polluted areas. Granata is the co-chair of DFI’s International Grouting Committee, a member of the EFFC-DFI task groups on tremie concrete and support fluids for deep foundations and has authored and co-authored more than 50 technical papers. Granata graduated from the University of Milan, Italy, with geotechnical and hydrogeology Specializations.

CONTRIBUTIONS TO THE INDUSTRY:

Raffaella’s involvement with high profile and extremely complex grouting projects around the world have enabled her to advance grouting practices on an international scale.

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Clif Kettle had more than 45 years of grouting experience starting with Colcrete (U.K.) in 1975, and then Soletanche Bachy, where he became group lead specialist for ground treatment. Based in U.K., he focused mainly on rock grouting for dams and compensation grouting. Kettle had worked in more than 30 countries and was involved in major grouting works in soil and rocks, tunnels, anchors and micropiles. He also had significant experience with well drilling and monitoring, and instrumentation. Kettle was the 2018 recipient of the British Geotechnical Association John Mitchell Award and was an active participant in the Grouting Fundamentals Course in U.S. and grouting committees in North America. He was also co-author of the publication *Grouting for reservoir dams- A guide to good practice, 2018* for the Construction Industry Research and Information Association in the U.K.

**CONTRIBUTIONS TO THE INDUSTRY:**

*From published literature and teaching courses to construction of major grouting works, Clif’s career wonderfully satisfies the G.R.E.A.T.S.*
Håkan Stille, professor emeritus in soil and rock mechanics at the Royal Institute of Technology (KTH) in Stockholm, has worked extensively in industry and academia. He has also been involved in geotechnical engineering work throughout the world for more than 40 years. Many of the projects have involved rock tunnels and dams exposed to the adverse effects of water flow and changes in water pressure where rock grouting has been a challenge. During the last 10 years, he has also been involved in revising the Eurocode as expert in rock engineering and risk management. Stille has supervised more than 30 Ph.D. students, of whom 10 have studied rock grouting from different perspectives. To date, this work has resulted in some 50 papers in peer-reviewed international journals. He has written two international textbooks, *Rock Engineering*, together with Arild Palmstrom, and *Rock Grouting — Theories and Applications*.

**CONTRIBUTIONS TO THE INDUSTRY:**

*Håkan has made contributions to rock grouting throughout his career in academia and consulting and literally wrote the book on rock grouting.*
Grouting
G.R.E.A.T.S.
February 16, 2012
The Marriott New Orleans

A luncheon
to honor . . .

Grouters dedicated to
Research,
Education,
Advancement of
Technology, and
Service
Introductions
Michael J. Byle, D.GE, F.ASCE
Conference Co-Chair
Tetra Tech EC Inc.

Welcome
James Warner, P.E.
Consulting Engineer

Lunch Served
Caesar salad with port wine Caesar dressing
Grilled Prestige Farms semi-boneless breast of chicken with andouille pan gravy, jambalaya risotto and charred broccolini
Assortment of house-made artisan breads
Starbucks® freshly brewed Light Note® and decaffeinated coffees
Tazo® Tea selection and Ice Tea
Mocha Crème Caramel Custard with dark coffee extract and bitter sweet chocolate sauce

Introduction of G.R.E.A.T.S. and Presentation of Biographies
Allen Cadden, P.E.
Schnabel Engineering LLC

G.R.E.A.T.S. luncheon sponsored by
Friedrich-Karl Ewert was born in the seaside resort of Ahlbeck, on the Island of Usedom in the Baltic Sea, which became part of East Germany following World War II. He studied Geography at Humboldt University in East Berlin for two years prior to escaping to West Berlin on August 12, 1956 aboard a Pan American World Airlines plane. He then traveled to Duisburg, in the Ruhr Area where he lived with his grandparents and worked stacking timber logs to earn money for further studies. Continuing his studies in Science and Geology at the University of Munster, including 18 months of fieldwork in the Spanish Pyrenees, he obtained a Doctorate in Geology in 1964. He then worked as a geologist primarily in connection with hydro facilities until 1972 when he became Professor of Geotechnics at The University of Paderborn in Germany, until 1976. From 1976 to 2002, he served as a lecturer on dam foundations at the International Institute of Hydraulic and Environmental Engineering, University of Technology Institute of Hydraulic and Environmental Engineering, University of Technology, Delft, Netherlands.

