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J. Que Hales, Editor

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Journal of the Swimming Pool and Spa Industry

The Journal of the Swimming Pool and Spa Industry (JSPSI) publishes papers on all aspects of the swimming pool and spa industry. Research, informative papers, bibliographies, book reviews, and symposia-in-print are presented for the general education of all technically minded individuals in the industry.

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Welcome!

Welcome to the inaugural issue of the *Journal of the Swimming Pool and Spa Industry* – a publication we believe our industry is ready for. Many excellent publications are currently available in the pool industry, each designed for a different purpose and a different readership; from general to service to retail. As of yet, however, we are not aware of one seeking out and publishing purely technical material covering interests of the entire swimming pool and spa industry. This is the function of our journal – to publish that kind of material that is too technical for publishing in a trade magazine. Some existing technical journals publish, from time to time, articles which relate to our industry (such as the *Journal of the American Water Works Association*, *Ozone News*, *Vom Wasser*, or the *Journal of Applied Microbiology*) but they don't delve deep enough, much less exclusively, into the swimming pool and spa industry. There is a wealth of material available in the technical realm, from conventional water chemistry to plaster technology, from alternative sanitizers to alternative surfaces, from plastic performance to motor curves. Some of this material describes new research, some explains conventional wisdom in a technical manner not readily available or understood in the industry today. It is the intent of the *JSPSI* to assemble, edit, and publish this type of material, providing an open forum for education, discussion and debate.

The journal format is time-honored in the world of academia. *JSPSI* will not attempt to reinvent the format, but will be structured much the same as other existing journals. The following is a list of what we expect to include in issues:

Research Papers: A wealth of research is currently being conducted in the industry, and the primary purpose of this journal will be to provide a forum for the publishing of research findings. Published material is expected to detail completed projects, although some papers describing works in progress may be accepted. Papers will include documentation as needed, including chemical formulas, mathematical support, tables, illustrations, and references. This issue's articles on cyanuric acid chemistry, alkalinity dosages, and nanofiltration are examples of this type of paper.

Informative papers: Some areas of knowledge are well researched and understood in certain circles, but not in the general pool industry. For example, cement curing, metal ion and ozone activity in water, heater efficiency and emissions, motor performance curves, etc. are all well understood in selected circles, but not to the industry as a whole. Informative papers will be printed which explain, at a technical level,

these types of ideas for the education of those in the industry who are technically minded, but not yet exposed to that particular segment of knowledge. This issue's article on ozone is an example of an informative paper.

Annotated Bibliographies: When appropriate, annotated bibliographies will be printed. The purpose of this type of bibliography is to collect in one location as complete a listing as possible of documentation on a particular subject. Such listings may be useful in furthering research in a given area. Unlike a simple bibliography, which merely lists all of the publications containing the data, annotated bibliographies include paragraph-long descriptive or evaluative summaries after each citation, so that the reader knows what he may expect to find without having to locate and read each separate work. For example, annotations relating to the Saturation Index might look like this:

Cardall, John T. and Jonathan S. Powell Jr. "The Fallibility of the Langelier Index." *Pool News* (4 Aug. 1974): 40–43. [Cardall and Powell discuss the inappropriateness of applying the Langelier Index to swimming pools, and describe experiments which they conducted, refuting the validity of the index in the pool environment. They discuss some of the factors in the pool environment which interfere with the index.]

Hamilton, Jock qtd. in Paul Konrad. "Whose Numbers Tell the Story?" *Pool & Spa News* (10 Apr. 1989): 22–26. [Hamilton is quoted in this story as refuting the Langelier Index's appropriateness in swimming pools, and offering an alternate index (the Hamilton Index) which he claims sufficiently addresses the pool environment.]

Langelier, Wilfred F. "The Analytical Control of Anti-corrosion Water Treatment." *Journal of the American Water Works Association (AWWA)* 28 #10 (1936):1500–1521. [This is the original paper published on the saturation concept, which has since become known as the Langelier Saturation Index. Langelier is cited as an associate professor of sanitary engineering at UC Berkeley. The article contains formulas, tables, photographs, and references, as well as a history of study on saturation. The index is applied to municipal water piping systems. No mention is made to possible swimming pool applications of the concept.]

Thomas, Jerome qtd. in Paul Konrad. "Whose Numbers Tell the Story?" *Pool & Spa News* (10 Apr. 1989):

22–26. [Dr. Thomas, successor to Dr. Langelier at UC Berkeley, is quoted in this article. He maintains that the Langelier Index “has no significance to open bodies of water – including swimming pools and spas.”]

