

Alumni Association



333 Ravenswood Avenue • M/S AC-108
Menlo Park, CA 94025-3493

Voicemail: 650-859-5100

Email: steering-committee-alumni@sri.com

Web page: <https://alumni.sri.com>

MESSAGE FROM ARCHIVES CHAIRMAN DON NIELSON



Don Nielson

“These are the times that try men’s souls.” Indeed! That may be considered a sexist remark these days, but after all it was directed to Revolutionary soldiers slugging it out against the British. Thomas Paine wrote those words in the first issue of *The American Crisis* in an attempt to convince those warring rebels to stay the course even though at the time,

December 1776, the obstacles seemed insurmountable. It echoes today, and it is safe to say that none of us has escaped the current crisis. We certainly hope you and yours have been spared the coronavirus pandemic’s detrimental consequences. SRI is in a lockdown except for some critical activities, project and otherwise. As a result, the printed version of this newsletter will not appear for a while.

Inside this issue you will find the COVID-19 crisis mentioned only in how SRI, thankfully, is participating in gaining a foothold against this deadly virus. Caren Rickhoff has related in some detail how SRI is using advanced technologies to shorten significantly the development time of a vaccine that can eventually rid us of this pandemic. Though you may struggle with whatever endonuclease is, you will not miss the important innovation being done and SRI’s dedication toward a solution. Three other current SRI efforts also deserve your attention.

Phil Green’s passing warrants the tribute you will find inside. Phil was the rare innovator who seemed able to create notable outcomes in whatever he did. Three are mentioned, and those in medical equipment are likely to have already benefited you. That creativity, together with teaching SRI leadership the value of patents, including patent protection against infringement, elevate Phil to being one of SRI’s most important research and commercial contributors ever.

Among the other articles, we again point to SRI’s large and successful NEXRAD program, and this time how it was honored by the Department of Commerce and by SRI. You can take a long ride on a Concorde, enjoy a bracing April shower, and join the reunion of an important set of alumni who steered the world straight on the oil economy of the 1970s and 80s. And David Gibby offers another one of his interesting, varied, and welcome overseas accounts—this time about an around-the-world yacht race, both current and recalling his personal experience more than 20 years ago!

Finally, the uncertainty we are living with means we have canceled this year’s Spring Fling to SLAC but are still looking forward to our October 8 reunion. While awaiting SRI’s overhaul of its website, and in particular our Alumni portion, our Patti Schank put her web authoring skills to work and created our own website at <https://alumni.sri.com>. There you will find copies of the newsletter and other information, including a form for joining the Association or renewing your membership. Stay well!



COVID-19 Under Attack: SRI and Iktos Combine Forces to Accelerate Development of New Antiviral Therapies



The recently announced SRI and Iktos collaboration brings together two powerful platforms in a synergistic approach to accelerate development of new therapies to treat viral infections such as influenza and COVID-19. Iktos is a French company that specializes in artificial intelligence (AI) solutions applied to chemical research, specifically medicinal chemistry and new drug design.

Under the collaboration, Iktos's AI-based deep generative modeling technology will be combined with SRI's SynFini™, a fully automated, end-to-end synthetic chemistry system, to design novel, optimized compounds and accelerate their creation. In short, Iktos's deep-learning model designs virtual novel molecules and SRI's SynFini system determines the best routes for synthesizing the molecules and makes them. As Iktos's CEO Yann Gaston-Mathé noted in an *IEEE Spectrum* article, "With their powers combined, the systems can design, make, and test new drug-like molecules in 1 to 2 weeks."

Iktos's Deep-Learning Generative Models

Deep learning is a machine-learning technique that teaches computers to do what comes naturally to people: learn by example. Deep learning is a key technology behind driverless cars, enabling them to recognize a stop sign or to distinguish a pedestrian from a lamppost. In deep learning, a computer model learns to perform classification tasks directly from images, text, or sound. Deep-learning models can achieve state-of-the-art accuracy, sometimes exceeding human-level performance. Models are trained by using a large set of labeled data and neural network architectures that contain many layers.

Generative models are new algorithms based on deep-learning technology that enables generation of new data points. After having learned a task (for example, how to create a picture or write music), the algorithm becomes capable of imagining new images or pieces of music. Based on this approach and using publicly available databases as an input, Iktos's algorithm has learned to design new molecules.

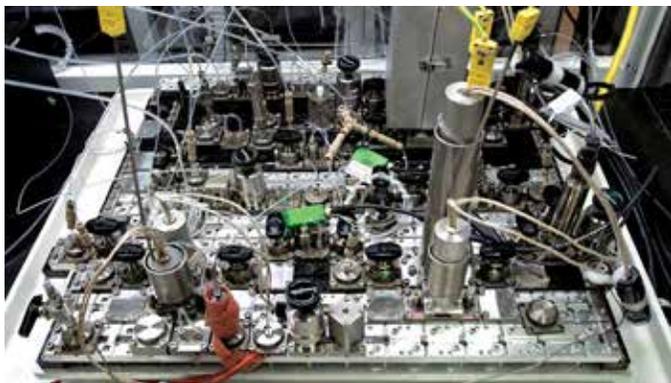
SRI's SynFini Platform

The closed-loop SynFini platform automates the design, reaction screening, and optimization (RSO), and the production of target molecules. SynFini comprises three components that work seamlessly together:

- **SynRoute™** is a computational synthesis planning tool that provides synthesis strategies for compounds of interest. Using AI/big data and machine learning, the software platform analyzes and optimizes a synthesis route in minutes and prioritizes the best strategies based on cost, likelihood of success, and ease of implementation.
- **SynJet™** is a high-throughput automated chemistry system for rapidly screening and optimizing reaction conditions. Using an inkjet printing platform and standard laboratory analytics, SynJet can perform RSO in a matter of hours for challenging two- to four-step chemistries that may take weeks to optimize by traditional manual methods.
- **AutoSyn™** is a new flow-chemistry hardware platform that reliably and reproducibly performs multistep synthesis. The system is configured like a miniaturized, bench-scale "chemical plant" with integrated analytics. AutoSyn provides access to more than 3,000 different multistep reaction configurations and can synthesize on the milligram to gram scale with the flexibility to switch between synthesis of different molecules in less than 2 hours.

The Dynamic Duo

SRI has an ongoing program focused on discovering drugs to block endonuclease enzymes that are common to many viruses. These enzymes are involved in viral replication and blocking of host resistance to infection. Sequence analysis of COVID-19 indicates that this virus has an endonuclease that is genetically about 97% similar to that of the severe



The AutoSyn module of SRI's system uses flow chemistry informed by AI to prepare molecules at the gram scale.

acute respiratory syndrome (SARS) virus. Recent studies show that blocking the SARS virus endonuclease inhibits the infection's pathogenesis, leading to a 100% survival rate in preclinical models. This finding suggests that the COVID-19 endonuclease is a good therapeutic target.

Researchers from both companies hope that the combination of Iktos AI technology and SRI's endonuclease program will result in rapid identification of promising new therapeutic options for the treatment of COVID-19.

The SynFini research was developed with funding from the U.S. Defense Advanced Research Projects Agency (DARPA).

SRI press release: <https://www.sri.com/iktos-and-sri-international-announce-collaboration-to-combine-artificial-intelligence-and-novel-automated-discovery-platform-for-accelerated-development-of-new-anti-viral-therapies/press-release/>

For more information on SRI's SynFini platform, see: <https://medium.com/dish/orchestrating-a-chemical-revolution-a3e3d2633980>

SRI & SparkLabs Foundry: A Global Partnership to Speed Innovations to Market

SRI and SparkLabs Foundry are teaming up to help government agencies and multinational public companies to dramatically accelerate and improve their innovation programs and initiatives. SparkLabs Foundry provides strategic consulting and a real-time global platform of nearly

one million startups to help the Forbes Global 2000 curate and deploy the best innovation partnerships and solutions from around the world. (The Forbes Global 2000 is an annual ranking of the top 2,000 public companies in the world compiled by *Forbes* magazine using data from FactSet Research systems to screen for the biggest public companies in four metrics: sales, profits, assets, and market value.)

“SRI has been on the forefront of global innovation for more than 70 years,” said Peter Marcotullio, VP Global Partnerships at SRI. “And yet, even with the many hundreds of government and commercial projects we work on every year, we are still challenged at times to help our customers to rapidly identify, evaluate, and develop the solutions to solve their innovation needs. By collaborating with SparkLabs Foundry, we are now able to offer solutions that enhance SRI's technology portfolio with the most appropriate startups, curated by SparkLabs Foundry, to quickly and cost-effectively deploy solutions for our global customers.”

