August 2020 Newsletter

SRI International

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MESSAGE FROM ARCHIVES CHAIRMAN DON NIELSON

Don Nielson

Given the unprecedented situation nearly all of us are in, it is not clear what, if anything, will emerge predictably. Well, get ready, for this August issue is pretty much on time unless you like the feel of paper. If you do, you'll be reading this at some unpredictably later time because SRI is still in shutdown mode. In either case, we hope you enjoy the read.

The SRI news is likely to amaze you—how, despite present constraints, highly technical, timely, and vital innovations continue to emerge, even making it to the marketplace. Speaking of vital, those of us watching goings-on from our bunkers yearn for a rapid, cheap COVID testing method to guide us and our world safely back to normal. Meet Greg Faris and check out SRI's unusual PCR offering with those traits. As an octogenarian, I consider my smartphone as my crutch at hand, if not my talisman. Now an SRI spin-off has produced an application to keep me functioning well, slipping in somewhere between me and my doctors. This app and a new collaborative effort in drug discovery both rest on AI, the rush to which finds it underlying so many innovations. This rush, almost avalanche, toward neural networks and deep learning make AI seem like the new "underware"—something all new innovations shouldn't be without!

If you like history, this issue has a lot. First, we lost Bill English and you'll need to see how he helped waken the world to computing as we use it today. And you probably all are finding today's use of Zooming lifesaving. It was anticipated and practiced at SRI a half century ago, including the notion of working from home. Yes, the means were there all along, it just took a pandemic to make them real. Finally, if you've ever been involved in corporate planning, you have probably encountered SWOT in some form. You will find how its origins arose from SRI's innovations in strategic planning back in the 1960s and 1970s.

Peter Weisshuhn closes with some insights into how we borrow traditions and phrases from the *The King's English* without a clue to their origins. Thanks, Peter, *you're on the ball!*

Unfortunately, we have been forced to cancel our October Reunion. We'll try to compensate a bit in our next newsletter, but like all COVID impacts, nothing can replace the real thing! Remember, being safe means you are also helping others.

In July, we lost an integral member of the SRI Alumni Steering Committee and longtime contributor to the SRI Alumni Newsletter, Klaus Krause. As noted by his SRI colleagues, Klaus shaped the way that many at SRI write and mentored many others. As a vigilant, careful editor, he also shaped our newsletter and ensured that our standards remained high. Klaus was a thoughtful friend who shared his love of words—and puns—with us all. We will miss his presence in our meetings, our writings, and our lives. His obituary is included in this issue's In Memoriam section.

Telehealth App: Meeting Patient Demands During COVID-19 Pandemic

Decoded Health, an SRI spin-off via SRI Ventures, launched its first telehealth mobile app that can be used to assess patient concerns, including concerns about the novel coronavirus disease 2019 (COVID-19). The app uses explainable artificial intelligence (AI) technology to automate patient communication and generate real-time, personalized clinical recommendations for healthcare providers and thus improve the capacity and quality of primary and urgent care.

Decoded Health's AI technology elicits a patient's symptoms, maps natural language documentation into computable forms, and finds key patterns in large data sets to present physicians with an assessment of the patient's disease possibilities. The physician then chooses a course of action driven by the patient data. In essence, Decoded Health has created an intelligent "virtual medical resident."

"We know that the shortage and lack of accessibility to primary healthcare, especially during this COVID-19 crisis, could be detrimental to the overall well-being of our nation," said Mark Hanson, CEO of Decoded Health. "Our new platform provides a unique synthesis of virtual and physical care that personalizes care for each patient and allows some of the physician's work to be automated, increasing their productivity."

Decoded Health partnered with Vituity, one of the country's largest acute care management and staffing groups, to manage telehealth through Decoded Health's platform for more than 1.25 million patients in California. Patients have immediate access to Board-certified physicians by downloading Vituity On Duty® via the Apple App Store and Google Play Store.

Explainable AI is key to the app's utility. "Integrating explanation into deep neural nets without sacrificing their inherent capabilities is critical to rapid adoption in any expert-driven field, and medicine is no exception," said Manish Kothari, president of SRI. "Decoded Health will be the first telehealth solution that leverages explainable AI and machine learning to provide an inherently more intuitive and efficient platform for telehealth."

Source:

SRI Press Release: https://www.sri.com/decoded-health-launches-telehealth-app-powered-by-explainable-ai-amidst-covid-19/press-release/

Next-Generation PCR Diagnostics for COVID-19 Screening

The current COVID-19 pandemic underscores the need for rapid and widespread screening for emerging infectious agents.

To explore novel approaches to point-of-contact screening, the National Science Foundation (NSF) awarded SRI the grant "RAPID: Revolutionary Massively-Parallel Bioreactions for COVID-19." The principal investigator is Gregory Faris, Ph.D., program manager, Optical Systems, Discovery Technologies, SRI Biosciences. Unlike current point-of-*care* diagnostics, point-of-*contact* diagnostics allow routine and rapid testing at contact points such as transit areas or entries to facilities. To achieve a new paradigm for disease diagnosis—point-of-contact molecular diagnostics—SRI proposes a revolutionary approach: rapid planar polymerase chain reaction (rpPCR).

This NSF project will provide the basis for a new diagnostic test that can be performed in as little as 2 minutes and a cost as low as $2. The test could be used routinely to detect hidden spreaders of disease at airports or entrances to hospitals or long-term care facilities and thus prevent spread from the initial outbreak site. It could also be a monitoring and screening tool to limit spread in various settings such as factories, classrooms, and office buildings.

The rpPCR technology is based on a new format that speeds thermal cycling while achieving approximately 1 million-fold sample partitioning to accelerate sample preparation without micropatterning or microfluidics. The required large-area temperature uniformity will be achieved using optical heating while simultaneously confining lateral

diffusion to produce approximately 1 million virtual reaction wells.

This rapid, low-cost rpPCR diagnostic method could radically alter how we counter pandemics such as COVID-19.

Sources:

SRI Announcement, May 26, 2020: https://www.sri.com/developing-the-next-generation-of-pcr-diagnostics-for-point-of-contact-screening/announcements/

National Science Foundation Award Abstract #2031003 https://www.nsf.gov/awardsearch/showAward?AWD_ID=2031003&HistoricalAwards=false

Profile of RAPID Principal Investigator Faris

Laser and optics technology, biomedical imaging and diagnostics, and nonlinear optics are the main research interests of Gregory Faris, Ph.D. He holds a B.S.E. in mechanical and aerospace engineering (summa cum laude) from Princeton University and a Ph.D. in applied physics from Stanford University. Dr. Faris was a National Science Foundation Postdoctoral Fellow at the Lund Institute of Technology, Sweden, and a postdoctoral fellow at SRI.

Dr. Faris works closely with undergraduate students performing research at SRI as part of the National Science Foundation's Research Experiences for Undergraduates program. For his strong mentoring abilities, he won SRI's Mimi Award in 2009. Dr. Faris was named an SRI Fellow in 2014.

Dr. Faris is the author of more than 60 peer-reviewed publications on lasers and optical technology, and he holds 15 patents.

Source:

https://www.sri.com/bios/gregory-w-faris/

SRI and Exscientia Combine Forces to Accelerate Drug Discovery

SRI and Exscientia, a United Kingdom clinical-stage artificial intelligence (AI) drug-discovery company, are collaborating to implement a new approach to identify oncology drugs. They will combine Exscientia's Centaur Chemist™ AI platform to identify optimal candidate drugs and SRI's SynFini™ automated system to synthesize the drugs.