Book Reviews: Books relating to technical aspects of the swimming pool industry may be reviewed. Reviewers will be qualified, independent persons, who will evaluate books based on such factors as content, accuracy, and readability. This issue contains a book review as an example of this type of article, and we hope to review other books as they become available.

Letters to the Editor: Appropriate letters to the editor may be printed. Letters will be responses or rebuttals to material in previous issues of the journal, and must be technical in nature.

Short Technical Notes: Notes of a technical nature, but of short length may be included in this category. An example of a short technical note is the terminology note in this issue. Technical notes are typically accepted and sent to publication much quicker than a paper, due to their brevity, and can therefore be useful under certain circumstances.

Abstracts: Each submission in the journal is preceded by an abstract (the summary/introductory paragraph in italics at the start of each paper). As articles pertaining to the swimming pool/spa industry appear in other journals, the abstract may be reprinted in this journal, to alert our readers to the appearance of the article.

Special Reports: These are reports which review research results of topical importance in a particular facet of the industry, and are usually commissioned in advance by the Editor.

Symposia-in-Print: These are collections of original research or informative papers, each individual paper being only about three to five pages in length, all held together by a unified theme. Subjects of forthcoming Symposia-in-print will periodically be announced in the journal. A Guest Editor will be assigned to head the project, and he will in turn invite authors active in the field of the symposium to submit papers, which then go through the normal editorial review procedure. Submissions by other authors not specifically invited are considered for inclusion on equal footing with invitees.

The people behind *JSPSI*:

Editor

The Editor of the *Journal of the Swimming Pool and Spa Industry* is J. Que Hales. He is currently employed by Pool Chlor, a residential gas chlorine chemical service firm. He has been in the pool industry since 1980, working first as a residential chemical technician, and then as the owner of a small independent cleaning, repair, and retail business. He has managed the Tucson office of Pool Chlor since 1985, and also functions as the Pool Chlor corporate computer systems manager and mailing operations manager. He studied English and Secondary Education at the University of Arizona. He is the co-author of several technical papers which have been reported on in various industry magazines. He has been a member of the Board of Directors of the National Association of Gas Chlorinators (NAGC) since its inception, and is currently the Vice-president/President-elect of that organization, as well as Editor of its bimonthly newsletter. He is also a member of the Board of the Southern Arizona Chapter of the National Spa and Pool Institute (NSPI), and currently serves as the secretary of that chapter.

Editorial Advisor

The advisor to the editor on Journal management and editorial policy is Lyn Paymer of Association Services in Trabuco Canyon, California. Lyn is currently the Executive Director of a number of industry associations, including the National Plasterer's Council (NPC) and the NAGC.

Editorial Review Board

The Editorial Review Board is a group of volunteers who have agreed to read and referee submissions to the Journal. In order to maintain an objective, independent Journal, the Editor does not determine which submissions will be published and which ones will not. The Review Board, comprised of a wide selection of professionals in the publishing, technical, and service facets of the industry, performs a blind review, meaning that the Editor removes the cover sheet and other identifying text before the Board members see the submission. They then judge suitability based on sound scientific method, clarity, readability, pertinence to the industry and the Journal, etc. Each submission is reviewed by at least three individuals, two of whom must be Board members, and one of whom may be selected as needed from the

industry at large for particular expertise on a specific subject. Board members do not know which other members are reviewing a particular submission, and if a Board member chooses to abandon anonymity to contact a particular author for clarification, he/she will not compromise other reviewers (if known).

These Review Board members, along with the advisor to the editor, deserve our special thanks and appreciation. The *JSPSI* is a non-profit publication, and these individuals donate their time and efforts on our behalf. In subsequent issues they will be listed, but without full biographic information. We would like to take this initial opportunity, however, to introduce them (in alphabetical order):

C. Brent Cluff, Ph.D. did his undergraduate studies at Eastern Arizona College and the University of Arizona, received his BS and MS from the University of Arizona, and received his Ph.D. from Colorado State University. He is currently the owner/principal of Clean Water Products in Tucson, Arizona. He recently retired, after 32 years, from his position as an associate hydrologist with the University of Arizona.

Fernando del Corral, Ph.D. is a Research Microbiologist and is the Manager-Product Development, Recreational Water Research and Development Department at Buckman Laboratories, International. He studied at Southwest Baptist University (BS - Bacteriology and Chemistry), and the University of Georgia (MS and Ph.D. - Bacteriology). Dr. Corral is the author or coauthor of numerous publications, and has many patents, committee memberships, and professional association memberships to his credit.