SparkLabs Foundry co-founder and CEO Scott Sorochnik noted that SRI and SparkLabs Foundry will be able to meet with Chief Innovation Officers from around the world and “understand their innovation needs for the current year and, in ‘real time,’ help to filter and curate the most relevant startups to pilot immediately and thus dramatically reduce the time to market related to innovation.” This service has the potential to reduce resource needs and output costs by months, if not quarters.

According to a recent CB Insights survey of corporate innovation executives, 85% said “innovation” is very important to their organizations, but more than 60% of companies also said it takes a year or longer to create new products, with almost one-fourth saying it takes more than 2 years from ideation to launch. This “paralyzation of innovation” is the core problem SRI and SparkLabs Foundry are working together to solve.

SRI press release: <https://www.sri.com/sri-international-sparklabs-foundry-announce-strategic-global-partnership/press-release/>

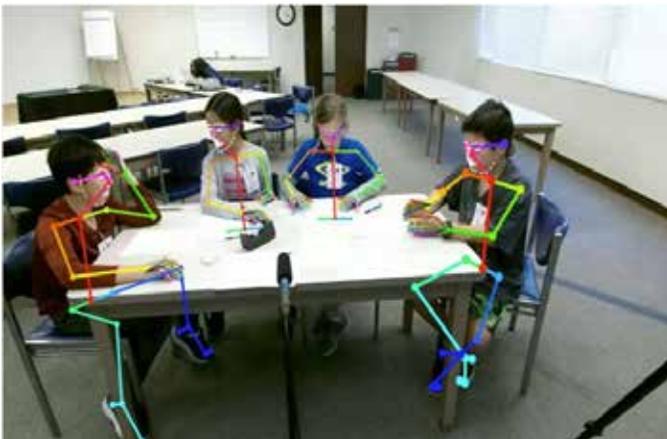
For more information, see: <https://medium.com/dish/sri-partners-with-sparklabs-foundry-for-tech-accelerator-initiative-a1e23faa3104>

Laying the Groundwork for the Science of Team Interactions

Team performance is a subject of great interest in every human endeavor and is traditionally measured by results with respect to objectives, such as creating a product on time and on budget. However, such broad measures are often too coarse and completed too long after conclusion of the critical team interactions to enable specific, actionable feedback useful to groups or individuals.

SRI has studied team behavior analysis in the workplace for more than a decade, initially focusing on understanding meetings by analyzing spoken interaction along with relevant email and slides. More recently, SRI studied the behavior of teams in action by using low-cost cameras and microphones to gather real-time behavioral data in many environments and using data-driven machine learning to abstract meaningful information from those data.

Measuring Classroom Collaboration



SRI is currently focusing on collaboration in educational environments. National science, technology, engineering, and mathematics (STEM) standards and 21st-century skills for employment guidelines include collaboration as an essential skill. However, our traditional ability to assess collaborative behavior is very limited: it is too expensive in terms of personnel training and budget; human observation can miss subtle behavioral indicators; and automated analysis in artificial contexts, such as online games, takes time away from instruction. SRI researchers are creating

tools that will enable the assessment of collaboration in real classrooms during authentic learning tasks, without interrupting learning and with minimal costs.

The SRI project is a joint effort of the Education and Information and Computing Sciences divisions, led by Nonye Alozie, Amir Tamrakar, and Svati Dhamija. Classroom cameras and microphones gather data from students working together on class assignments. Machine learning automatically analyzes these data to relate directly observable low-level behavior (for example, gaze direction, head nods, posture) to higher-level actions that are important for assessing collaboration (for example, paying attention to the person who is speaking). Exploring the meaning of interactions through natural language understanding and activity recognition can be used to determine whether participants are building on each other's ideas and are sharing tools and work products, versus arguing and withdrawing.

Developing the Science of Team Behavior

The SRI approach results in collaboration described in terms of human-intelligible component actions and states that form the basis of actionable advice to improve collaboration in the classroom. This framework also tests the empirical question of what the components of collaboration are. In other words, it simultaneously works as an experimental platform for investigation of the components of collaboration and as an automatic tool for fine-grained assessment of collaboration in the classroom.

Currently, SRI is experimenting with the data and honing the machine-learning pipeline. SRI's project group believes that the collaboration assessment methodology and findings from classroom experiments can be generalized to the workplace and other settings. Teams in every environment will have access to objective, quantified evidence of what they are doing well and what they need to improve. Combined with actual data on how a team eventually performed with respect to objectives, this approach will give researchers the ability to go beyond generic advice to create a new science of effective team behavior.

From SRI's Dish blog: <https://medium.com/dish/quantified-teams-aa85090423ea>

Refrigerator Smarts: Passio Continues Food AI Development

As noted in our August 2019 Newsletter, Passio is an SRI spin-off company that is developing a game-changing platform, FoodAI, that lets you track your nutrition and view detailed food logs with simple finger taps. Now Passio aims to make your refrigerator your own personal nutritionist.

Passio has partnered with BSH Kitchen, a unit of Robert Bosch, to bring to life its vision for a smart refrigerator that autonomously recognizes food contents. The Bosch smart refrigerator demo has two cameras, placed in the door and main interior, that capture a still frame picture each time the refrigerator door closes. Passio's technology has been integrated into the refrigerator firmware for a seamless user experience that identifies the contents inside, simultaneously recognizing all food items at once. Depending on the refrigerator contents, a companion app will generate recipes optimized around the refrigerator's on-hand inventory.

Passio's AI has been trained to recognize up to 30 distinct foods, whether unwrapped or in their native packaging. This varied list includes raw fruits, uncooked vegetables, packaged condiments, packaged dairy products, and wrapped meats and seafood.

Passio's founding thesis hinges on how computer vision and AI can combine with an entirely new food database to determine the contextual value that food imparts to an individual's dietary intake. Nutritionists will tell you that food is individually nuanced, not generalized. A first-time marathoner's diet will differ from that of a new mother, for



Bosch smart refrigerator main interior camera.

example. Passio's food recognition identifies and logs foods with more than 95% accuracy, so the user, whether chef, athlete, or doctor, can gain accurate insights to food calories, micro and macro nutrients, fat content, and the like. It also assists with compliance to special diets.

The goal of Passio's FoodAI is to bring diet tracking, sports and fitness, chronic disease mobile applications, and smart Internet-of-things (IoT) appliances into the world of machine learning, to create recipes, diets, and healthy lifestyle management.

From SRI's Dish blog: <https://medium.com/dish/sri-ventures-passio-introduces-smart-refrigerator-with-bosch-at-ces2020-fc8cc8cb70a2>

A Tribute to Phil Green and His Innovative Leadership at SRI

On the occasion of Phil Green's passing, it is certainly fitting that we review his contributions to the medical instrumentation field and to SRI.¹ As we frequent the halls of the medical community, there is not likely one among us who hasn't benefited from his innovative mind. We will review here the two systems that have made such an impact possible. One is in the field of medical ultrasound and one the invention of a completely new means for a very wide range of surgery.

Medical Ultrasonography

In a nutshell, Phil pioneered the development of peripheral vascular and endoscopic ultrasound, ultrasound transmission imaging, and ultrasonic holography. He and his team took ultrasound from a low-resolution, cumbersome technology to a refined, highly sensitive tool. This work involved integrating ultrasound imaging with tiny instruments, such as endoscopic probes, which improved sensitivity, resolution, and feature recognition.

It began at SRI in the early 1970s with Phil experimenting using ultrasound to create images of animal organs in a tank of water. This involved the creation of an ultrasonic camera with a very sensitive image detector and lens system. Not long thereafter, this system made international headlines with a pair of images showing a fetus's skeleton generated by X-rays next to a similar image generated by ultrasound. Of the two, the ultrasound image showed superior delineation of the skeletal structure. The difference can be seen in the now famous images in Figure 1.

This effort recalibrated the potential of ultrasound technology and gave Phil the proof of concept he needed. He and his talented associates went on to receive grants from the National Institutes of Health (NIH) to incorporate new refinements to the imaging.² SRI also began to license some of these innovations to manufacturers entering this field, which in turn contracted with SRI for even further development. An example of this further development occurred in 1984. That was when Phil invented "reflex transmission imaging," wherein a single transducer could provide both reflective and transmissive returns involving the same region of examination. This technique permitted,



Figure 1. The (left) ultrasound and X-ray images of an ex-vivo human fetus. The detail of the ultrasound image was unprecedented and markedly raised the awareness of what diagnostic ultrasound could do.

as an example, the better delineation and targeting of kidney stones for breakup. The ultrasound program at SRI, gathering support from both NIH and commercial companies and extended collaboration with the Mayo Clinic, lasted over 25 years, grew to 18 members, and led to 30 patents and to lucrative, long-duration licensing. It truly was pivotal in the emergence of ultrasound in clinical diagnostics.