The Centaur Chemist is a highly scalable drug-discovery platform built on AI technology guided by the experience of Exscientia's scientists. By decreasing the number of compounds analyzed per drug by hundreds, the platform dramatically reduces the time and cost of discovering and developing new medicines.

As described in more detail in the SRI Alumni Association April 2020 Newsletter, the closed-loop SynFini platform automates the design, reaction screening, and optimization (RSO), and the production of target molecules. The system has three components: a software platform (SynRoute™), a reaction-screening platform (SynJet™), and a multistep flow chemistry automation and development platform (AutoSyn™).

Exscientia is the first company to successfully apply AI technologies to design small-molecule compounds that have reached the clinic. "Both the SynFini and Centaur Chemist platforms have demonstrated ability to overcome key drug discovery challenges," said Nathan Collins, Ph.D., chief strategy officer of SRI's Biosciences Division and head of the SynFini program. "We believe there is tremendous potential to further accelerate the oncology drug-discovery process by combining these novel and proven technologies."

Sources:

SRI Press Release: https://www.sri.com/sri-international-and-exscientia-enter-collaboration-to-accelerate-drug-discovery/press-release/

Exscientia website: https://www.exscientia.ai/

Can Semantic Forensics Tell the Real from the Fake?

The Defense Advanced Research Projects Agency (DARPA) awarded SRI an $11 million contract for a research project under the Semantic Forensics (SemaFor) program. The SemaFor program will develop technologies to automatically detect, attribute, and characterize falsified multimodal media (such as text, audio, image, video) to defend against large-scale automated disinformation attacks. The agency received 37 bids for the SemaFor project via a competitive acquisition process.

Media manipulation technologies are advancing rapidly and challenge current detection methods: Purely statistical detection methods quickly become insufficient, techniques that rely on statistical fingerprints can often be fooled, and automated media generation and manipulation algorithms that rely on heavily purely data-driven approaches are prone to making semantic errors.

The SemaFor program supports research to develop innovative semantic technologies for analyzing media. For example, attribution algorithms will infer whether multimodal media originate from a particular organization or individual. Characterization algorithms will reason about whether multimodal media were generated or manipulated for malicious purposes.

Ultimately, the goal is to apply these technologies to identify, deter, and understand adversary disinformation campaigns.

Sources:

US Department of Defense, Contracts for July 23, 2020: https://www.defense.gov/Newsroom/Contracts/Contract/Article/2286392/#darpaSRI072320

Semantic Forensics (SemaFor) by Dr. Matt Turek: https://www.darpa.mil/program/semantic-forensics

HISTORY CORNER

Bill English and the Mouse That Still Roars

By Don Nielson

It was no small frustration to Douglas Engelbart that he was primarily and perennially known for inventing the mouse. It was but a small enabler of Doug's vision for computing. But the association with the mouse didn't seem to bother Bill English, the person who actually brought the first one into existence; however, it also doesn't come close to defining his most important contributions.

Bill English joined Doug at SRI in 1964. In the early 1960s, it was clear in Doug's mind how the relationship, the interplay, between man and computer should materialize. He had abstractly studied the ways that interaction would be most natural and efficient. If there was a hint of a device that caught his attention, it was the planimeter, the X-Y device that measures area. To help pay for the exploration of such devices, Doug asked for and received money from NASA in 1963. Bill became the one who led the NASA investigation. Together, they looked at several existing tools such as the light pen, but they fabricated others, even a device operated by one's knee, and, of course, the prototype mouse. Bill was the one who came up with the two-potentiometer solution that, like the planimeter, could account for unambiguous trajectories and points-of-reference on a two-dimensional surface.

Even though the mouse was actually a remote control for positioning what Doug and Bill called a "bug" on the new display, it proved superior to any direct pointer, either to the screen or a tablet. Given the criteria Doug had established for interaction, the mouse won the NASA-sponsored investigation rather handily. Bill is the lead author on the 1965 final report to NASA. And while Doug's name is alone on the original patent as an assignor for SRI, it was Bill who actually designed and brought the mouse to life. In some sense, both Engelbart and English have somehow wound up in the shadow of the mouse.

While this is a matter open to conjecture, I believe it was the orchestration of The Mother of All Demos for which Bill should be best known. The time had come to demonstrate in its entirety the Engelbart approach to using the computer as an intimately responsive human augmentation system. Those he had assembled to bring the system into being were many and vital to its operation. In what in retrospect seems a brazen move, they chose the most important computer conference of the day, the December 1968 Fall Joint (ACM and IEEE) Computer Conference in San Francisco, for a make-or-break showing of what they had built and come to believe in.

Given that the enabling computers were 30 miles away from the cavernous auditorium where this most unusual "paper" would be delivered, the demo should never have worked so successfully. Bill had to figure out how to complete the communications linkages needed and somehow project the intricacies of the interaction to perhaps 2,000 or more attendees at that session. Those attendees saw Doug doing his thing on a remote terminal, the screen of which was projected to them via a huge light valve projector. The spectators saw a fluidity and interplay that changed the face of computing forever. What they did not see in that 90 minutes was Bill at the rear of the auditorium, armed with communications equipment and four video streams that he fed to the session as needed. He was directing the show that he had a major hand in designing. As Doug reflected in 1996, "it really never would have flown if it weren't for Bill English. Somehow he's in his element just to go arrange things…I think Bill English never did let me see how much it really cost…But I know it was in the order of $10-15,000" [Thierry Bardini, *Bootstrapping*, Stanford University Press, 2000]. An unquestionable bargain!

Bill also had a finger in one of the other important initiatives in the Engelbart group. In 1969, the rudiments of the ARPANET were being designed and the initial formulating committee was called the Network Working Group. While neither of them remained long in that design environment, both Bill and Elmer Shapiro were SRI delegates to the working group meeting in July 1969.

Bill was perhaps the first to join with Doug and, importantly, the first to leave for where this new computing world would lead, the Xerox Palo Alto Research Center (PARC). To sum up Bill's contribution to the Engelbart group during the half-dozen years he was there, it is not a stretch to consider him its engineering or technical leader, especially at the hardware and system realization levels. Quite willing to stay in the background, just like in The Demo, he gained the trust of the other group members to bring Doug's ideas to a demonstratable reality. Doing so ultimately became mandated by their sponsor. Engelbart the visionary needed a producer, and he found one in Bill English.

Just prior to his work with the Engelbart group, Bill had helped another SRI visionary, Hew Crane, build an arithmetic module for what was to be the first-ever all-magnetic computer. Although the computer was never completed, the concept of magnetic logic found important roles. Because of their reliability, particularly in hostile industrial environments, magnetic logic circuits, at least in the early 1960s, were preferred over semiconductor circuits. One place that the SRI magnetic circuits held forth was the New York subway system. A market of hundreds of millions of dollars opened for these ultra-durable devices.

All in all, Bill seemed at home in making things happen, bringing new things into existence. A statement from one of his colleagues at SRI and later at Xerox PARC perhaps best sums Bill up: "'He was the guy who made everything happen,' said Bill Duvall, who worked alongside Mr. English during those years. 'If you told him something needed to be done, he figured out how to do it'" [*The New York Times*, July 31, 2020: https://www.nytimes.com/2020/07/31/technology/william-english-who-helped-build-the-computer-mouse-dies-at-91.html].

