Fall 2019 Luncheon

Thursday, October 17, 2019
Alioto's - 3041 N Mayfair Road
New Price --→ $18.00 per person
11:00 Gather – 12:00 Lunch – 1:00 Program

Menu Selections

-- Baked stuffed pork chop w/brown gravy &
   Applesauce

-- Lasagna

-- Seasonal salad w/grilled chicken breast

-- Chocolate Sundae for dessert

(Entrees are served with salad/choice of dressing, whipped or buttered potatoes, Italian bread, coffee, tea, or milk, and choice of dessert. Rice or mostaccioli is served in lieu of potatoes for some lunch choices. Soups or fruit cups are served with salad choices)

Program:

BAIRD

Paul E. Christian and Michael Antonelli, Robert W. Baird & Company employees will speak about Behavioral Finance as well as a quick market and economy overview.

Paul is a Senior Vice-President of the Baird-Private Wealth Management group.

Michael is a Baird-Private Wealth Management Strategist and Managing Director.

Paul and Michael will be available to try and answer any questions that the WSJ Society members may have concerning investments, the market and the economy.

Please make checks payable to: **WSJ Society**
-Mail to: WSJ Society
         P.O. Box 1425
         Grafton, WI 53024
- Checks need to arrive no later than Oct. 10, 2019
- New Price -- $18.00 per person

Also, let us know if you have any dietary restrictions when making your reservation or contact Jim Pasterczyk, VP Program at 414-764-8609.

A great time was had at the Summer Luncheon!

First off, we got to welcome Ajit Tipnis to his first luncheon. It was good to meet Ajit and learn about his career experiences at Battery.

There were a good number of members at this luncheon who we have not seen for a while. That made for great catching-up conversations. Check out the photo gallery at WSJSociety.com to see how many you recognize.

Then, our featured speaker, Tom Fehring, caught our attention with a fantastic introduction to the creation of industrial Milwaukee. Tom wrote a book on it,
   "The Magnificent Machines of Milwaukee and the Engineers Who Created Them". The stories are fantastic – like that of our own Warren S. Johnson, 10 pages in the book. But these are not just stories from the past. I think they offer valuable lessons for today, high tech and all! Here's a few that I found interesting:

Learn from failure: How about the effort in the early 1800's to create a canal from the Milwaukee River to the Rock River promising a water route from New York through Milwaukee to the Mississippi River? It failed! Railroads became the preferred transportation for people and commerce. But the completed segment with the North Avenue Dam created a waterway elevated from the Milwaukee River. Re-frame that situation from 'failure' to a source of water power for factories in the heart of the city.

Open Innovation: Is 'makerspace' a new concept? Hardly, in the mid-1860's G. Kleinstuber opened the machine shop in his brass foundry to local inventors. That collaboration contributed to inventions of Carlos Glidden, (steam-driven plow), Mattias Schwalbach, (sewing machines), and Christopher Latham Sholes (printing devices & typewriter).

Gene Strehlow

"One Giant Leap for Mankind"

As I write this in summer, much of the news stories are covering the 50th anniversary of Neal Armstrong and Buzz Aldrin making their historic Apollo moon landing. I'm not sure if it will still be in the press as you read this.

I'm sure that historic accomplishment is well within the memory span of most all of us retirees. How do you think that event affected your life – then and now? At that time many young men wanted to be an astronaut. However, the astronauts were all military test pilots before becoming an astronaut, and since I didn't have good enough vision to fly a plane, I'd have to settle for some type of support function. I was still an undergraduate engineer as a junior at Milwaukee School of Engineering, just under two years from first walking in the door at Johnson Service Company. As a "gonna be Engineer" I had the naïve belief that if you threw enough engineering at a technical problem and cost wasn't an issue, anything could be accomplished. That's what my professors implied. It took a while longer to realize how many things can go wrong on something as complex as a 250,000 mi. trip to the moon, and back.