While performing permeability testing and supervising grouting for a new dam in 1964 he was bothered by the arcane rules then used for grouting, as they considered neither rock type nor permeability. And so was the beginning of a lifelong yearning to better understand the permeability of rock and the development of optimal grouting procedures to treat it, both economically and effectively. Early on he determined the jointing and permeability of virtually all rock varies so greatly that it can never be adequately understood for a given site, let alone be subject to any type of standard grouting procedures. He has been a strong promoter of learning as much as practical about the rock at a given site, determining the geologically ruled specific groutability of that rock, and then designing an appropriate grouting program.

His scientific pursuits are not limited only to grouting or hydro development geology. He organized a group of more than 130 German scientists to study the issue of global warming including compiling recorded weather data from as early as 1701.
A keen interest in engineering and construction came naturally to Clive Houlsby. As a child he revelled in constructing sand castles and dams on the beaches of his native Australia, where he became keenly aware of the importance of the ratio of water to the sand, too much and the shape slumped, too little, it wouldn’t stand. But his greatest delight (and future career) were established at age 9, when he discovered “this stuff which could be mixed with sand to form all sorts of interesting shapes. And a day later the shapes were hard and were permanent! Glorious enjoyment limited only by the supply of cement from father’s small resources.” Based on his prior experience on the beach, “it came naturally to apply appropriate water:cement ratios to the cement molding.”

His life of playing with cement continued until graduating from Sydney Technical College with a Diploma in Civil Engineering in 1952. He worked briefly in a design office, but he couldn’t play with cement, so in 1953, he transferred to the Sydney Water Board as a Construction Engineer assigned to the new Warragamba Dam construction. Grouting wasn’t well established in Australia and experienced people were lacking, so young Clive was assigned to oversee the grouting work.

Warragamba Dam was to be the largest concrete gravity dam in the southern hemisphere and serve as the main source for Sydney’s water supply. It’s 351 m long, 142 m high, with a thickness of 8.5 m at the top and 104 m at the base, and was cast in massive blocks, which due to drying shrinkage, required grouting of the joints. The joint grouting intrigued Clive; unlike the foundation, movement of the grout could be followed and observed in the exposed joints. During the four year project, he did a lot of experimentation to identify leakage paths and determined that thicker grouts were better.

Clive became the country’s grouting expert and went on to oversee all grouting operations at his agency. His duties expanded to directing all site investigations, specification preparation, and head of the Dam Safety Unit.

His career included work with the City Engineer’s Department in Edinburgh on tramway abandonment; Messrs Mott, Hay and Anderson on the Forth Road Bridge; Cementation Ltd., London as a Senior Geotechnical Engineer; and the University of Aberdeen as a lecturer in Engineering and Head of the Geotechnics Research Group. He then served as Technical Director and Deputy Managing Director of the Colcrete Group of Companies. Both Cementation (now Skanska) and Colcrete (now Keller) are international contractors in geotechnical engineering with expertise and experience in the design and construction of grouting works.

His recent career was in academia, as Head of the Department of Civil Engineering at the University of Bradford, England from 1985-95, and then as Emeritus Professor of Civil Engineering. He is currently an independent consultant and expert witness, primarily in geotechnical engineering. As a professional engineer, Stuart achieved recognition from several organizations as a Fellow of the Royal Academy of Engineering, a member of Council of the Institution of Civil Engineers, Council of the Institution of Structural Engineers and a Senator of the Engineering Council.