Surgical Technology

Phil invented, patented, prototyped, and demonstrated a "remote telepresence" surgery system that is a way to manipulate a set of surgical tools at a distance as if they were directly in front of you. It now has a worldwide presence, and the associated spin-off from SRI has the dominant market position. Again, it was a product of Phil's fertile mind, realized together with some talented SRI associates. The system provides for the internal auditory, stereo visual, and tactile sensations of the surgery to be communicated directly to the remote surgeon without distortion or delay. Doing so requires the use of miniaturized cameras, stereo imaging displays, and tools such that the surgeon's moves are replicated exactly. Tiny stitches can be made with ease on internal organs and blood vessels.

This surgery system has made complex minimally invasive surgery as easy as conventional open or direct access surgery. Its commercial realization is the da Vinci[®] surgical system made by Intuitive Surgical, Inc. That company was started in 1995 based on technology licensed from SRI. This type of surgery minimizes hospital stays, speeds recovery times, and reduces hospital costs. The da Vinci system has been applied in heart valve replacement, coronary artery grafts, radical prostatectomy, and many pediatric, gynecologic,

1. See his obituary in this issue to learn the ways he also benefited SRI.

2. Over the course of ultrasound development, about 20 associates were important contributors, some of whom would leave to join the commercial purveyors of the technology.

and other procedures. As of 2019, more than 7.2 million minimally invasive da Vinci procedures had been performed worldwide. Figure 2 shows the dramatic transition to the use of the system for prostatectomy in the United States.

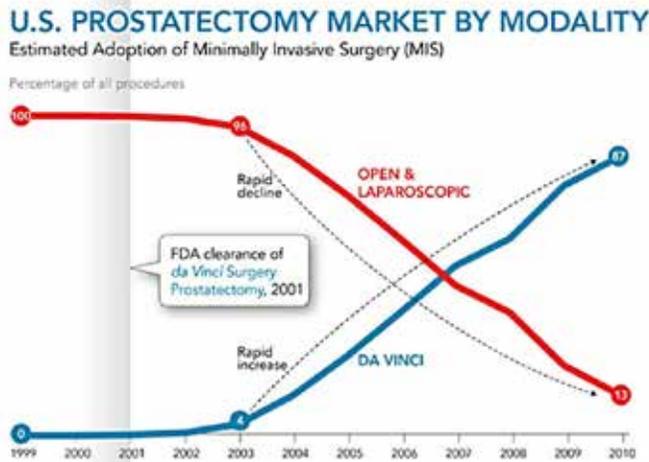


Figure 2. The trajectory of how removal of the prostate moved quickly toward the da Vinci method of minimally invasive surgery in the United States. (Source: Lonnie Smith, chairman of the board of Intuitive Surgical.)

Invention and Licensing

Phil was awarded more than 45 U.S. patents on medical diagnostic and surgical technologies. More than \$5 billion worth of products related to his patents have been sold. Moreover, his aggressive pursuit of infringers resulted in eight favorable settlements and one major lawsuit judgment, altogether netting SRI \$60 million.

Deservedly so, Phil gained recognition both at SRI and around the world. In 1988, he accepted an SRI Fellow award; in 2001, he was inducted into the SRI Alumni Hall of Fame; and then in 2003, he received SRI’s Weldon B. Gibson Achievement Award. At that time, he said, “What I was able to accomplish at SRI was due in very large measure to the nature of this institution. We could do just about anything we wanted to do.” He did note two constraints: the project couldn’t be illegal, and you had to find a client to pay for it.

His other awards include:

- European Inventor of the Year 2008 in the category “Non-European countries” from the European Patent Office.
- Distinguished Alumnus Award from Johns Hopkins University in 2009.

- Distinguished Alumnus Award from Baltimore Polytechnic Institute in 2011.
- Fellow (emeritus) of the American Institute of Ultrasound in Medicine (AIUM).

In 1998, Phil founded a new company, Miranda Technologies, in which he was active until his later years. Although Miranda developed several endosurgical ideas, the company focused on creating electronic guitars that can be broken down into violin-size cases for transport. Their custom electronics enable them to produce great acoustic sound. A picture of Phil with this creative instrument is shown in Figure 3.

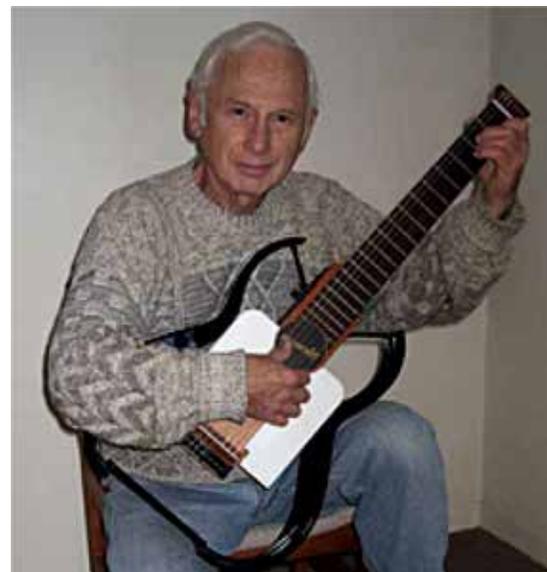


Figure 3. Phil with his Miranda electronic guitar.

Finally, if you want to see Phil describing some of his noted achievements, just search the web for his name with a keyword (such as ultrasound or Miranda). A couple of examples are:

<https://www.epo.org/learning-events/european-inventor/finalists/2008/green.html>

<https://www.youtube.com/watch?v=fyXGevh83JM>

For those of you who are curious about how Phil’s contributions fit into the history of surgery, and even a bit beyond, this very interesting TED talk is worth your time:

<https://www.youtube.com/watch?v=Q4ZFud69hfc>

Note: See the April 2012 and August 2015 newsletters for articles on Phil and the da Vinci system.

April Showers(?)

By Don Nielson

There is a fairly uniform consensus that one gets a kind of bracing effect from taking a shower. Sure, you are cleaner and that may be a lot of it, but you may also feel refreshed. Two SRI staff members, one a physicist with a specialty in atmospheric electricity and the other an engineer also tuned to the intricacies of radio, took the trouble to explore why. Their names were Ted Pierce and Art Whitson.



Ted Pierce.

He had contributed to a book for Pergamon Press called *Recent Advances in Atmospheric Electricity*.

He came with an intense interest in the subject of lightning, including its various forms and how it contributed to our atmosphere and to radio noise. He even looked at whether the increased release of radon gas before an earthquake might, through its effect on the earth's electrostatic field, provide an early warning. If you do a web search for his name (formally, E. T. Pierce), you will still find an array of citations, even though he died decades ago.



Art Whitson.

Ted, who led the effort, was an Englishman who made no pretense of leaving that fact behind in coming to the United States. He came to SRI somewhat late in his career and, though he was rather tall for an Englishman, his face was flush with the ruddy imprint of his heritage. He arrived with a distinguished reputation that got its beginnings in the halls of the famous Cavendish Laboratory at Cambridge University. By 1958,

he had contributed to a book for Pergamon Press called *Recent Advances in Atmospheric Electricity*. He came with an intense interest in the subject of lightning, including its various forms and how it contributed to our atmosphere and to radio noise. He even looked at whether the increased release of radon gas before an earthquake might, through its effect on the earth's electrostatic field, provide an early warning. If you do a web search for his name (formally, E. T. Pierce), you will still find an array of citations, even though he died decades ago. Art was a typical engineer, full of curiosity. He worked with Ted and others on the ramifications of atmospheric electricity, one of which was its critical effect on the launch program of the Apollo series. The question there was whether the huge launch vehicle and its tailing plume could alter the local electrical environment enough to induce dangerous lightning strikes, a recognized danger at the time. In his later

years at SRI, Art became a specialist in the behavior of very low frequency radio waves.

Well, back to the shower. Their curiosity actually stemmed from an experiment that in retrospect might qualify for a Golden Fleece Award for wasteful spending, its ambiance being entirely too pleasant. Ted's interest in atmospheric electricity had a compartment tied to negative ions, molecules with an excess number of electrons. They have this bracing effect on humans (just search online and you will see) and one of their more prominent sources is waterfalls. So, in the spring of 1965, Ted, Art, and Earle Jones* took off for Yosemite. They took several instruments along in an attempt to measure the excess of negative ions present over a range of conditions. They published their results in a 1965 issue of the *Journal of the Atmospheric Sciences*. But that didn't end their quest. They wondered how that phenomenon might extend to the American bathroom!