Bill and his wife, Roberta, who also worked in the Engelbart Lab, with a hardware replica of the 1968 workstation used for The Demo. (photo taken December 2018)

Our Virtual Connections and SRI's Early Role in Them

By Don Nielson

If you google the word "zoom" today, your search results will be a dozen or more pages on the videoconferencing system that is so omnipresent in today's lockdown. Talk about timing. Zoom is flexible, simple to use, and, for most of us, free. Not a bad bargain for the inmates of the viral prison. It has grown from about 3 million participants in all of 2013 to around 300 million participants around the world today—every day! Zoom has competitors, but it is wildly popular and has a market value of over $40 billion. Welcome to the rapid, enormous scalability and power of the Internet!

So, other than this being a topic of current interest, why belabor it here? As you might guess, it is because there are a couple of innovations in SRI's history in which this kind of activity was both anticipated and practiced. Moreover, the prescient notions at the time weren't limited to videoconferencing. They also involved the computer augmentation of the office and the huge transition spawned by this new COVID world: working from home!

Most of the groundwork of SRI's prediction stemmed from the brilliance of Doug Engelbart and his Augmentation Research Center and the appearance of the ARPANET. More than anyone, Doug saw the power of first computer- and then network-based collaboration. While his legacy has been inordinately associated with the mouse and maybe interactive computing, his most ambitious personal goal was group collaboration directed at solving the world's important problems. Embedded in a discussion of the future of the office, that goal was highlighted in one issue of a series of SRI publications called *Investments in Tomorrow*. Shown in Figure 1, from late 1974 (the cover date is incorrect), it is entitled "Window to the Office of the Future."

Having spent my life at a research organization, it has been easy to see that good ideas are rather plentiful. Bringing them into a meaningful existence is quite something else. That we are now in the throes of the world's most intense effort ever for distributed work, including work from home, we must note that it has been a very long time in coming.

Remember the Typewriter?

The small innovations I describe from the *Investments in Tomorrow* issue seem quaint in light of where technology

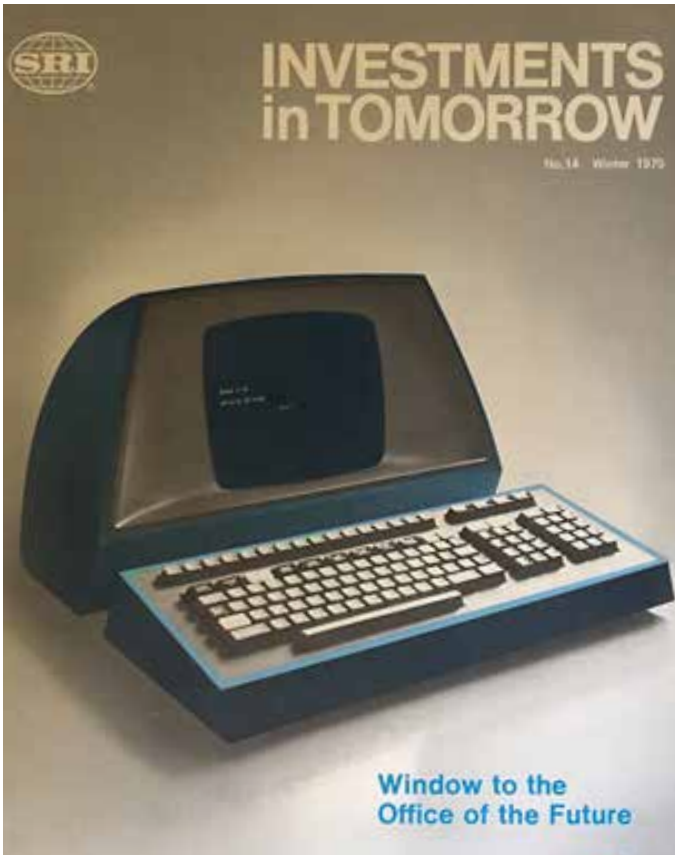


Figure 1. Issue of Investments in Tomorrow *describing Doug Engelbart's Office of the Future.*

has, may I say in this case, dragged us. For the issue opens describing how the "typewriter with memory paves the way for a computerized office." Computer terminals and the network that could connect them were clearly in the offing, but they were still the domain of the researcher. The corporate or business office of 1974 was still the world of the IBM Selectric typewriter. That its newest wrinkle was that it could crank out multiple "original" copies from typewriter memory seemed a big deal. It also opened the door to "word processing" typewriters, and SRI industrial economists didn't miss their import. One of SRI's best was Alan Purchase. He could see the market burgeoning for such devices such that by 1980, 15 percent of typewriters would have that capability, and both IBM and Xerox, which had just introduced its model, would be among a dozen or so in the marketplace.

The Infant ARPANET

But while the economists had one eye on the emerging market for the corporate office, they also, courtesy of the Engelbart lab, had the other on the computer-network-based world serving the ARPA[1] research community. The ARPANET

of the day had perhaps a few hundred organizations attached and using it, the second of which was SRI (Figure 2). Moreover, a couple of companies were being formed to commercialize that kind of network service. But importantly, and principally because of SRI's Augmentation lab, the ARPA research community was evolving both the network and the exemplary computer-based user space to take advantage of it. At first, those users were simply sharing the same time-share machine, but it soon arose that they could be on different computers with equal facility. Then workers were coupled with either computers or other workers with equivalent ease. Teleconferencing was emerging as well. Finally came the fact that it was immaterial where either the user or the computer was located. Ideally, for the SRI industrial economists, all they had to do was walk across the campus to see the future!

Ideas Decades Ahead of Their Time

One interesting aspect of the Engelbart environment, which had been in existence for almost 10 years by 1974, is how the SRI concepts struggled to enter the marketplace. Figure 3 shows Doug in his lab setting, and alongside is a Lear-Siegler terminal of the day with a mouse and even a keyset on the right. But the commercialization of the Engelbart environment clearly languished. Recall that the concept of the PC was internally ostracized by IBM and relegated to a small, outlying operation in Boca Raton, Florida. It would approach another decade before the IBM PC, introduced in 1981, and the Apple Macintosh, in 1984, could wedge their way into the corporate scene. Eventually, however, there came a watershed moment in that battle, and we all know how that turned out!

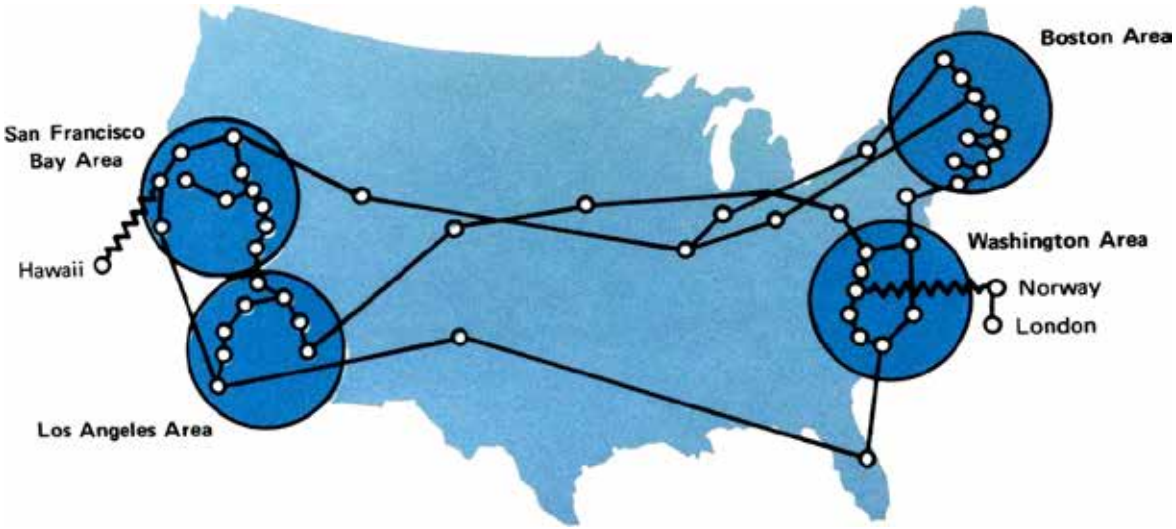


Figure 2. ARPANET in 1973.