Professor Littlejohn has contributed to the grouting industry as well as numerous civil engineering works; in particular the understanding of the mix design, strength characteristics and placement procedures for many grouting materials and methods. His projects include cut-off grouting in karstic limestone for the Barbican Tidal Defence Scheme, Plymouth Harbour plus grout remediation and strengthening of the west pier (including the historic 1620 “Pilgrim Fathers - Mayflower Steps”); work with Wally Baker on the Jubilee Line Extension in London, where permeation and compensation grouting was utilized under some of the most famous structures in the world; and grouting for cut-offs beneath dams from Scotland to Mali and Pakistan to Honduras.

Some of his recent independent consultant and expert witness efforts include engineering appraisal of rock grouting works for Bokaa Dam, Botswana and Broadwood Loch Dam, England; assessment of the durability of cement-based grouts in service at Dubai Dry Dock and Katse Lake, Lesotho; and feasibility of grouting for underground radio-active waste containment for the UK Atomic Energy Authority, Dounreay Atomic Power Station, Scotland. He also provided design and testing advice for consolidation grouting at the Ghazi-Barotha Hydropower Project, River Indus, Pakistan and developed specification and procedures for grouting 5,200 anchors to resist uplift of Burnley Tunnel under the River Yarra, Melbourne, Australia.
Giovanni Lombardi, PhD
Minusio, Switzerland

Giovanni Lombardi, born in 1926 in Sorengo, Switzerland, was educated in France and Germany until 1942 when he escaped to Switzerland moments ahead of the German occupation. He graduated in Zurich in 1948 and began work with H. Gicot, who at the time was a luminary in the field of dams and structures, allowing him to begin his career working on dams. Subsequently he completed his Doctorate in 1955 at the Zurich Polytechnic on the subject of thin arch dams. This coincided with his marriage to Christiane, and shortly thereafter, his commission to design the Contra Dam.

Following his early work on the Contra Dam and power plant, where he invented on site shear strength apparatus to measure rough rock joints, he realized that rock mechanics had become one of his “hobbies.” His early work on the St. Gotthard Tunnel lead to his first significant contribution to rock mechanic theory; integrating the concept of three dimensional stress state on the tunnel face, support effects, time and sequence of construction into the Pacher concept of characteristic lines, now known as the convergence-confinement method. When the arch dam of Zeuzier, Switzerland, showed unusual upstream deformations more than 20 years after its construction, Lombardi proved his assumptions about the cause with the development of his second major contribution to rock mechanics, a numerical model called Fissured, Elastic, Saturated rock masses. Building on this work, he tackled a widely debated and recurring problem of grouting rock masses for dam foundations. The development of the Grout Intensity Number (GIN) changed the understanding of grout mixing and injection methods to achieve penetration and durable cut-off barriers.

Giovanni’s fundamental work in rock mechanics has lead to innovative work in tunneling and dam foundation. His design work includes numerous significant tunnels such as the St. Gotthard Tunnel, Channel Tunnel, CERN particle accelerator caverns, and most recently, the tunnel to connect Europe and Africa under the Strait of Gibraltar.

His consultancy career over the past few decades has taken him around the world sharing his expertise in rock mechanics and grouting. His ability to speak five languages fluently, and others fairly well, enables him to draw close to people, populations and leaders of every type.

Dr Lombardi received two honorary titles (Lausanne, 1986 and Milan, 2004) and his activities with the International Commission on Large Dams lead to him being the incumbent and honorary president. Dr. Lombardi is the President of the Board of Directors for Lombardi Engineering, Ltd., a Swiss civil engineering company based in Minusio, Locarno district and successor to his consulting firm established in 1955.
Mitsuhiro Shibazaki
Tokyo, Japan

Dr. Mitsuhiro Shibazaki’s talents span a wide range of interests, but a common thread is his leadership in all activities pursued. As a child, he performed the lead role in the famous Japanese folklore, "Hanasaka-jiisan" The Old Man Who Made Withered Trees Flower. During his undergraduate years at the University of Tokyo, he continued performing, expanding his participation to choreographer in his freshman year. A talented musician, he is accomplished on many instruments, and has appeared in many musical events either playing an instrument or as a singer or actor.