They described their experiment in what appears to be an internal and undated SRI paper, presumably written in the late 1960s. In the article, they first describe how at Yosemite they found that the splashing of the water on solid rock surfaces, not so much when impacting water itself, caused an ionic separation wherein the positive ions got siphoned off to the ground and water flow and the negative ones flew out with the splashing water and into the air. The concentration of negative ions was orders of magnitude greater than in more placid environments. It just felt good to be near.

They then took their instruments into a typical bathroom with a tub and shower combination and found similar increases, maybe an order of magnitude less than if you were hundreds of feet away from Yosemite Falls. Still not a bad approximation to that aspect of Yosemite and much greater accessibility. They examined the ionic effect of both cold and hot showers and how long each would last. The maximum field strength from the ions was somewhat higher for the hot water, unless it was so hot as to produce steam. All this would die out after perhaps 10 to 15 minutes. Filling a hot bath also produced the ions but at a factor of about four less at its maximum. Fortunately for you, I've left out the obscure metrics, so that should also make you feel better.

A couple of interesting fallouts from these efforts. First, their trip to Yosemite Falls gave that spot a reputation as a place for examining all this in more detail by others. Not hard to imagine why. Second, it turns out that this same bathroom exploration made the May 6, 1966, issue of TIME Magazine. There we learn that Ted presented the

results of the bathroom experiment at a conference of the American Geophysical Union. According to the article, the paper received a “Cool Reception.” It goes on to say: “‘Amusing, but not entirely appropriate,’ huffed one scientist in the A.G.U. audience, which greeted the bathroom research with polite but restrained applause. Pierce was unruffled by the cool reception.” He declared that if the experiment had been performed in a lab it would have been taken “very seriously.”

So, I suppose the bottom line for this unusual example of SRI research is that if you can’t make it to Yosemite, there is the lowly but handy morning shower and, to a much lesser extent, the bath. You can also find the effect after thunderstorms, although they are not that common in the Bay Area. But warning: if you draw water for your bath while absent from the bathroom, you’ll miss out, being left with only the seductive warm water. In the meantime, let’s hope desperately needed April showers will come your way—both outside and inside!

*Earle was the one who had to carry a 25-lb electrostatic measurement instrument called a field mill up the vertical height of the falls. He wrote of this experience in a very early issue of this newsletter.

Further reading, if you’re interested:

<https://drdanigordon.com/natures-best-kept-secret-the-health-benefits-of-negative-ions-and-how-to-get-them/>

<https://ozoneexperts.com/what-are-ions/>

<http://content.time.com/time/subscriber/article/0,33009,901853,00.html>

Final note: You can now see what happens when you don’t write in and offer interesting articles for the newsletter!

Accolades for SRI’s work on the Next Generation Weather Radar System

Awards received by SRI program groups from government agencies are a rarity. There were two such accolades, one based on government comments in 1993 and one received directly from the government in 1997, given to the Next Generation Weather Radar (NEXRAD) program group, later known as the Envirotechnical Program, at SRI.

In 1993, the group was selected for SRI’s 1993 Quality Award for Outstanding Customer Satisfaction, based on comments from a government program manager who commended the team for their “proactive...and comprehensive approach...characterized by readiness to exert the extra effort required to solve the many vexing and sometimes unpredictable problems that surface in this program.” All team members received citations at a special ceremony held on August 24 in the SRI International Building Auditorium. Together with SRI Fellowships, this was one of the highest awards given for staff performance.

In 1997, the U.S. Department of Commerce—or, more precisely, the NEXRAD Joint System Program Office—awarded SRI an Award of Excellence in appreciation for 14 years of outstanding service and support. Patti Burns,



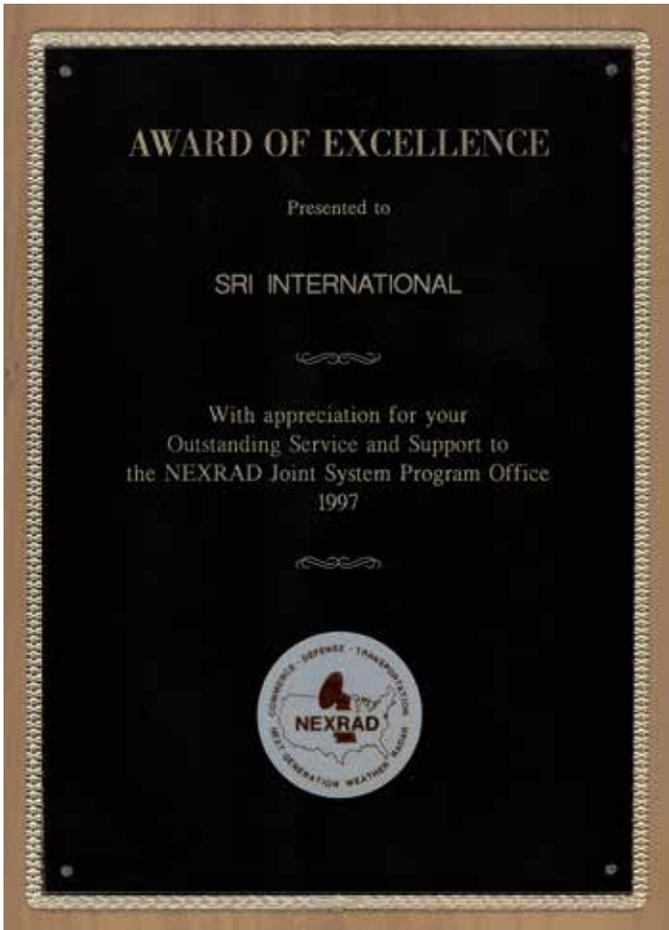
1993 award from SRI.

the Envirotechnical Siting Program Manager, accepted the award on SRI's behalf at a Silver Springs, Maryland, ceremony, along with John P. McHenry, SRI Senior Vice President, and William B. Mohr, SRI Director of Program Development.

Note: See the December 2019 issue of the newsletter for the original article on the long history of the NEXRAD program at SRI.



1993 award ceremony in the SRI International Building..



1997 award from the government.



Patti Burns and the 1997 award plaque.

Thoughts of my trip on the Air France Concorde

By Marianna (Temple) Vaughan

This trip came about as a result of taking an earlier tour with a small group to China. The same tour director made me aware of a special flight of an Air France Concorde SST that would circumnavigate South America. I jumped at the chance, albeit flying alone and so not knowing anyone else aboard. My adventure took place back in January 1999, and it was obviously my first time traveling at Mach 2.

My first impression was how small the area under the seats was for storage. Overhead was designed for coats. Once settled in my seat, I had my film camera ready to take pictures out the window. The plane gained speed and altitude so fast it was hard to get pictures leaving New York. A fellow passenger, Mark Markkula, had a large digital camera and was so nice to share his digital pictures on his website after the trip was over. Of course, today everyone has digital cameras on their phones and sharing is easy.

Reaching an altitude of 60,000 feet, the flight was very smooth. I only recall one thunder cloud that we needed to change course to avoid. I could see the curvature of the earth. After takeoff, we needed to fly over water because of the sonic boom. We were allowed to fly across Cuba. Outside my window I noticed we had escorts of Cuban MiGs while over their country.

Many of the passengers on the flight were pilots. They wanted to set commercial speed records between two airports. We set one between New York City and Rio De Janeiro, Brazil, even with a refuel stop at Cayenne, French Guiana. The attempt at the record meant that the ladies had to curtail their shopping in Cayenne. They hurried back to the plane so we could set three speed records on this leg of the trip. I was allowed to enter the cockpit while in flight. The pilots on board were amazed that the Concorde's electronics were so old compared with those of their own personal planes. An interesting tidbit about the plane is that it got about 12 inches longer at supersonic speeds because of heating.

One of our stops was Ushuaia, Argentina, in the Tierra del Fuego Province. They had to redo the runway so the Concorde could land. Between Buenos Aires and Ushuaia, it took an hour and forty-five minutes to cover 1,643 miles. Meanwhile we were served medallion of lobster, filet mignon with green peppercorn butter, potatoes gratin, steamed asparagus, mousse of raspberry, mulberry and currant, and café. For comparison, Southwest no longer serves even peanuts.

The picture is of my Concorde as it approached landing in Ushuaia. I have it here because of a nice coincidence. As we were landing, I had taken a picture out of my window of a small plane that was flying alongside to get a picture of the Concorde. Its landing there was well publicized in advance. Later, as I was walking around town, I noticed a picture of the plane in a store window. I went in and spoke with the photographer, and, as it turned out, he was the same one I had photographed out my window! He had printed his pictures, and I bought some of them. I later sent some to fellow passengers.