Figure 3. Doug Engelbart in 1974 with terminal, mouse, and keyboard (left), and Lear-Siegler terminal (right).

A Stumbling Path to Network Services

The commercialization of network services also stumbled along. The *Investments in Tomorrow* issue cites one of the first companies intending to offer such a service as GTE with its projected 1975 offering of Telenet. Much like the Engelbart innovations, however, it was ahead of its time and struggled for customers and struggled in the competing international arena for networking standards. Today, of course, digital networks are the domain of the telephone and cell phone giants. But it took decades first for those companies to realize the value of the networks and then for the government and courts to untangle the common carrier world for them to reach their dominate position.

Home at Last

To wind up, let's return to the convenience of distributed network-based computing. One place the I974 *Investments in Tomorrow* issue said was a viable workplace in the office of the future was the home. Figure 4 shows, whimsically, what that idea resembled about 45 years ago. (By the way, the late graphic artist Ron Moore is in the SRI Alumni Association Hall of Fame.) Though the potential for at-home work has existed for almost 50 years, it has never really found a groundswell of acceptance. Sure, there are remote offices, and a few split their time between office and home, but it has taken a pandemic to force it into mainline existence... at least for a time. The home office is now so pervasive that speculation says it will find acceptance in the corporate world. My daughter-in-law's company, an SRI spin-off, is paying for home high-power Internet access, as well as computer furniture, a monitor, and peripherals to go with employees' existing laptops!

Working at home may no longer be thought of as just a laptop on the kitchen table but an ongoing, different, and conceivably less costly corporate physical structure in the future. Whether teleconferencing and collaborative online work will, as Engelbart long ago envisioned, finally take a foothold in corporate and government travel is another interesting question.

So, while clearly not as accessible and affordable as you now have it, as you stare into the virtual world prepared for you by Zoom, realize you are simply enjoying the fruits of innovation that SRI both foresaw and practiced nearly a half century ago.

SRI people noted in the *Investments in Tomorrow* issue were editor Elizabeth de Atley, graphic artist Ron Moore, photographer Ron Deutsch, and consultants Doug Engelbart, Elizabeth Feinler, Stan Fralick, Tom Humphrey, Jeanne Leavitt, Steve Miller, Jim Norton, Alan Purchase, and Dick Watson.

1. Advanced Research Projects Agency of the U.S. Department of Defense.

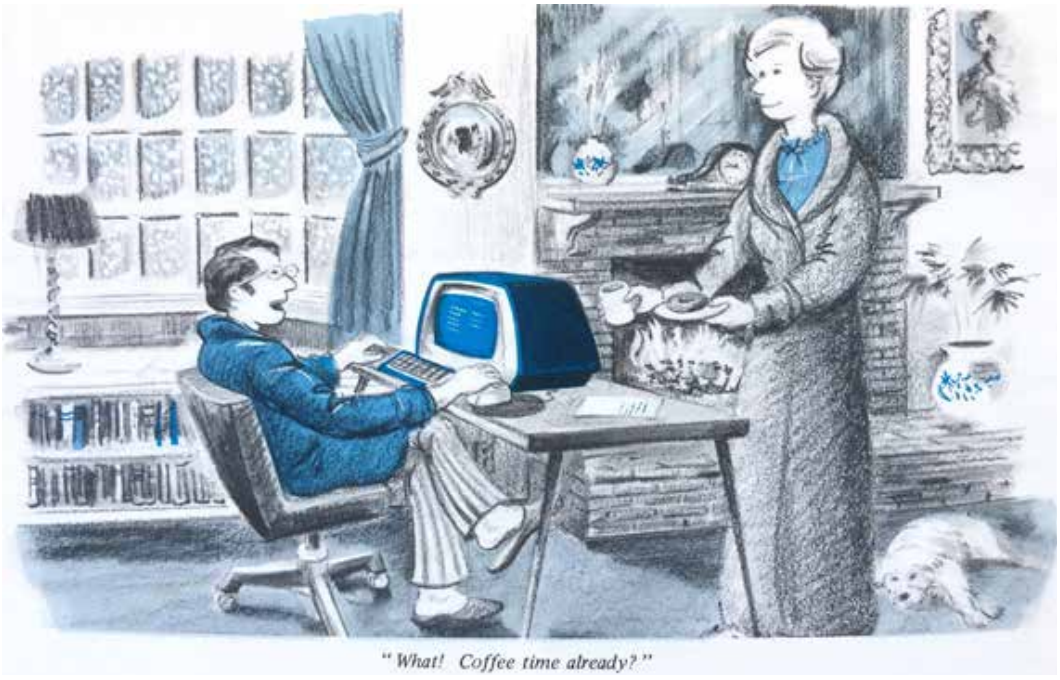


Figure 4. SRI illustrator Ron Moore's concept of the home office c. 1974.

SWOT and SRI

By Don Nielson

There was a time at SRI, starting as far back as the late 1950s, when the institute was deeply engaged in the development of methods for corporate planning. This was original stuff, derived and invented to help cope with the economic surges of the day. These innovations in strategic planning were created to assist SRI's corporate clients in determining how they should adapt to changing conditions, not just to remain viable but to seek out new opportunities for growth.

One of the concepts produced was a "chain-of-reasoning" that consisted of eight sequential steps corporate planning could take to both expose present shortcomings and search for and then adapt to new opportunities. Over time, SRI met with more than 500 companies in exercising such techniques and, through that interplay, boiled the chain down to four steps or questions:

What is now **S**atisfactory?
What are our **O**pportunities?
What are our critical **F**aults?
What are our important **T**hreats?

The acronym that popped out was SOFT. One SRI client, a consulting firm itself, helped this abbreviated version along by renaming it SWOT, for strengths, weaknesses, opportunities, and threats. This straightforward methodology has become so ingrained in corporate planning across the years and worldwide that tracing its history, its origins, has become important.

So, for quite a few years now, two gentlemen have been collaborating on this history. The first is researcher and lecturer Richard Puyt. Once he learned of SRI's early work, and because of it, he joined with Finn Birger Lie, a management consultant himself and the son of one of the SRI principals in creating the methodology. Figure 1 is a photo of them at SRI in 2016. While Puyt is a lecturer in the department of Applied Sciences at Amsterdam University, his pursuit of the history of SWOT is part of his Ph.D. thesis at the University of Twente. Lie is aiding in the effort to get the history accurately told.