Gerald Eckels is the principal of Kruger & Eckels, a Santa Ana, California-based manufacturer of swimming pool and spa controllers and meters. Formerly with Southern California Gas Company, he joined Kruger & Eckels in 1972. Kruger & Eckels provides custom engineered instrumentation that has been used in research, and distributes its products internationally.

Randy Golding, Ph.D. is a chemist at Tracer Research in Tucson, Arizona. Formerly a post-doctoral fellow at Lawrence Livermore Laboratories, Dr. Golding

received his undergraduate degrees (BA – Education, BS – Chemistry) from Arizona State University and his Ph.D. in Analytical Chemistry from the University of Arizona. He has consulted for a number of swimming pool chemical research projects.

Eric Herman has been the Technical Editor for *Pool & Spa News* since 1989. He was graduated from California State University at Fullerton with bachelor degrees in Journalism and English. Eric has published over 100 articles, many of the technical in nature, in various publications, including *Pool & Spa News*, *Technical Resource Magazine*, and the *Sound and Video Contractor* trade journal.

Ron Jones has been in the swimming pool industry for 13 years, and was the Senior Research Scientist with BioLabs. He holds 3 patents, and has 7 pending on various water treatment applications, and does private consulting as Chemical Specialties in the areas of swimming pool and spa chemistry as well as industrial water treatment. He received a BS in Chemistry from the University of Georgia, and has served on the Chemical Treatment and Process Subcommittee of the NSPI.

Dave Knoop is the Applications Manager of Pool Products at Olin Research Center. He works with customers and consumers on product application issues, as well as being involved in field evaluation of new products. He has authored articles in both the trade press and the public media. Dave was graduated from the University of Wisconsin, with BS degrees in chemistry and biology. He is the former chairman and a current member of the NSPI's National Education Committee, which produces and administers the NSPI Tech program.

Doug Latta is the owner/principal of Aqua Clear Pools Inc. of Chatsworth, California. He studied at California Lutheran University (BA – Business) and California Coast University (MBA). He is a licensed swimming pool contractor, as well as a general building contractor in the state of California. He is a published author, and is the founding and immediate past president of the NAGC, a member of the board of the Swimming Pool Chemical Manufacturers Association, and the current president of the Swimming Pool Trades and Contractors Association, a California-based safety, education, and support association.

Peter S.K. Lee, Ph.D. studied at Adrian College (BS – Biology), and the University of Houston (MS – Microbiology, Ph.D. – Biochemistry). He is currently the Senior Development Biologist with Zeneca Pool Products. He is the author and co-author of many technical papers, and has received specialized training in many fields including air quality and industrial water process treatment. He is particularly interested and involved in microbiological risk assessment, and the development, evaluation, and application of disinfectants and algaecides for swimming pool and spa use.

R. Neil Lowry, Ph.D. is a graduate of the University of Western Ontario in Honors Chemistry and received his Doctorate in Inorganic Chemistry from Cornell University. Being in the pool industry since 1977, Dr. Lowry has published extensively in industry trade journals and holds an annual 3-day course on pool water chemistry. He is also a member of the NSPI's Chemical Treatment and Process Committee and has given several talks at past NSPI trade shows. Dr. Lowry is a consultant to governments and numerous corporations in the areas of label registration, chemical formulations, marketing and text writing. He was contracted by Agriculture Canada to standardize all pool chemical labels falling under the Pest Control Products Act of Canada. More recently Dr. Lowry created Spa Water Standards for commercial spas under the jurisdiction of the Ontario Department of Health.

Alison Osinski, Ph.D. has received degrees from the University of Maryland (Ph.D.), Florida International University (M.S.) and Hillsdale College (B.S.) in Physical Education with a specialty in Aquatics. She is actively involved with several national and regional aquatic organizations, and currently serves as an officer or advisory board member for many organizations, including the National Swimming Pool Foundation (NSPF), the Professional Pool Operators of America, and the International Association of Aquatic Consultants. Her experience includes past employment as a lifeguard, swim instructor, swim and crew coach, pool service technician, and university professor, prior to starting her consulting firm, Aquatic Consulting Services, in 1982. She is the author of over 65 publications, and is a frequent speaker at national aquatics conferences. She runs the "Swimming Pool Hotline" and has a regular column entitled "Information Please" in *Pool & Spa News*.