Upon graduation from the University of Tokyo in 1958 he joined Chemical Grouting Company by way of Kajima Corporation, where he advanced to President in 1998. He has participated in all manner of underground construction including design, practical site work, development of new technology, site trials and application, but is best known for the invention of what we now know as Jet Grouting, together with colleague Dr. Yoshida.

He has authored or coauthored 110 technical publications including contributions to the proceedings of the all three prior New Orleans International Grouting Conferences. For many grouters, the first introduction to Jet Grouting, was by way of his paper in the 1982 Conference “A Unique Underpinning of Soil Solidification Utilizing Super-High Pressure Liquid Jet”. He was an invited Keynote lecturer at the last International Conference in 2003, presenting a paper “State of Practice of Jet Grouting”.

Best known for his work in jet grouting, he has led the industry with many developments including Super-jet where elements greater than 10 meters in diameter have been formed, as well as the jetting of flat curtains, and square columns. Efficiency of the system has been greatly advanced as a result of his research into nozzle configuration and trajectory. He has been active in the Japan Grouting Association for more than 40 years, ascending to President in 1998. In order to raise the level of performance, he led the Japan Grouting Association effort to develop a certification program for grouting engineers. That program is now recognized nationally. He has also been active in the Japan Society of Civil Engineers, The International Geotechnical Society, and the Japanese Geotechnical Society.

He was awarded the Medal with Yellow Ribbon from the Emperor of Japan for his contribution to the grouting industry.
“G.R.E.A.T.S.” are Grouters dedicated to Research, Education, Advancement of Technology and Service, an honor reserved for those individuals whose lifetime achievements resulted in outstanding advancement of grouting technology.

Today we honor outstanding grouters from Australia, England, Germany, Japan, and Switzerland.

The program includes a short multimedia presentation of the honorees’ life, career, and contribution to the industry.
Grouting G.R.E.A.T.S.

A luncheon to honor...

Grouters dedicated to
Research, Education, Advancement of Technology, and Service

And present the 2003 Wallace Hayward Baker Award

The Fairmont New Orleans
February 10, 2003
Program

Introductions
Michael J. Byle

Welcome
John Durrant, Executive Director
Geo-Institute of ASCE

Lunch Served

Introduction of G.R.E.A.T.S. & Presentation of Biographies
Steven D. Scherer

Presentation: Wallace Hayward Baker Award
Alan Macnab, President
Geo-Institute of ASCE

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Luncheon Menu

Crawfish Bisque

Roasted Chicken Breast and Louisiana Crab
Cake with Lobster Sauce

Tomato Citrus Rice Pilaf

Tiramisu

Espresso Anglaise
Ken Weaver’s first exposure to a grouting operation and its results came in 1958, when, as an employee of the California Department of Water Resources, he was given the opportunity to enter an exploratory adit driven through the test grouting plot at the site of Oroville Dam. Following a stint as a grouting inspector on one of the Oroville Dam diversion tunnels, he chose grouting as a career specialty and was assigned to the dual roles of resident geologist and grouting supervisor on two smaller dams on tributaries of the Feather River. Dissatisfied with having to make do with no more information about grouting than was presented in the plans and specifications for those dams, he set about reading everything related to dam foundation grouting that he could get his hands on. Subsequently, during an assignment to develop standardized procedures for geologic mapping of the foundations of dams, bridges and hydraulic structures, he took the opportunity to formalize the DWR’s procedures for dam foundation grouting. He spent three years as supervisor of around-the-clock grouting operations at Castaic Dam in Southern California, where the technical challenges included dealing with extremely weak bed rock, overcoming the effects of methane gas escaping from a tight anticline intersected by the grout curtain, consolidating a small landslide mass left in place in the foundation area, consolidating relatively loose bedrock remaining in place following a collapse of the diversion tunnel, and developing options for grouting through embankment materials placed prior to completion of grout curtain construction. During the course of this assignment Ken met and discussed these options with the prime contractor’s consultant, the late Jim Sherrard. It was at Sherrard’s urging that Ken set about writing a book titled *Dam Foundation Grouting* presenting information that he would like to have had when he was first turned loose on a dam foundation grouting job.