In all, 20 Concorde were built and flew scheduled flights from 1976 to 2003. The plane's major incident was the fatal crash of an Air France Concorde on takeoff in Paris in the summer of 2000. The cost of the fare and the downturn in aviation travel after 9/11 helped to retire the plane.

Marianna worked at SRI for 5 years, starting in 1963. She was a staff mathematician and worked on programming software mainly oriented toward military applications.

From Hemingway to Huawei?

By David Gibby

Last September, Gia Campari was invited to see Dario Schwendener leave St. Katharine Docks, London, on board the 70-foot *Dare to Lead*, one of eleven yachts competing in the Clipper Round the World Yacht Race. Dario's father, Heinrich, had worked in SRI's Zurich office; sadly, he died suddenly of an aneurism five years ago.



It was Sir Robin Knox-Johnston, the first person to sail around the world single-handed and nonstop in 1969, who initiated the Clipper Race.¹ In the race, identical yachts with amateur crews (who undergo a rigorous training program) with a professional skipper sail around the world in a series of legs. Some sailors, like Dario, sail on all the legs of the race for one year. Others sail a particular leg.

Gia has been following Dario's blogs² ever since the start of the race, and, as she knew that I took part in the first Clipper Race, 23 years ago, she asked me to write this article comparing my experiences with his.

The most obvious difference that came to mind was that Dario was able to send a blog to be posted on the Clipper website while at sea! In 1996–97, we had to wait until we

reached port at the end of a leg and then search for a public phone box to call home.

The Old Man and the Sea

In a recent blog post, Dario described how the yachts' crews were settling down after a difficult period of sailing in rough seas and were able to read books again when off watch and, of course, write and transmit blogs home! Dario compared his feelings with those of the old fisherman in Hemingway's novel *The Old Man and the Sea*, a copy of which was being passed around among crew members. As well as recognizing Hemingway's descriptions of the beauty to be found out at sea, Dario likened finding fish with finding winds to race faster. Deciding to go offshore for getting bigger fish is always tempting, but the risk of encountering sharks is also greater.

Today's Custom Communications Facilities

I was curious to know what communications facilities are available on board *Dare to Lead* and the other yachts in the 2019–20 race, so I contacted Grace Kitching, Clipper's communications officer. She told me that they work with AST, a company that provides them with a bespoke communications system for data and voice calling, the main uses being for safety, operational support, and media. On board each yacht are Dell rugged laptops that the crew use to blog and send images and video back to the Clipper Race Office. Grace added, "Not only do the skippers have access to satellite communications, but crew on board can also choose to purchase personal emails which they can use to send text-based messages. They can access this from their own devices (phones, tablets). This does not give them the ability to access the wider internet, however, as this would cost them a fortune!"

Yesterday's Communications Facilities

The 60-foot yachts in the 1996–97 race had VHF radios (with a maximum range of about 25 miles), single side band (SSB) radios with a range of up to about 400 miles, and SatCom-C, a data-only satellite communications system that can be described as a "telex via satellite." All these systems are used today, but of course in 1996–97 we had nothing like the current satellite communications facilities.

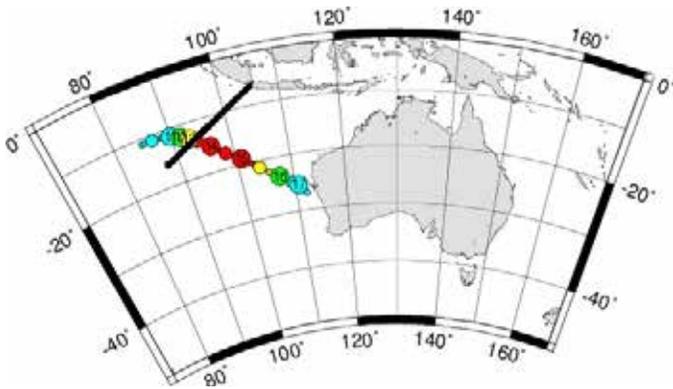
I sailed on the leg from Hong Kong to the Seychelles, which included a stopover in Singapore. The yachts motor-sailed (i.e., we were not racing) south from Singapore to

1. He described his solo experiences in his book *A World of My Own*.

2. <https://www.clipperroundtheworld.com/crew-diary/dare-to-lead/972>

Merak, Indonesia, and kept within visual (VHF at night) range of each other as there was a possibility of attacks by renegade fishing boats or other “pirates” in that area. When we reached Merak, we topped up our fuel tanks with diesel and resumed racing, across the Indian Ocean bound for the Seychelles. We passed the remains of the volcano Krakatoa and then went south a few degrees to benefit from a current flowing east to west.

A day or so later, our weather forecasts indicated that Typhoon Rhonda was heading toward us. Our skipper altered course slightly to ensure that we didn't get too close to the worst of the winds, but we did endure about three days of very difficult sailing conditions. About half the crew were unable to sleep well enough or eat enough to keep their energy levels up, so we had to keep our yacht, *Blackadder*, sailing with fewer crew members until Rhonda had passed and we all were back at full strength. We crossed Rhonda's path on May 13, 1997, the day before she reached full strength, with winds of up to 115 miles per hour, and was designated a Category 4 Severe Tropical Cyclone.



Track of the Blackadder crossing the path of Typhoon Rhonda, May 13, 1997.

As we began to concentrate on reaching Mahé in the Seychelles as quickly as possible, we received a message via SatCom-C to say that one of the crew on board *Mermerus*, another of the yachts in our race, was ill and the skipper, a former Royal Marines major with some medical training, suspected meningitis. As one of our crew members was a newly qualified doctor, the message asked for his advice. *Blackadder* and *Mermerus* were only a few hundred miles apart, so we wondered why the message had come via SatCom-C and not by SSB radio. The answer was that during Typhoon Rhonda, the compartment housing the antenna tuning unit for *Mermerus's* SSB radio had been flooded, so the SSB was no longer operable. It was either VHF or SatCom-C.

Our doctor felt he might need to see the patient in person (e.g., to administer antibiotics intravenously), so we turned back. He also felt he would like a second opinion and supporting advice, so a series of SatCom-C messages ensued. This was a lengthy process because each of our doctor's messages was transmitted to the satellite, relayed to the ground station at Goonhilly Downs in Cornwall (from where Marconi made his first transatlantic radio transmission in 1901), and then sent to the Maritime Coordination Centre at Portishead, near Bristol. At the Coordination Centre, the message header was decoded, the location of the intended recipient extracted, and the message retransmitted to the satellite via Goonhilly Downs and from the satellite down to the *Mermerus*, halfway across the Indian Ocean (but only a few hundred miles away from the sender!). Answers to our doctor's questions about the patient went through the reverse sequence. This was a time-consuming process during which our doctor also received advice, also via SatCom-C, from a NATO medical unit in Norway! SatCom-C was used until *Blackadder* was close enough to be within VHF range, and our doctor was able to speak to the patient. Fortunately, the patient was recovering gradually, and by the time we reached Mahé she was well enough to continue onward to Cape Town, South Africa, after a check-up in the local hospital. It had been a tense time, and it would have been much easier if the SSB radio on the *Mermerus* had worked. It would have been even easier if we'd had the satellite communications that are available today.

Monitoring Clipper Race Progress

The Clipper Race website, www.clipperroundtheworld.com, has a wealth of information about the race and how to apply to join the next one. Among its pages is a Race Viewer that shows the current positions (updated hourly) of all the yachts in the race, as well as their recent tracks. In 1997, our yachts' positions were updated daily, but there was no website on which to see these graphically. My wife, Jeanette, used to switch on our fax machine to receive position updates and any other news issued by the Race Office. There was no way we could send a message to each other, except in an emergency that might justify the use of SatCom-C. So different from today's emails and blogs!

A Race Constant

Some things do not change, however. I asked Grace about the type of people who take part in the race, who can be away from home for at least two months for one leg or a year for the entire race around the world. Like many who were motivated by the prospect of such an adventure, Dario had

worked and saved hard to be able to take part. I commented that I thought there were also three other groups, and Grace agreed with this broad grouping: (1) young people (18+) whose parents had paid for them to have this memorable experience; (2) midlife people who had recently been divorced, made redundant from their jobs, or just wanted a career break; and (3) people like me, who felt that if they didn't do it soon they would be too old to be accepted. (I was one of the oldest at the age of 56, but the oldest in the current race is 76!) One thing all the Clipper Round and the World Yacht Race crew members have in common, though, is a truly memorable experience.

WHAT ARE THEY DOING NOW?