While this may surprise you, Puyt was first attracted to SRI's contributions to SWOT by an article in the SRI Alumni Newsletter of December 2005! (https://alumni.sri.com/newsletters/2005/AlumNews-Dec-2005.pdf) It turns out that, according to a 2015 email I received from Puyt, this

Figure 1. Richard Puyt (left) and Finn Birger Lie at SRI in 2016.

brief article in our newsletter was the "last piece of available evidence" that SRI was the source of this work and a critical "stub" for SWOT analysis history! That newsletter article was written by Al Humphrey, another participant in the SRI development team that also included Otis Benepe, Marion Dosher, Birger Lie, Arnold Mitchell, and their leader, Robert Stewart. Figure 2 is pictures of some of that team, including rare pictures of Lie and Stewart, pipes and all!

Al Humphrey

Otis Benepe

Birger Lie

Robert Stewart

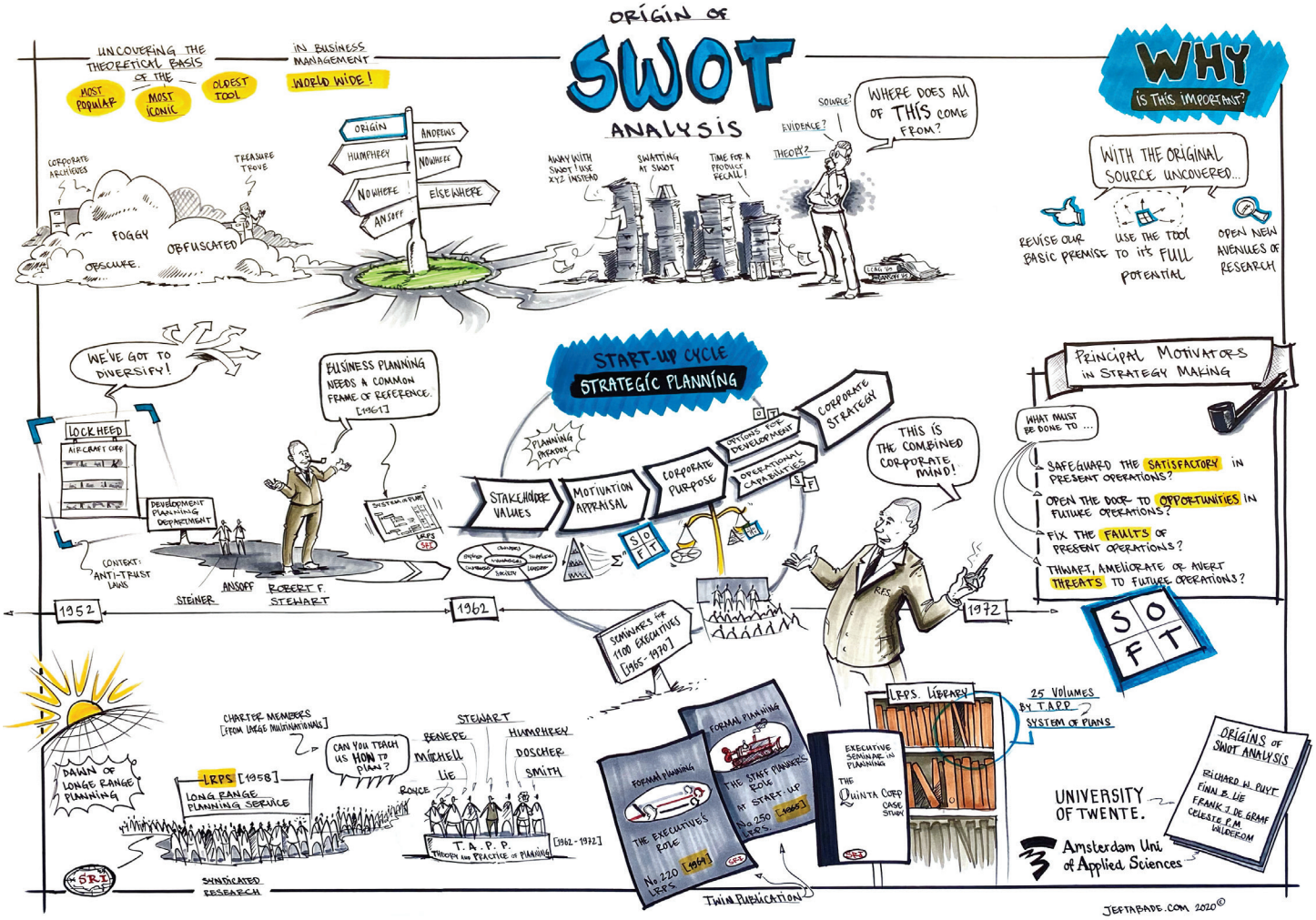
Figure 2. Some members of the SRI SWOT development team.

Together, Puyt and Lie have comprehensively dived into the genesis of SWOT and have accurately given SRI its rightful place in its history. By providing them with SRI material, I have been helping them in that process since late 2015. Now, with a sufficient story to tell, they submitted their paper "Origins of SWOT Analysis" to the 80th annual Conference of the Academy of Management. It has been judged in the top 5 percent of the thousands of submissions for 2020. Moreover, it has been nominated for the Best Paper Award by the Academy's history division.

Their paper is reputedly the first publication showing the true origin of the SWOT methodology. You can gain a greater insight into how this methodology emerged at SRI through Puyt's large, engagingly portrayed poster (Figure 3). I thought the picture of Stewart that I had sent Puyt was a bit odd because of the pipe. Well, that pipe was already engrained in his image as the poster reveals him in his leadership role.

Since this is an ongoing historical pursuit by Puyt and Lie, they have explicitly requested that if any of you who have further knowledge about the SRI work surrounding corporate planning either let us know (steering-committee-alumni@sri.com) or contact Puyt directly at richardpuyt2019@gmail.com.

The emergence at SRI of a SWOT-like approach to planning was just a part, albeit a lasting part, of its corporate planning innovations. There also arose the concept of stakeholders plus alternative planning methodologies such as scenario planning, decision analysis, and a market segmentation offering called VALS, for values and life styles. They all had important impacts and led their SRI principals to write



Used with permission.

Figure 3. History of SWOT development, as portrayed in Puyt and Lie's paper.

books and start a number of new consulting groups, all engaged in their specific approach to strategic corporate planning. Three of these new companies were Institute for the Future, Strategic Decisions Group (SDG), and Global Business Network. Besides SDG, five more companies arose out of the decision analysis approach alone.

It is gratifying that SRI gets some of the recognition it deserves, wherever and whenever. That our newsletter is Internet searchable is also a plus and should encourage all of you alums out there to submit your historical accounts of important impacts you and SRI have made. Next!

Note: Robert Stewart was inducted into the SRI Alumni Association Hall of Fame in 2004. See his citation at https://alumni.sri.com/halloffame-archive.html#2004.

CREDIT UNION NEWS

The Origins of Some Contemporary Customs and Sayings

Contributed by Peter Weisshuhn

Peter Weisshuhn volunteers for the charity AgeUK to help entertain and stimulate elderly people who are living alone. In the AgeUK files, he found descriptions of the origins of some customs and sayings that are used today but that date back to the 15th century.[1]

These stories must have been an entertaining diversion for Peter's elderly friends, and we hope they will be for you, too. At the very least, they may send you to your favorite Internet source to validate the origin story you had always though was "true"!

The Bride's Bouquet

In the 15th century, most people got married in June because they had taken their yearly bath in May. Their body odor was beginning to become apparent in June, so brides carried a bouquet of flowers to mask it. Hence today's custom of the bride carrying a bouquet at the wedding.