After 12 years with the California Department of Water Resources, Ken joined Woodward-Clyde Consultants and was headquartered initially at that firm’s Oakland office. In fairly short order, he was sent to Alaska to do geologic studies for construction of the Alaska Pipeline and to Italy to investigate a landslide at the site of a proposed nuclear facility. These two projects required him to adopt seismicity and faulting as a second specialty. That new specialty led to his being sent to Managua, Nicaragua to supervise geologic studies for the development of a seismic safety zoning plan for reconstruction of the city. The night school classes in which he enrolled to “dust off” his high school Spanish while there enabled him to meet the qualifications of a Venezuelan engineering firm that was seeking an advisor on engineering geology and grouting. Woodward Clyde “rented” him to that firm, which “sub-let” him to the Venezuelan government’s dam construction agency. Ken’s main job for more than a year was to advise the Project Grouting Engineer during extensive test grouting operations at the sites of two high embankment dams.

During 24 years with Woodward Clyde, Ken served on two consulting boards; served as a consultant, supervisor or reviewer on grouting operations for numerous dams; and designed grouting programs for dams and structure foundations. Ken continued to consult on dam foundation grouting for a few years following his retirement from Woodward Clyde, but is no longer active as a consultant.

Ken is the author of 15 papers and articles on grouting, is a past Chairman of the ACI Committee 552 on Geotechnical Cement Grouting (to which he was introduced by Ed Graf), and is a long-time member of the ASCE Geoinstitute Grouting Committee. He is a former lecturer at the University of Florida’s annual short courses on Fundamentals of Grouting and Embankment Dam Design. His book, *Dam Foundation Grouting* continues to be used as a text for the course.
Jim Warner was born with construction and engineering in his blood. From early childhood through the present, he has been fascinated by all aspects, both big and small, of construction in general and grouting in particular.

Jim’s career in construction began at age 3, when he watched the new homes under construction in his neighborhood in Southern California. At age 4, he could quote lumber sizes, at age 10 he built his first house. By the time he was 14, he was winning prizes for miniature models of houses, offices and construction equipment. Some of Jim’s models were so good; they were used as special effects in the science fiction movie, “When Worlds Collide.”

In 1952 Jim started his own firm, Warner Construction Corp. in Los Angeles. According to his first brochure, they were “Specialists in Unusual and Difficult Construction.” Over time, he became more involved with ever more significant grouting projects. These challenging and unique projects lead to innovative grouting techniques. He was one of the few contractors of his period to perform practical grouting research on cement and chemical and resin grouting.

During the next 27 years, Jim directed the execution of several hundred significant projects. To his credit are numerous inventions and developments relating to engineering and construction technology. He is credited with the discovery and refinement of compaction grouting. He has authored or co-authored over 50 papers and articles, written 6 book chapters and is author of The Practical Handbook Grouting, Grouting of Soil, Rock & Structures to be published by John Wiley & Sons, in 2004 (1,000 pages).

He has served on a wide variety of technical panels, advisory groups and review boards, and regularly lectured at universities and technical meetings throughout the world. He was a member of the first U.S. Concrete Leaders Goodwill Delegation to Eastern Europe and the Soviet Union in May 1971. He served on a similar delegation visiting seven countries of South America in 1973. In 1978, he helped organize and is a principal instructor of a week-long grouting course now sponsored by the University of Florida and held annually since inception.

Jim has a passion for education and knowledge, and has spent his lifetime yearning to apply sound engineering principals to grouting and to understand the mechanisms involved, and to see grouting established as a valid engineering technology. He always regarded practical education to be of utmost importance. He continues to instruct courses he helped develop on the Repair of Concrete, at the University of Wisconsin-Madison, and the Fundamentals of Grouting, at the University of Florida.