An Energy Center Reunion

By Kathy Vejtasa and Pat Henry

Back in the mid-1970s you might have found yourself in a long line of cars waiting to get gas. It was another time of turmoil, and the United States was in the throes of feeling manipulated by foreign forces. Predictions were widespread that the world was running out of fossil fuel, or at least its availability, and that prices were inevitably going to soar enough to hamper our quality of life, our transportation systems, and our economy. But one uncommon voice of reason thought otherwise, and it was housed at SRI in its Energy Center. There, reason suggested that oil prices wouldn't soar, that in time they would return to normal. They spread their story widely before commercial and governmental groups, the media, and even to the Saudis. It was a sterling moment for SRI as its predictions came true within a decade. The leader of that group was Pat Henry, and two of its members, Kathy (Miller) Vejtasa and Jeff Witwer, decided recently that they needed a reunion. The reunion happened, and here is a brief account.

From February 26 to 28, 2020, seventeen alumni and friends of the SRI Energy Center joined together in Palm Springs, California, the current home of Pat Henry, the center's founder. Although most of the participants still live in the Bay Area, others came from as far away as Colorado, Arizona, and Oregon. These alumni were at SRI from 1965 to the early 80s. Pat arranged for a luncheon at the famous Smoke Tree Ranch as our initial gathering. The following evening's reception at Pat's home was the highlight of our time together.

We reminisced about our terrific and challenging times

Why Huawei

I've explained why I've mentioned Hemingway, but what about Huawei? As far as I know, it plays no part in Clipper's current communications facilities, but with Huawei's 5G equipment being a hot topic (politically if not technically) at present and with the possibility that the Clipper Race Office staff will be using 5G phone networks before long, I thought it might be prophetic and would at least be a nice alliterative way of completing my title!

at SRI, for it had become the launching pad for almost everyone's successful careers. We looked at Energy Center memorabilia, including photos, multiclient brochures, and other materials. We talked about where our lives had taken us since SRI times and enjoyed Pat's extensive art collection. Many of us had been members of the Killer Watts, the Energy Center softball team in the SRI co-ed intramural team, and that too kindled some fun memories to share.

Between the full group events, smaller groups and individuals enjoyed riding the Palm Springs Tramway, visiting Joshua Tree National Park, and getting together in other ways. Although it had been many years, even decades, since we had been together, we quickly regained our esprit de corps—almost like a family. The group photo shown on the next page was taken at our final dinner on Friday night.

Note: See the December 2017 newsletter for Pat Henry's article on SRI's energy research programs.

Kathy (Miller) Vejtasa worked for SRI from 1970 to 1979. She was hired by Pat Henry as a Research Assistant and later became an Energy Economist. She left SRI to join Energy Center client Union Pacific Railroad and later the Electric Power Research Institute, where she was Manager of Strategic Planning. She currently resides in Roseburg, Oregon, with her husband, Stan Vejtasa.

Pat Henry joined SRI as a chemical engineer in the Physical Sciences Division in 1965. After managing several energy-related programs, he was Director of the Energy and Resources Center in the Economics Division from 1974 until 1978. He was invited to return to SRI in 1982 and later became Senior Vice President of the International Business Consulting Group. He resigned from SRI in 1991.



From left to right: Susan Alich, Stan Vejtasa, Cacey Tangney, John Alich, Jeff Stallings, Jeff Witwer (seated), Norm Weaver, Dale Simbeck, Pat Henry (seated), Marilyn Simbeck, Kathy Vejtasa, Ram Ramachandran (seated), and Don Wilhelm. Missing from the picture because of other commitments that night were Jerry Jones and Mark Sweeney.

CREDIT UNION NEWS

Refinance
-Your-
Auto Loan
-Get-
1% Cash Back*

www.srifcu.org

SRI Federal Credit Union
Auto Loans

*Limit of up to \$500. Cannot be an internal refinance

Spring Fling Postponed until 2021

In light of the current COVID-19 pandemic and concern for our Alumni Association members' health, the planned tour of the SLAC National Accelerator Laboratory is being postponed until next year. Please stay tuned for news of this event in the April 2021 newsletter.

Save the Date: 2020 Annual SRI Alumni Reunion

The date for the annual reunion is Thursday, October 8. Please keep in mind that this date is tentative and may change in view of the current COVID-19 pandemic. More details, along with the official invitation and sign-up sheet, will follow in the August 2020 newsletter.

Who Do You Believe Made an Exceptional Contribution to the Success of SRI? Nominate That Person for the SRI Alumni Hall of Fame!

The SRI Alumni Hall of Fame honors former staff members who made exceptional contributions to the success of SRI. We are seeking nominations for Hall of Fame candidates by August 1, 2020.

All former staff members are eligible, but nominees should meet the following criteria:

- Significant, lasting contributions to the success of SRI
- Contributions recognized by staff, management, or clients
- Contributions in any area of research, management, or service, such as
 - Establishing a new laboratory or a new field of research
 - Performing an outstanding recognized service
 - Clearly demonstrating qualities of leadership, vision, and creativity
- What did the person leave behind?
 - Enhanced reputation for SRI
 - New or enhanced research, business, or support activity or facility.

Please prepare a write-up of about 300 words indicating how your nominee meets these criteria. If you have questions about the nomination process, members of the Steering Committee will be happy to answer them. Send the write-up or questions to steering-committee-alumni@sri.com or SRI Alumni Association, 333 Ravenswood Avenue, AC-108, Menlo Park, CA 94025-3493. Again, the due date is August 1.

Alumni Association's New Website

Please note that our website has moved to:
<https://alumni.sri.com>

Important Notice

The COVID-19 pandemic has prevented access to the SRI campus for all SRI Alumni Association steering committee members. Please note the following:

- Hardcopies of the April 2020 newsletter won't be printed until access to SRI becomes possible. The April issue is available online at: <https://alumni.sri.com/newsletter.html>
- The new member listing is not included in this issue but should appear in the August 2020 issue.
- The directory addendum (both electronic and hardcopy versions) won't be published until August 2020.

SRI International Alumni Association

Cash Flow/Income and Expense Year ending December 31, 2019

CASH BALANCE as of 01/01/19		\$29,199.84
INCOME		
Cash income from membership dues and fees	\$8,365.00	
Dividend income from SRI Federal Credit Union account funds	\$16.38	
TOTAL INCOME	<u>\$8,381.38</u>	\$8,381.38
EXPENSE		
Special events		
Spring Fling (Hiller Aviation Museum)	\$891.19	
Reunion Catering	\$2,580.77	
Reunion Door Prizes	\$48.03	
Other expenditures and costs		
Hall of Fame Plaque and Plates	\$824.05	
Publications (postage, printing, etc.)	\$2,310.34	
Computer Services	\$53.00	
TOTAL EXPENSE	<u>\$6,707.38</u>	\$6,707.38
CASH BALANCE as of 12/31/19		<u>\$30,873.84</u>

Charles H. Anderson



Charles “Andy” Anderson, formerly an industrial hygienist at SRI, died December 19, 2019, at the age of 90.

Charles acquired the name Andy while serving in the U.S. Air Force, but to his immediate family, he remained Charles, Charlie, and Uncle Charles. In 1967, Andy and family moved to Palo Alto, where he was an active member of First Presbyterian Church, singing in the choir, teaching Sunday school, serving as a deacon, and on occasion acting as a handyman. After retirement as an industrial hygienist at SRI, Andy volunteered with Recording for the Blind and the City of Palo Alto Emergency Response program. In 2015, he moved to Chico, California.

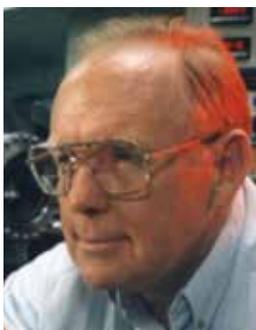
Andy is survived by his wife, Maggie, brother Clyde, sons Reed and Neil, daughter Beth, six grandchildren, and one great granddaughter. He was predeceased by his son Dennis. The family is grateful for the loving care Andy received at The Country House and Commons, a memory care residence in Chico.

Based on an obituary published in the Palo Alto Weekly on January 24, 2020.

Troy Walter Barbee, Jr.

Troy Barbee, a former materials scientist at SRI, died on November 20, 2019, at his home in Los Altos, California, at the age of 82.

Born in San Diego, California, and an enrolled member of the Quechan Indian Tribe, Fort Yuma Indian Reservation, Winterhaven, California, Troy was raised by his mother, grandmother, and maternal great-grandmother while his father served in the U.S. Navy during and after World War II.