Throw the Baby out with the Bathwater

With just one big tub filled with hot water in a household, bathing had a hierarchy. The man of the house had the privilege of the nice clean water, then came the sons and other men, then the women, and finally the children. Last of all to be bathed were the babies. By then, the water was so dirty you could actually lose someone in it. Hence, throwing the baby out with the bathwater.

The Kitchen: Source of Food and Sayings

In those olden days, most people ate primarily vegetables and did not get much meat. A big pot always hung over the fire in the kitchen. Every day, the women lit the fire and added items to the pot. The family ate the stew for dinner, leaving the leftovers in the pot to get cold overnight and then started over the next day. The pot thus could contain food that had been in it for quite a while. Hence the rhyme,

> *Peas porridge hot, peas porridge cold, peas porridge in the pot nine days old.*

Sometimes the people could obtain pork, which made them feel special because it was a sign of wealth. When visitors came over, they hung up their bacon to show off, demonstrating that the man of the house could bring home the bacon. They would cut off a little to share with guests and sit around and chew the fat.

Upper Crust

A loaf of bread was divided according to status. Workers got the burnt bottom of the loaf, the family got the middle, and guests got the top, or the upper crust.

Holding a Wake

Lead cups were used to serve ale or whisky. The combination would sometimes knock the imbibers out for a couple of days. If the unwary drinkers had been on their way home and keeled over in the road, passersby would take them for dead and get them home so their family could prepare them for burial. These unfortunates were laid out on the kitchen table for a couple of days, and the family would gather around and eat and drink, waiting to see if they would wake up. Hence the custom of holding a wake.

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1. The material in the AgeUK file did not have a source cited.

Annual SRI Alumni Reunion Cancelled

In light of the continuing COVID-19 pandemic and concern for our Alumni Association members' health, we have decided not to hold a reunion this fall. We hope the situation in 2021 will allow us to resume the reunion along with the Hall of Fame induction ceremony. Please stay tuned for news of an upcoming reunion in a future newsletter. In the meantime, we would still appreciate your nominations for Hall of Fame candidates; guidelines and nomination instructions appear below.

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.

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.

The SRI Alumni Association welcomes new members:

Thomas Brunner
Christine Cuppdetti
Michael Kirkpatrick
David Martin
Ian Thalmessinger
Katherine Vejtasa
Wenming Ye

And welcomes back previous member:

Marie Bienkowski
Paul Finnigan
David Huber
Takao Kobayashi
Patricia McKenzie
Harry Pettis, Sr.
Jerome Thomere

We look forward to your participation in the Alumni Association and hope to see you at our next group event.

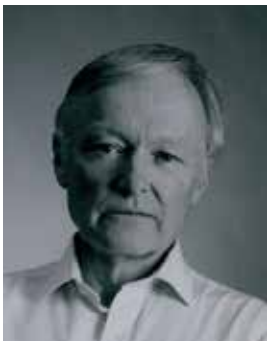
Directory Addendum

The enclosed directory addendum (covering the period January 1, 2020, to July 31, 2020) contains new members and corrections. Please add it to your 2020 Directory.

Wanted: Your Submissions

We welcome articles and shorter items from all Alumni Association members to be considered for publication in the newsletter. Have you done something interesting or traveled to interesting places? Received any awards or honors? Your fellow alumni want to know! Please send items to steering-committee-alumni@sri.com.

William Kirk English



William (Bill) English, the engineer and researcher who helped build the first computer mouse while working for Douglas (Doug) Engelbart in SRI's Augmentation Research Center (ARC), died July 26, 2020, at age 91. Bill died in San Rafael, California, of respiratory failure.

Bill was born in Lexington, Kentucky, on January 27, 1929, the only son of Harry and Caroline (Gray) English. He attended a boarding school in Arizona and then studied electrical engineering at the University of Kentucky. He served in the US Navy until the late 1950s, including postings in northern California and Japan.

Bill joined SRI in the late 1950s to work on magnetic drives and built one of the first all-magnetic arithmetic units with Hewitt Crane. Bill was the first person to join Doug's laboratory, the ARC. Doug envisioned a machine that anyone could use simply by manipulating images on a screen using a cursor and perform discrete tasks by selecting particular symbols or images, but he struggled to explain this vision to others. Bill was one of the few who understood these ideas and who had the engineering talent, patience, and social skills needed to realize them. In 1964, Bill turned Doug's vision into a reality, building the first computer mouse and, through a series of tests, showing that it could navigate a screen faster than any other device developed at SRI. In 1965, Bill led a project, sponsored by NASA, that evaluated the best way to select a point on a computer display; the mouse was the winner.

The multifaceted experimental "machine" (that is, a computer) was called oNLine System (NLS), and on December 9, 1968, they unveiled it at a historic event in San Francisco that became known as "The Mother of All Demos." Doug and Bill demonstrated forms of online text editing, video conferencing, and "hypertext" linking, activities that presaged desktop and laptop computers as well as hand-held devices in common use today. "It showed what a computer interface could—and should—look like," said Doug Fairbairn, a director of the Computer History Museum in Mountain View, California.

Bill left SRI in 1971 and went to Xerox Palo Alto Research Center (PARC), where he managed the Office Systems Research Group. While working at PARC, he continued to adapt many of the NLS ideas in a machine called the Alto, the first computer designed from its inception to support an operating system based on a graphical user interface (GUI). For example, Bill developed a ball mouse in which a ball replaced the original set of wheels.

In 1989, Bill went to work for Sun Microsystems on internationalization efforts.

Bill's first marriage, to Patricia Dickson, ended in divorce. He met his future second wife, Roberta Mercer, when they were both at SRI. Bill is survived by Roberta; two sons from his first marriage, Aaron and John; a stepdaughter, Patricia; and a granddaughter.

Based in part on an obituary published in The New York Times *on July 31, 2020.*

Otis Frederick Forsyth

Frederick (Fred) Forsyth was born November 24, 1934, in Youngstown, Ohio, and died on May 30, 2020, at age 85.

Fred was a 1952 graduate of Elyria High School in Elyria, Ohio. He served in the U.S. Marine Corps from 1956 to1960, achieving the rank of captain. In 1956, Fred attended the Illinois Institute of Technology where he earned his bachelor of science degree in electrical engineering. He went on to earn his master of science degree in operations research and computer science from Stanford University in 1969.

Fred's professional life included work with SRI in Menlo Park; with the U.S. Navy Third Fleet based at Pearl Harbor, Hawaii (as a senior operations analyst); and with NASA Ames Research Center, Moffett Federal Airfield in Santa Clara County, California.

Fred and his wife moved to Chapin, South Carolina, in 2004 to enjoy his retirement years on beautiful Lake Murray.

Fred is survived by his wife, Betty Hays Forsyth; children Tamara and Saundra; stepchildren Allison and Scott; and nine grandchildren. He was predeceased by his brother, Phillip L. Forsyth.

Based on an obituary published in The State *on June 7, 2020.*

Donald Reaville Grine

Donald (Don) Grine, a former manager in the Poulter Laboratory at SRI, died on June 24, 2020, at Silverado Memory Care Community in Encinitas, California. He was 89 years old.

Don was born in Dunkirk, New York, to Sidney Reaville and Gertrude Elizabeth Bark Grine. After moving to several cities in New York and Pennsylvania, the family settled in Staunton, Virginia. There, while in high school, Don met Joan, his future wife; they were married for 67 years. He went to the Massachusetts Institute of Technology for undergraduate work and stayed to complete a doctorate in geophysics. Joan was with him for the five graduate years, living in married student housing on the campus, where their two children were born.