Jim Warner remains active as a Consulting Engineer specializing in foundation and structural restoration and pressure grouting. He lives with his wife Rita in Mariposa, California near Yosemite National Park.
Ed, a native of California, had just started studying Civil Engineering at UCLA when WWII began. His NROTC training was accelerated, and at age 19 he was commissioned as an Ensign in the U.S. Navy, in 1943.

Ed was assigned to the Navy’s “Splinter Fleet” as an officer on a wooden hulled subchaser. Over 400 such ships were quickly built to counter the threat of enemy submarines in the Atlantic & Pacific Theaters. The subchaser was the smallest commissioned ship in the Navy, and Ed proudly recalls “serving on a wooden ship with iron men.” While on duty in the Pacific, Ed served his country with 27 other men on the Subchaser SC 732 in New Guinea, the Philippines and Borneo. By the end of the war, Ed was commanding officer of his own ship.

Following WWII, Ed returned to civilian life, completed his degree at UCLA in 1948 and worked for Bechtel, where he supervised his first grouting job in 1952. He then worked briefly for a Gunite contractor supervising all grouting operations. In 1957, Ed decided to go out on his own and formed the “Pressure Grout Company.”

Over the next 31 years, as Owner of Pressure Grout, Ed has been involved in over 1,642 grouting projects, mostly for foundation support and underground water shutoff projects for general construction, mines, tunnels, dams, docks, industrial plants, and houses in many parts of the world. Ed was a pioneer in the development and use of several grouting techniques, including compaction grouting (for which he wrote the first paper describing and naming it), chemical grouting and controlled fracture grouting (aka Lens Grouting). He is inventor and/or co-inventor of six issued patents for pressure grouting, clay stabilization and landslide stabilization.

He has been an annual Geotechnical Engineering lecturer at the University of California, Berkeley, and Stanford University, and was a guest lecturer at several universities, including Georgia Tech, Northwestern, Purdue, University of Illinois, UCLA, San Jose State University, University of Hawaii, and at engineering seminars and engineering society meetings. Ed has taught a seminar course in Geotechnical Grouting at the Stanford University Graduate School of Engineering. His grouting consultant work has involved projects in Taiwan, Costa Rica, Indonesia, Spain and the United Arab Emirates.

During his busy career, Ed has contributed heavily to the Civil Engineering Profession and the grouting industry. In addition to serving as Chair of the ASCE Grouting Committee, Ed has written 9 papers related to grouting, has received the Martin S. Kapp Award, and is listed in Who’s Who in Engineering since 1982.

Holding numerous professional affiliations and honors, Ed continues his geotechnical grouting consulting business, working out of Honolulu, Hawaii, where he is semi-retired with his wife, Joyce.
Joseph P. Welsh, P.E.
Grouting Consultant
Snow Hill, MD

Joe Welsh has over 42 years of geotechnical engineering and construction experience with particular emphasis in managing specialized construction projects and organizations. Joe’s marketing experience began in college, where he worked as a Good Humor ice cream man and Bible salesman to earn his way through school, strengthen his sales confidence and to increase his social opportunities. All of this experience allowed Joe to pursue an extremely successful geotechnical contracting career.

Joe received his BS in Civil Engineering from Villanova University and began his career in 1955 as Foundation and Materials Engineer, Project Engineer, and Safety Engineer for the Philadelphia District Corps of Engineers. Over the course of Joe’s career, he has held important positions with a handful of companies. As Vice President of the international construction firm, Intrusion Prepakt, Inc., Joe was in charge of the East Coast operation for over 475 projects ranging from cast-in-place concrete piling to chemical grouting. Joe managed over 60 projects with Erosion and Soil Technology (EAST), of which he was Co-Founder/Officer. He went on to co-founded the SOILTECH Department of Raymond International, Inc., a multi-million dollar international construction organization, and managed over 325 construction projects including the largest chemical grout test program ever performed. In 1984, Joe joined the very young Hayward Baker Inc., and was instrumental in their growth through the mid 1990’s. Joe soon became VP of HBI. As Vice President, Joe oversaw engineering and marketing operations.