Rip G. Rice, Ph.D. is president of RICE International Consulting Enterprises, a consulting firm which was established in 1972. He is a cofounder of the International Ozone Association (1973), and is Editor-in-Chief of *Ozone: Science & Engineering* and *Ozone News*, which are the journal of the IOA, and its bimonthly newsletter, respectively. Dr. Rice has authored or coauthored many papers describing the chemistry of ozone with respect to pool and whirlpool water treatment, and prepared the final draft of the Recommended Code of Practice for Public Spas using Ozone for the National Environmental Health Association (June 1989). Since January 1992, Dr. Rice has been a member of the National Spa & Pool Institute (NSPI) Chemical Treatment and Process Subcommittee of the NSPI Technical Council.

Margis Robinson is the president of Memphis, Tennessee-based Bio-Chem Associates, Inc., a consulting firm specializing in swimming pool

water chemistry-related problems, and the treatment of water and wastewater. He has been involved in the pool industry for over 22 years, and is the author of a book and also of articles in various trade journals. He was graduated from Samford University with a BS in chemistry, and has been professionally involved in many industries, including terms as technical director and project engineer of several space shuttle projects.

Kim Skinner is the co-owner of Pool Chlor, a chemical service firm with offices throughout the Southwest. He joined Pool Chlor in 1974. Kim has worked in the swimming pool industry for 25 years, and is a former manager of Skinner Swim Pool Plastering, Inc. of Sun Valley, California. He is the co-author of several technical reports on swimming pool water chemistry and plaster phenomena, which have been featured in articles in the trade press. A speaker and panelist at various trade conventions, Kim is also involved with the NSPI, the Chlorine Institute, and the NAGC.

Call for Papers



Sanitizer Chemistry Technical Symposium March 6, 7, 1996 Long Beach, CA

The Journal of the Swimming Pool and Spa Industry and the Western Pool and Spa Show are excited to announce the first (and hopefully annual) pool and spa industry technical symposium. The theme for this first, two-day technical symposium will include any aspects of sanitation, oxidation, or disinfection chemistry of swimming pools and spas. Presentations on all water treatment technologies in these areas will be considered. Original, previously unpublished research will be presented with technical manuscripts considered for publication in a special Spring/Summer issue of the *Journal of the Swimming Pool and Spa Industry* (JSPSI).

This technical symposium will be held in conjunction with the Western Pool and Spa Show, a leading trade show boasting one of the largest and most inclusive educational programs in the pool and spa industry. The Western Pool and Spa Show will be held March 7–9, 1996. The technical symposium will be held March 6–7, 1996.

Keynote address: Professor Charles Gerba (University of Arizona) will provide the keynote address for the symposium, focusing on the area of microbiological concerns in swimming pools and spas. Dr. Gerba is a leading authority on disease-causing organisms and methods for their inactivation. Dr. Gerba has over 350 scientific publications to his credit, and is actively involved with the U.S. EPA on microbial issues in water.

Papers have thus far been accepted for presentation on the subjects of chlorine and cyanuric acid (John Wojtowicz, Chemcon – chemical consulting); chlorine,

pH, and ORP (Dr. Jacques Steininger, Chemtrol, a division of Santa Barbara Control Systems and Miss Catherine Pareja, graduate student from the University of Nancy, France); ionization in conjunction with low-level sanitizers (John Rafter, Fountainhead Technologies); ozone (Dr. Rip G. Rice, RICE International Consulting Enterprises); and ozone (Dr. Wolfram Hartwig, Engineered Treatment Systems). Papers on bromine, biguanides, persulfates, and algaecides are currently being submitted or are under consideration.

There is still room for several more papers. Abstracts may be sent to the JSPSI office (phone, fax, email, and address are listed on page 1 of this Journal).

The pre-registration cost for attending the symposium is \$45.00. Preregistration forms, as well as information on accommodations at the convention hotel, are available upon request from the JSPSI office, or from the Western Pool and Spa Show (800-787-7727). Entrance to the Western Pool and Spa Show exhibit hall is free of charge. The pre-registration cost for the traditional educational seminar series, along with the new contractor's educational seminars is also \$45.00, but a discounted pre-registration rate of \$70.00 is offered for those wishing to attend both the seminars and the symposium. Pre-registration is offered through February 15, 1996. Please note that the cost for non-preregistered admittance to the symposium is \$60.00.

A request form for pre-registration and show information is included on page 48 of this Journal.