His talent as a football player at Hoover High School in San Diego earned him an athletic scholarship to Stanford University. While at Stanford, he played 3 years of varsity football and earned three degrees—a B.S. in physical metallurgy from the School of Earth Sciences in 1959, and an M.S. and a Ph.D. in materials science and engineering from the School of Engineering in 1962 and 1965, respectively.

After earning his Ph.D., Troy worked as a materials scientist in the Poulter Lab’s Shock Physics and Geophysics Department at SRI for 6 years before becoming the associate director of the Center for Materials Research at Stanford University. During his time at the Center, Troy was first recognized by the Materials Office of the National Science Foundation for creating new materials with multilayer synthesis technology. After 25 years at Stanford, Troy joined the scientific staff of Lawrence Livermore National Laboratory, directing a research lab there for the next 30 years.

During his 50-year career, Troy published more than 300 peer-reviewed journal articles, edited 2 books, was awarded 28 patents, and received 4 R&D 100 awards. He was a gifted inventor and remained at the forefront of multilayer and nanotechnology research until his retirement in 2015. The materials and processes he developed led to new optical instruments for soft X-rays, with applications from astronomy to semiconductor manufacturing.

Outside the research lab, Troy’s life focused on family and being an active member of the Stanford community. The Native American Cultural Center at Stanford honored him by inducting him into its Multicultural Alumni Hall of Fame in 2015. His love of the outdoors and family showed during his entire life, from Yosemite backcountry camping with his children to celebrating birthdays with family at Lake Tahoe.

During his undergraduate years, he met his first wife, Ann Hagey, with whom he raised four children while living in Palo Alto; Ann died in 2002. Troy is survived by his and Ann’s children, Troy, Michael, Christopher, and Rebecca; his second wife, Wendy Smith, and their son, Jacob; and four grandchildren. All will miss Troy’s sense of humor and boundless love for vanilla ice cream.

Based on an obituary published in the San Jose Mercury News on February 7, 2020.

Robert L. Dehn

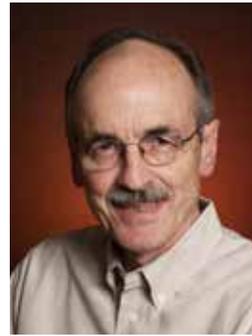
Robert “Bob” Dehn, a former staff member in the Life Sciences Division at SRI and a 51-year resident of Menlo Park, died at the age of 78 on January 23, 2020, following a brief illness.

Bob was a California native and grew up in Albany and Berkeley. He graduated from the University of California at Berkeley with a degree in chemistry. After graduation, Bob started work as a pharmaceutical chemist at SRI when it was still Stanford Research Institute and spent his entire professional career at SRI. It was at SRI that he met his wife of 52 years, Fran McGroary. After Bob received his MBA from Santa Clara University, he moved into marketing and business development for the Life Sciences Division of SRI, where he continued until his retirement in 2007.

Active in the Menlo Park community, Bob served on the Menlo Park Library Commission for 11 years as commissioner and later project consultant, helping to spearhead the passage of the bond measure that funded the expansion and renovation of the main library in 1992. He was a tireless volunteer at both the Church of the Nativity parish and Nativity School. Following his retirement, Bob volunteered at St. Anthony’s Padua Dining Room in Menlo Park, where he enjoyed various jobs, including volunteer coordinator, cook’s assistant, and fundraising director.

Bob is survived by his wife, Fran, daughter Elizabeth, son Peter, three grandsons, and sister Marlene.

Based on an obituary published in the Palo Alto Weekly on January 23, 2020.

Sidney John Everett*

Sid Everett, former senior consultant and program director in SRI’s Environmental Program and longtime resident of Los Altos, died of a critical brain injury after a fall on January 9, 2020, at the age of 76, after a 5-year battle with Lewy body dementia.

Born in Plainfield, New Jersey, Sid spent his early childhood in Cranford, New Jersey, and Sunbury, Pennsylvania, before his family relocated to Detroit, Michigan. There he attended Cass Technical High School and graduated in 1961. He went on to study at Massachusetts Institute of Technology, earning B.S. (1965) and M.S. (1966) degrees in aeronautics and astronautics. In 1966, he joined Lockheed in Sunnyvale, California, to work on the NASA Space Shuttle proposal.

In the 1970s, Sid’s professional interests shifted from aeronautics to environmental systems. He earned a Ph.D. from Stanford in environmental analysis in 1978. From 1973 to 1996, he successively led and managed various environmental programs at SRI and concluded his tenure at SRI as a consultant from 1996 to 1997. At SRI, Sid developed the clients for and led a long-running series of environmental assessment and environmental management projects for both public and private sectors. He focused on strategic concepts and implementation of systems for environmental analysis and management, as well as technology assessment, management, and transfer.

Before retiring, Sid earned a secondary education teaching credential and taught math at the high school level for 5 years. Sid played softball and basketball in local adult recreation leagues for more than 35 years and was involved in youth sports with each of his children. He loved being in the wilderness hiking and backpacking in the Sierras. He was an active volunteer in his church community at Los Altos United Methodist Church.

Sid will be especially remembered for his loving commitment to family and friends, his intellectual curiosity, and his humor. He will truly be missed.

Sid is survived by Becky, his wife of 32 years; children Jennifer, Greg, and Annemarie; and granddaughter Jade Anaya.

Based on an obituary published in the San Jose Mercury News on January 29, 2020, and on his resume.

Philip S. Green*

Phil Green, an exceptionally creative engineer whose discoveries have enriched our lives, died November 15, 2019, at the age of 83. Phil was born in Youngstown, Ohio; studied at Johns Hopkins and Stanford Universities; and lived in the Bay Area.

While earning his undergraduate degree in electrical engineering from Johns Hopkins University in 1958, Phil worked part-time as an electronic technician at the hospital's Radiology Department; he went on to earn a master's degree in electrical engineering from Stanford University in 1968. After graduating from Johns Hopkins, Phil became a senior research scientist at Lockheed Palo Alto Research Laboratory, where he worked from 1960 to 1968, developing oceanography instrumentation, ultrasonic imaging, and acoustic holography. Phil joined SRI in 1968 and remained for 27 years, culminating with a long term as director of the Biomedical Engineering Research Laboratory. At SRI, Phil spearheaded more than two dozen inventions that made ultrasound a usable medical diagnostic tool. In the 1980s, he and his team began development of a "remote telepresence" system for minimally invasive surgery, which was commercialized and is now used worldwide as the *da Vinci*® surgical system, made by Intuitive Surgical, Inc. At SRI, he was a successful licensor; more than \$5 billion worth of medical products related to his patents have been sold. His aggressive pursuit of infringers resulted in awards totaling \$60 million to SRI.

In 1998, Phil formed Miranda Technologies, Inc., to enable the development of products based on his independent inventing and patenting activities. He invented and patented two endosurgical systems and, in June 2000, licensed one of these for further development.

Subsequently, Phil realized a long-held dream to develop a full-sized guitar with the portability of a violin yet the full-bodied sound of a fine acoustic instrument. Miranda guitars feel, play, and sound like an acoustic guitar and are adapted for "silent" practice with headphones. They are recognized as the best of their kind.

Phil is survived by his wife, Barbara Leighton, and daughters Susan and Paula.

Note: See the extended tribute to Phil and his accomplishments elsewhere in this issue. See the April 2012 and August 2015 newsletters for other articles on Phil and the da Vinci system.

Robert Matteson Hill

Robert "Bob" Hill, a former physicist at SRI, died January 29, 2020, in Salem, Oregon, after a lengthy decline from Alzheimer's disease. He was 93 years old.

Bob was born in Manhattan, New York, on September 20, 1926. After graduating from high school, he went into service with the Army of the United States (then a particular component of the U.S. Army) in 1944. Because World War II was ending, Bob's duty was to attend classes at several U.S. colleges as part of an Army program to keep the schools open while most of their prospective students were instead serving in the military or working in wartime manufacturing. Bob then attended Cornell University in Ithaca, New York, where he was captain of the swim team; he went on to receive a Ph.D. in physics from Duke University in Durham, North Carolina.

Deciding to come to California in 1953, Bob and his wife, April, drove across the country and came to the Bay Area, to be joined later by their first two children, Leigh and Barbara. Bob started his career at Sylvania/GTE in Mountain View and worked for a time at Lockheed Missiles and Space in Sunnyvale. When Lockheed closed its research arm in 1970, Bob joined SRI as a physicist. His main research interests were the nonlinear and phase transition behavior of gases and solids and the highly excited states of simple atoms, using microwaves and lasers to study these materials. He also led SRI's effort to establish an industrial consortium in the applications of high-temperature superconductors, Superconductor Applications, Inc. (SAI). In 1981–82, he was on leave to serve as a program officer with the National Science Foundation. In 1983, he was appointed Senior Scientific Advisor for the Sciences Group. One of his last assignments was to prepare a memo in 1997 about future SRI R&D programs for then President and CEO William Sommers. During his career, he authored or coauthored numerous refereed publications and received a wide range of patents. He retired from SRI in 1998.