From 1984 until his retirement in 1999, Joe served as Vice President of Hayward Baker Inc., part of the Keller Group of Companies, and came to be affectionately referred to by his colleagues in the industry as “The Ground Modification Guru.” His responsibilities included engineering, marketing, estimating, research, contracts, troubleshooting and general oversight of operations. As a true salesman and marketer, Joe’s major contribution to both HB and the grouting industry in general was to improve the image and perception of the grouting industry. Over a 15-year period, Joe nearly single handedly worked to promote our industry as professionals involved in ground modification.

Of the more than 1,600 projects managed by Joe throughout the United States and overseas, the majority have involved Ground Modification and concrete construction. Many of these projects have required the development of new solutions, which Joe has used his talent and experience to foster.

He has pioneered developments in many Ground Modification technologies, including grouting and dynamic deep compaction. Joe is recognized as an authority on Ground Improvement techniques, and has given unselfishly to his company, his industry and to his profession. Over his career, he authored or co-authored nearly 60 papers or articles, was editor of 3 major technical publications including Soil Improvement – A 10-year Update. Joe was always active in ASCE, serving on numerous technical and professional committees. Joe reached the pinnacle of his ASCE career when he was appointed chairman of the ASCE Geotechnical Journal. He was the first member of the construction industry to serve in this capacity. Joe is well known throughout the industry and has made hundreds of presentations about Grouting and Ground Modification to consultants, contractors, government agencies and students. He has made many presentations to engineering and construction firms, technical societies, and universities.

Since retiring from his role at Hayward Baker, Joe’s counsel continues to be sought by many in the industry, and especially his eight grandchildren and his wife, Dee, whom he enjoys spending time with at his waterfront home in Maryland.
Reuben H. Karol, P.E.
Professor Emeritus
Monroe Township, NJ

In 1943, Reuben Karol enlisted in the U.S. Army Signal Corps and served in Okinawa from 1945 to 1946 during WWII and later in Korea. As a 1st Lt. and company commander in the Signal Corps, he remained in the inactive reserves through 1954. Following the war, Reub returned to civilian life and enrolled at Rutgers University where he received his BS and MS in civil engineering in 1947 and 1949. In 1957 he was introduced to grouting while working for American Cyanamid Company. His focus was laboratory and field research, and field demonstration of procedures that would take maximum advantage of the unique properties of the new acrylamide grout.

From 1947 to 1956 he taught at Rutgers and Newark College of Engineering and consulted with Standard Oil Company on special foundation problems related to refinery structures. From 1956 to 1967, while working for American Cyanamid Co., Professor Karol was Director of the Engineering Chemicals Research Center. This role placed him at the cutting edge of chemical grouting technology. One of his most significant contributions to the grouting industry during this period was his research with very short gel times. He pioneered the use of very short gel times for field work, and the development of a rational explanation of the mechanism, which led to the use of short gel times with other chemical grouts. Other contributions include his research into creep phenomena, which led to the introduction of the “creep endurance limit” for design purposes.

In 1967, Professor Karol returned to Rutgers University to resume his career in education, administration and research. Since 1984 through the present, he is Professor Emeritus at Rutgers and teaches one graduate course each fall in soil stabilization.

Professor Karol has consulted for many years. In 1983 he published his book *Chemical Grouting*, which remains the only publication with comprehensive coverage of all the commercial chemical grouts. The third edition of his book will be published next spring, and include details of many of the other accepted stabilization methods. Professor Karol has authored 4 college textbooks and over 30 papers and articles, and as an inventor, held 5 U.S. patents and 1 British patent.