Don and Joan moved to Palo Alto, California, in 1958 where he worked for SRI in shock physics and acoustics. In 1961, Don went to work at Schlumberger, Ltd., in Connecticut, where he engaged in research in oil prospecting and well-logging methods. He has two patents and many publications to his name.

In 1965, Don and Joan returned to Palo Alto and SRI, where Don was manager of Shock Physics and Geophysics in the Poulter Laboratory in the Physical Sciences Division. In 1971, they moved to La Jolla, California, where Don was a manager and then president at SCubed (Systems, Science and Software). After living about 14 years in Del Mar, California, Don retired in 1989 and pursued his naturalist interests. He became a docent at Torrey Pines State Natural Reserve, leading nature walks and docent training, and he was a docent at San Elijo Lagoon Ecological Reserve and Nature Center, leading nature walks. Don was an avid reader and tennis player, and he loved bird watching, scuba diving, and all types of photography, including underwater photography.

Don is survived by his wife, Joan; daughter Katherine; son Lawrence; four grandsons; and three great grandchildren. He also leaves a brother, Michael, and two sisters, Martha Nygaard and Lynn Dillon.

The family extends a sincere thanks for the kind care of the Silverado Encinitas Memory Care Community staff and the Silverado Hospice. They all were very helpful to Don and Joan.

Based on information from Joan Grine, Carl Petersen, and Don Shockey.

Klaus W. Krause*

Klaus Krause, a technical writer and editor at SRI from 1976 to 2008, died peacefully in his sleep at Stanford Hospital in Palo Alto on July 9, 2020. His death was due to complications from sarcoma cancer. Klaus was 79 years old.

Klaus was born during World War II on February 17, 1941, in Rosenbühl, a little farm town in Bavaria, Germany. He spent his early childhood years living with his grandmother to avoid the bombing in the cities. In 1951, he immigrated to the United States with his mother, Barbara, and his stepfather, Herbert Krause. Before the trip, his parents had had Klaus take English lessons, so at 10 years old he became their English interpreter as the family adjusted to their new country. They settled first in Denver where their sponsor, Barbara's brother, lived and soon after moved to Los Angeles and then to nearby San Gabriel where Klaus completed grammar school and Mission High School. He was valedictorian and editor of the school yearbook at Mission High.

Klaus attended the University of California at Berkeley, graduating with a bachelor's degree in physics and a master's degree in English. In 1962, during his senior year, he met the love of his life, Ann Petersen. They married in February 1965. It was Ann's love of art and literature that inspired Klaus to pursue the master's degree, which focused on English literature.

From 1966 to 1970, during the Vietnam War, Klaus served in the Air Force as an English instructor at the U.S. Air Force Academy Preparatory School in Colorado Springs, Colorado. Their son, Steve, was born at the Air Force Academy Hospital in January 1968.

In 1970, the family moved back to California where Klaus began his very successful career as a technical writer and editor. In that role, he was able to combine his ability to understand complex technical information and his superior English skills. His first job was at a company in Southern California, followed by a move to Northern California to work for Kaiser Engineers in Oakland.

In 1976, Klaus joined SRI in Menlo Park. In his more than 31 years there, Klaus was respected and much loved by all who worked with him. He produced error-free copy and took pride in adding polish to the documents he edited.

In fact, his name became a verb. People at SRI knew that when documents were "klaused," they would be excellent. After his retirement, Klaus continued to edit at SRI on a part-time basis until about a month before he died.

Klaus enjoyed photographing family events and his frequent travels with Ann in the United States, Canada, and Europe, as documented on their photo site, klausandann.smugmug.com. He and Ann enjoyed classical, folk, and new age music and took advantage of the many performances in the Bay Area. Throughout his life, Klaus also continued to have an interest in physics and the big questions about the universe.

Everyone who met Klaus was impressed most of all with his kindness. He was never condescending and treated everyone with warmth and understanding.

Klaus loved and was loved by his family. He and Ann were married for more than 55 years. Klaus is survived by Ann, son Steve, and Steve's wife, Jacqueline, as well as his granddaughter, Ava.

Those wishing to honor Klaus's memory can donate to Destination Home, a charity working to end homelessness in Silicon Valley. A Zoom memorial service was held on August 1.

Based on information from Ann Krause and an obituary published in the San Jose Mercury News/San Mateo County Times *on July 21, 2020.*

George Norton Oetzel

George Oetzel died of heart failure on October 17, 2019, at age 83. He was a senior research engineer at SRI in Menlo Park for nearly 40 years.

George had received a B.S. from the California Institute of Technology (CalTech) in 1958 and a Ph.D. from Stanford University in 1963 in electrical engineering.

George moved to Boulder, Colorado, after retiring from SRI in 2002. In retirement, he became noted for his contributions to the environment. He noticed bluebirds nesting in an oak-tree cavity in a downtown Boulder park and persuaded city officials to allow him to install nest boxes. He subsequently developed three suburban trails that he monitored with his wife, Marti (Martha). In 2004, after learning about the bluebird nest boxes at Walker Ranch, Colorado, George arranged with county officials for monitoring by the Boulder County Audubon Society. Marti coordinated the program volunteers, and George served as president and editor of the society newsletter and was webmaster for the Boulder County Nature Association for a number of years. In 2013, George and Marti received the Boulder Country Land Conservation Award for Environmental Stewardship.

In addition to birding, George was an avid runner, mountain climber, and cyclist. He also enjoyed folk and Scottish country dancing and concerts.

George is survived by Marti, his wife of 40 years; children Ken and Donna; and four grandchildren.

Based on an obituary published in the May 2020 issue of the Stanford Magazine *and the Winter 2008-09 issue of the* Bluebird Journal *of the North American Bluebird Society.*

Nicholas Peter Plotnikoff

Nicholas (Nick) Plotnikoff, a researcher at SRI in the 1950s, died suddenly June 4, 2020, at the age of 92.

Nick was born in Harbin, China, on August 13, 1927, to parents who had fled the Russian revolution. He immigrated to the United States in 1929 and graduated from the University of California at Berkeley and the University of Texas Medical School with a Ph.D. in pharmacology.

Nick was a pioneer researcher in central nervous system pharmacology. His principal research interest was in psychoneuroimmunology, with emphasis on stress hormones and cytokines (enkephalins and endorphins). Nick was the first to identify the central nervous system effects of hypothalamic releasing factors, resulting in clinical development for treatment of depression and Parkinson's disease.

At SRI, Nick helped develop medications to support manned space flight.

At Abbott Laboratories from1963 to 1975, he coauthored 25 papers with 1977 Nobel Prize winner Andrew Schally on hypothalamic control of the pituitary gland. Nick was awarded several patents for his development of central nervous system medications including the still unique

medication magnesium pemoline (Cylert). Until 1975, he led Abbott's research on the antinausea properties of Cannabis sativa.

Nick was a professor of pharmacology at the University of Illinois Medical Center in Chicago from December 1987 until his retirement in May 2008. He had formed TNI Pharmaceutical, Inc., in 1987, which became a public company in 1991. Nick served as its chief executive officer and president for 20 years. He also helped develop the immunological effects of met-enkephalin (MENK, a naturally occurring endogenous opioid peptide) and, along with the late Dr. Bernard Bihari, was responsible for the Phase 1 and Phase 2 trials for MENK in acquired immunodeficiency syndrome (AIDS) caused by the human immunodeficiency virus (HIV).