After moving to a home in Palo Alto Hills in 1969, he put a vineyard of pinot noir and chardonnay grapes in the front yard of the home. Once the vineyard started yielding a full crop, he enjoyed his own wine and gave bottles to all the people who came at harvest time, including many SRI friends who helped harvest grapes and crush them

for wine. His wine venture stopped in 2002, when he and April moved to Rogue Valley Manor, a retirement home in Medford, Oregon. There he turned his attention to making a huge family ancestral tree.

Bob is survived by his four children: Leigh, Barbara, Katherine, and David. His wife of 72 years, Mary April Blackburn Hill, preceded him in death by three months, on October 29, 2019.

Based on information from Leigh and Katherine Hill.

Robert Allen Howd*



Following a fight against an aggressive cancer, Robert “Bob” Howd died on January 6, 2020, at home at the age of 76.

Bob grew up in Oregon, first in the coastal town of Toledo, then in McMinnville, where he graduated from Linfield College in 1966 with a bachelor’s degree in chemistry.

He worked as an analytical chemist with the U.S. Food and Drug Administration in Seattle, Washington, before attending graduate school at the University of Washington in Seattle and graduating with a Ph.D. in pharmacology in 1973.

Bob accepted a postdoctoral fellowship at Massachusetts Institute of Technology, then worked as a biochemical pharmacologist at SRI for 12 years. From there, he moved to the State of California pesticide group, then to the drinking water group. Most of his life’s work included scientific writing and reviews in the fields of chemical risk and exposure assessment, especially for neurotoxicity analysis. As Senior Toxicologist, Water Toxicology Section, California Office of Environmental Health Hazard Assessment (OEHHA), Bob supervised the drinking water risk assessment program. He retired in March 2011 as Chief, Water Toxicology Section, OEHHA, California EPA, in Oakland. Bob belonged to the Genetic and Environmental Toxicology Association and the Northern California Regional chapters of both the Society of Toxicology and the Society for Risk Analysis.

Since working at Glacier National Park during summers of his college years, Bob loved hiking in mountains, forests,

and deserts. He took trips with his family and friends all over the world.

A 40-year member of the First Unitarian Church of San Jose, California, Bob was involved in creating an endowment fund, singing in the choir, working on maintenance projects, and serving on a ministerial search committee. Bob loved singing, and, after retiring, he joined and sang with the Peninsulaires Barbershop Harmony Chorus.

Bob is survived by his wife of 53 years, Sherry Rock Howd (whom he met at Linfield College); daughter Jennifer; brother Russell and sister Rita; three nephews; and niece Tracy. Bob was predeceased by his brother, Leland Richard “Dick” Howd.

Based on an obituary published in the San Jose Mercury News on January 31, 2020.

Chester W. Marynowski*



Chester Marynowski, formerly a chemical engineer at SRI and a resident of Los Gatos, California, died on August 24, 2019, at home in his sleep, after battling a heart condition, bladder cancer, and dementia; he was 94 years old.

Chester was born in New York. After serving in World War II, he attended the University of Pennsylvania and the University of Southern California on the GI Bill. Chester moved to the Bay Area in 1949 and spent most of his career as a chemical engineer at SRI, becoming program coordinator for Chemical Engineering Process Research and Development. Three years before he retired, Chester moved to the Bahamas, where he worked for Syntex.

Chester was a hardworking, wonderful husband, father, grandfather and great-grandfather and will be greatly missed. He is survived by his wife, Mary; children Andra, Lori, Cara, and Janet; five grandchildren; and great-granddaughter Hailey.

Based on an obituary published in the San Jose Mercury News on October 6, 2019.

Norman Bruce McEachron



Norman “Norm” McEachron, formerly director of Quality and Productivity Management at SRI, died of a heart attack on August 23, 2020, at the age of 78.

Norm was born into a family of scientists in Schenectady, New York, and grew up in Cleveland, Ohio. He was a remarkable person whose love of science started at a very early age: family stories recount efforts to design an atomic submarine at age 6. At age 16, he built an oscillator to test voice patterns and a small megaphone powered by a transistor amplifier that the marching band director used on the football field.

After graduating from Cleveland Heights High School in 1960, Norm attended Carnegie Mellon University, graduating magna cum laude with a degree in electrical engineering in 1964. That same year, he was one of 10 students in the United States to be awarded a scholarship from the Winston Churchill Foundation for a year of graduate study at Cambridge University; in 1966, he was also a recipient of the National Science Foundation fellowship for advanced study. Norm received a master’s degree in electrical engineering from Stanford University in 1966, began working at SRI in 1967, and earned a doctorate

in management science and engineering from Stanford in 1979.

In 1981, Norm became director of the Quality and Productivity Management group at SRI. After his tenure at SRI, he was a vice president of Marketing and Business Strategies at Garner (2000 to 2003) and then became a senior management consultant at Cardinal Consulting International (2005 to 2012) before retiring.

As an analyst and consultant, Norm identified product and market opportunities, technologies, and process improvements for global corporations and investment groups; formulated product/technology portfolios and roadmaps that managed risk; estimated market size and growth for potential investments; benchmarked international best practices for software and hardware development; and designed and supported implementation of quality improvement programs. He led consulting teams in the United States, Asia, and Europe for major companies; advised global firms on emerging technologies and product development strategies; and conducted due diligence assessments for mergers and acquisitions. His specialty was identifying leading-edge practices in product development and technology and product management in various high-technology markets.

While at SRI, Norm met his wife, Sandi, and they married in 1990. Norm is remembered as a kind person who enjoyed having fun and loved animals.

*Member of the SRI Alumni Association



Please join or renew your membership in the SRI Alumni Association. The association was founded in 1996 to provide former staff members the opportunity to keep in touch with SRI and their colleagues, to support the institute in a variety of ways, and to help perpetuate SRI's traditions and values.

SRI Alumni Association members enjoy many activities and services:

- **Alumni Association Newsletter**—Published three times a year, giving news about SRI programs, Alumni Association activities, and individual members (see past issues at <https://alumni.sri.com/newsletter.html>).
- **Membership Directory**—A regularly updated resource of contact information for association members.
- **Annual Reunion Meeting**—An opportunity for:
 - Socializing with other Alumni Association members.
 - Viewing the Alumni Hall of Fame Induction ceremony.
 - Hearing a prominent SRI speaker describe an important SRI project or organizational development.
- **Spring Fling**—A picnic or visit to a Bay Area point of interest; past trips have been to the Computer History Museum, the Hiller Aviation Museum, NASA-Ames, and the California Academy of Sciences.
- **SRI Archives**—Association members maintain and catalog SRI's photographic and nonproject archives.

We encourage you to participate in the SRI Alumni Association. Your first year's membership is free. Your membership thereafter will be \$25 per year. By completing and returning the application below, you will be enrolled and will receive future issues of the newsletter and invitations to all alumni events. Please indicate how you would like your information to appear in the Membership Directory. If you prefer that some or all of your contact information not be published in the directory, please indicate your preference below. Also, please indicate whether you would prefer receiving the newsletter as an electronic copy (PDF, which saves the association printing/ mailing costs) or as a hardcopy. If you prefer to complete an application online, please do so at: <https://alumni.sri.com/join.html>.

SRI ALUMNI ASSOCIATION MEMBERSHIP ENROLLMENT

First Year's Membership Free!

Are you applying for a New or Renewal Membership? New Renewal Date: _____

Publish contact information in the Membership Directory: Yes No

Publish address: Yes No / Publish email: Yes No / Publish telephone: Yes No

Please indicate how you would like to receive copies of the newsletter: Electronic via email: Hardcopy via mail

Name: _____ SRI ID No.: _____ Division: _____

Address: _____ Email: _____

City: _____ State: _____ Zip code: _____

Telephone: Land: (____) _____ Mobile: (____) _____

Date of retirement or when you left SRI: _____

Mail to: SRI Alumni Association, 333 Ravenswood Avenue, M/S AC-108, Menlo Park, CA 94025

*The SRI Alumni Newsletter is published three times a year (in April, August, and December) by the SRI Alumni Association.
Editorial committee: Mimi Campbell, Klaus Krause, and Caren Rickhoff / Design & layout: Linda Hawke-Gerrans*