Aside from his extensive efforts in the field of grouting, Professor Karol has been sculpting since the late sixties, experimenting with passing random planes through solids. Applying this procedure exclusively to the female human figure, he originated a style he calls "contour sculpture." Hundreds of 'fragments' are carefully laminated to form one complete figure. The fragments can be made of any material that can be laminated.

In 1982, Professor Karol blended the world of civil engineering with that of his art. Using fragments composed of a special polymer concrete developed by a class of 14 Rutgers University civil engineering students under his guidance, Professor Karol constructed a contour sculpture outside the new civil engineering laboratory. Over 600 of his pieces, which range in size from 6” to 8’, have been sold throughout the U.S. including Hawaii. His sculptures are permanently shown in art galleries in Sedona, AZ, Palm Beach, FL and Northbrook, IL.

Reuben Karol has served on numerous consulting boards, has been active in many professional societies, including being a member and chairman of the ASCE Grouting Committee. He is a PE in New Jersey, and is listed in Who’s Who International (1969) in the East (1981) in America (1985) and in the world (1991). Professor Karol was also successful in business. In the early fifties, he and a partner founded Karol-Warner, Inc. to manufacture soil testing equipment and later chemical grout pumps. The company was internationally known for its patented “Conbel,” a hydraulic consolidation apparatus. The company was sold in 1985 after his first retirement from Rutgers and is still in existence. Now in semi-retirement, he spends time consulting, teaching, sculpting and with his wife, Joan, at their homes in New Jersey and Florida. Together they have 5 children, 3 grandchildren and one great grandchild.
Raymond J. Krizek, Ph.D., P.E.
Professor of Civil Engineering
Glenview, IL

Dr. Raymond J. Krizek has received the Wallace Hayward Baker Award from the Geo-Institute in recognition of his contributions in the areas of impounded waste slurries and ground modification. Over much of the past four decades Dr. Krizek has enhanced our understanding of disposal methodologies for various slurried wastes, such as dredged materials, flue gas desulfurization sludge, bauxite tailings, and phosphate slimes. In all of these cases the challenge is to place a high water content soil-like waste material in a containment area such that the resulting landfill can be used productively in as short a time as possible. The scope of his contributions includes the development of mathematical models to simulate engineering behavior, the conduct of laboratory tests to determine the input parameters for the mathematical models, and the undertaking of full-scale field studies to evaluate the validity of the models. His work in grouting during the past two decades has improved our knowledge and appreciation of the injection process for both solution and suspension grouts and the resulting properties of the grouted soils. Emphasis has always been placed on investigating the fundamental mechanisms responsible for a given phenomenological behavior.

Dr. Krizek is the Stanley F. Pepper Professor of Civil and Environmental Engineering at Northwestern University and Director of the Master of Project Management program, which is a professional master's degree program that he established to impart management skills to engineers with a few years of technical experience. He is a member of the U.S. National Academy of Engineering and the Spanish Academy of Engineering. An Honorary Member of ASCE and past-president of the Geo-Institute, his major recognitions include the Terzaghi Award and the Huber Research Prize (ASCE), the Hogentogler Award (ASTM), the Palmes Academique (French Ministry of Education), and Illinois Section (ASCE) Engineer of the Year. He has published more than 300 technical papers and has testified before a Congressional committee. A resident of Glenview, Illinois, with his wife, Claudia, he has two sons, Robert, a computer specialist and sports official, and Kevin, an assistant professor in urban planning at the University of Minnesota and Iron-Man triathlete.

WALLACE HAYWARD BAKER AWARD

The Wallace Hayward Baker Award was established in the year 2000 by the Geo-Institute in recognition of the creative and innovative contributions of Wallace Hayward Baker in the field of ground modification.

The award is given in recognition of ingenious innovation in the field of ground modification. Emphasis is placed on the resourceful development of a new technology or the creative application of existing technology to achieve field performance not previously demonstrated.

The recipient of the award is recommended by the Awards Committee and approved by the Geo-Institute Board of Governors.