Nick was the coauthor of 147 papers in the peer-reviewed literature, numerous textbook chapters, and three books including *Stress and Immunity* (1991). His first publication was in 1952, and his most recent scientific paper was published in August 2017.

Nick will be remembered for his many contributions to biomedical science, his hearty laugh, and his capacity to bring everyone joy.

Nick is survived by his wife of 60 years, Carol (née Adams); brother George; son Greg; daughter Susan; and two grandchildren, Jack and Nicole.

Donations in Nick's memory can be sent to the Orphans of the Storm (Deerfield, IL), the Humane Society of Ocean City, NJ, or The Salvation Army.

Based on an obituary published in the Chicago Tribune *on June 21, 2020.*

Benjamin Emil Suta

Benjamin (Ben) Suta, a former SRI researcher, died on February 27, 2020, at age 84.

Ben was born during a blizzard on December 1, 1935, in his grandfather's homestead shack 12 miles west of Sweet Grass, Montana. He was the third of six children born to Peter and Hannah Suta. In 1937, the family moved from the homestead to their own nearby farm. His parents resided on the farm until their death.

Ben attended a one-room country school through the sixth grade. He then went to school in Sunburst, Montana, graduating from high school in 1953. He graduated from Montana State College in 1957 majoring in mathematics and science. He was drafted into the Army in 1958 and was stationed at Fort Benning, Georgia, where he was classified as a statistician, testing new weapons for the infantry.

On leaving the Army in 1960, he accepted a position as a statistician with Hercules, Inc., in Salt Lake City, Utah, where solid propellant rocket motors were made. Ben met Margaret (Margie) Rowett, who was the daughter of a coworker. She became the love of his life, and they were married in July 1963.

In 1964, Ben and his family moved to Menlo Park, California, where he worked as a senior scientist for SRI doing environmental and military research. While at SRI, he earned a master's degree in statistics from Stanford University. In 1984, Ben and Margie returned to Salt Lake City where he again worked for Hercules as a manager of statisticians and engineers. He retired in 1984, accepting an early retirement incentive.

Ben was an expert stained-glass artist, and many of his works are on display in homes in the western United States. He played contract bridge and was a ruby life master. He collected Indian artifacts, coins, Montana books, and many other items that interested him. Olympic pins were one of his many collections. Ben spent many hours volunteering before and during the 2002 Winter Olympics for the speed skating competition. In recent years, he attended an exercise class that he enjoyed.

Ben was devastated when Margie died in January 2017. They had been married for more than 52 years. He said,

"She was 7 years younger than me and was supposed to take care of me in my old age." Many who knew him will attest to his wittiness.

Ben is survived by his son, Kevin, and daughter, Nannette; grandson Kevin Benjamin Suta; brothers Ted, Henry, and Rudy; sisters Violet and Dian; numerous nieces and nephews; and many friends. He will be missed.

A celebration of life was on Saturday, April 25, 2020, in Sandy, Utah. He will be interred this summer next to his wife in Sturgis, South Dakota.

Based on an obituary published in the Deseret News *from April 5 to April 19, 2020.*

Laura Sherman Tietz

Laura Tietz died peacefully at her home in Calistoga, California, on Sunday, April 5, 2020, at age 92.

She was born Dawn Sherman on September 28, 1927, in Stockton, California, to Floyd Paul Sherman and Martha Rose Farrington Sherman. Both the Shermans and Farringtons were early colonial families who arrived in California in the 1800s.

Laura was raised in Northern California from Niles Canyon in Alameda County to the redwoods in Mendocino County. She graduated from Ukiah High School in 1944 and met her future husband, Thomas Edwin Tietz, at age 16 in her first days as a freshman at the University of California at Berkeley. On October 19, 1947, Laura married Tom and changed her name, saying that Dawn was not a name to grow old with. Laura and Tom were married for 60 years, until Tom's death in 2007.

While at Berkeley, Laura studied English literature. After attending a wartime course at Stanford University where she was trained to be a chemical analyst, she returned to Berkeley and changed her major to chemistry. In the 1970s, she worked at SRI in the electrochemistry laboratory.

Laura and Tom settled in Palo Alto, California, in 1955, built a home in Los Altos Hills in 1960, and moved to Fitch Mountain in Healdsburg in 2005. Laura had lived in Calistoga for one year at the time of her death. She loved Calistoga and the neighbors she met there. She enjoyed porch parties, walking in the neighborhood, and especially dancing and people-watching at the summer concerts in the park.

Laura had a lifelong interest in community service and social justice. She was a founder of Summer Discovery multicultural day camp in East Palo Alto in the 1960s. For many years, she volunteered on the Santa Clara County Suicide and Crisis (SACS) hotline. She was especially proud of her work for SACS and the lives she saved. In Healdsburg, she established the nonprofit organization FireFreeFitch, a fire-awareness program. She also served on the grant committee for Healdsburg Forever.

Laura was an adventurer, a poet, an avid lifelong reader, a listener, and a learner. She saw every aspect of life as something to be understood and savored. She said yes to every offer and delighted in new experiences. Her joie de vivre was contagious. She loved the Sierra mountains, swimming, traveling, drinking good wine, art, opera, and attending the symphony. At 70, she became a certified scuba diver and enjoyed diving until her 90th birthday. She delighted and inspired her friends and family and will be greatly missed.

Laura is survived by her three children, Paul, Sara, and Mark, and her grandchildren, Derek, Adryon, Emilie, and Aleta.

A celebration of life will be scheduled later this year. To receive details or share memories, please email laura@maacama.com or write to Laura Tietz, PO Box 889, Calistoga CA 94515.

Based on an obituary published in the San Jose Mercury News *on April 9, 2020.*

Francis Kathleen Wear

Francis (Fran) Wear died on February 1, 2020, in Fremont, California, at age 72. She was born on February 15, 1947, in Oakland, California.

Fran was employed at SRI from 1983 to 2020 in the Finance Department. She started in the Accounts Payable file room, but in her 37 years at the institute Fran worked in every area of finance, making her the go-to person in the department. Fran was nurturing and supportive and a born teacher. She wanted her staff members to grow and succeed in their roles. Fran believed there was no such thing as a stupid question, and coworkers looked to her for help in solving problems.

Fran was a giving person who developed deep friendships with her colleagues not only in the Finance Department, but also in other parts of SRI.

Fran is survived by her husband and other family members.

Based on information from Lisa Gramkan and Sherrie Jester.

Note: Obituaries for five other former SRI staff members—**Thelma Barrett**, who died on July 23, 2020, **Glenn Sorenson***, who died on December 11, 2019, **Dorothy Stewart*, Robert Whitten***, who died on May 21, 2020, and **Mary Wilcox**, who died on August 3, 2020—will be published in the December 2020 newsletter, or when more complete information is available.

Corrections to the April 2020 newsletter: The obituary for **Norman Bruce McEachron** incorrectly showed his date of death as August 23, 1019; the year was 2019. Obituaries for **Charles H. Anderson***, **Robert Matteson Hill***, and **Norman Bruce McEachron*** should all have noted they were members of the SRI Alumni Association.

*Member of the SRI Alumni Association

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

NEW MEMBERSHIP IN THE SRI ALUMNI ASSOCIATION

August 2020

Please consider joining 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 NEW MEMBERSHIP ENROLLMENT ***(Please don't use for renewing your membership) First Year's Membership Free!***

Date: _____

Publish contact information in the Membership Directory: Yes ☐ No ☐

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

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