Where would today's technology be without the space race to that moon landing? The whole space program gave engineering a big boost in popularity. It took a lot of technology to win the space race, not only within NASA, but also within all the suppliers and outside research that was tied to it. Advances in computers, air and water purification systems, solar cells, freeze dried food, Tang, space blankets, navigation systems, heat shields, parachute systems, satellite TV, memory foam, artificial limbs (from the landing gear), are just some that come to mind. Without many of the computer, smoke detection, communications, and other advancements made during that time period, JCI might still be selling more pneumatic thermostats ;-)

Regardless of whether or not you were a fan of the space program, your life and our time at JCI has been affected by that space race to the moon.   The 1960's were a period of many changes, and the commitment by President John F. Kennedy to put a man on the moon by the end of that decade was certainly a big one of them.

And then came Woodstock – significantly less planned and practiced.

Gene Strehlow

A Reminder:

As I explained in the last newsletter we are trying to update our email addresses, if you have one. Please send; **Your Name**, **Email Address**   - to ->   **WSJSocietyEmails@gmail.com**

Talent Development: Is there a shortage of skilled workers for your business? Invest in education! Tom has an entire chapter on Milwaukee's Trade School and Engineering Environment. Oh, and to give the students some hands-on experience in making things. How about having them build and sell new technology batteries? That became so successful, it was spun out from the School of Engineering (MSOE) in 1912, as the Globe Electric Company, (Globe-Union).

Entrepreneurial Spirit: We're familiar with the story of Warren S. Johnson, an entrepreneur professor who identified a problem, created a technical solution, teamed with a 'venture capitalist' to start the Johnson Electric Service Company in 1885.

Talent Porosity: There's another abut an engineer who pitched his idea to his boss. Who rejected it. The engineer walked across the street to start his company there.

Tom's book is full of stories like that engineer and Warren, entrepreneurs who created industrial Milwaukee, companies that eventually served world markets. These are people who did change the world. In today's terms, Milwaukee had a very prolific 'collaborative innovation ecosystem.'

The stories are told with loads of pictures. You'll recognize many of the company names and locations; and, you'll be surprised by others. The book is available online and at bookstores. Milwaukee Public Library has twelve copies spread around the system.

Thanks Tom for a great presentation and your work to bring Milwaukee's past to inform our present challenges.

P.S. Tom didn't mention it in his presentation, but on page 305 in the book you'll find that in 1905, the Allis-Chalmers plant in West Allis provided 1.4 million square feet of floor space designed to employ 10,000 people as a model of twentieth-century industrial efficiency. Might there be lessons in that experience for the Foxconn Project as we create a model of twenty-first century production?

While we're on the topic of learning from history, checkout the Johnson Controls Timeline stories on our website, WSJSociety.com. This is a compilation of stories (over 300) provided by Ken Wirth, Historian, on the founding and development of the companies played a role in the development of Johnson Controls. These are business and personal stories of innovation, service to customers and community. There are lots of lessons for today in their contributions since Johnson Controls founding in 1885.

Submitted by:
Jude Anders, Editor

# Do you remember the T6000?
By Stephen Frey - Dayton, OH

The T6000 was the predecessor of the JC80 series. It's interesting how many of the features of the JC80, JC85 and Metasys series systems showed up in the T6000 series processors and how those features were implemented with the technology of the time. Features such as graphic systems displays with numeric readout of point values, analog alarm limits, start/stop scheduling, all point and group-system log printouts, change of state detection, trend logs, and alarm printouts.

Roger Walcott, the SSD Dayton Branch manager, hired me in March of 1975 as the replacement for the Electronic Controls and BAS Application Engineer, Joe Jenkins, who had been hired by Sinclair Community College to run their T6000 system. I was involved with the Building 8 addition which was the last addition on that T6000 system. My role on that job was helping with the checkout of the processor additions and the field points at the channel racks in the motor control centers. Others did the engineering. Ed Vossler was the Senior Application Engineer in the Dayton Office. He did an amazing amount of work. The hardware was designed and built in Milwaukee based on the branch provided point and options list that was generated to meet the job requirements. The processor addition arrived as a large wrapped section of rack mounted card cages with printed circuit (PC) boards. There was a team that came in to do the installation of the new processor module and the wiring of those components into the existing processor.

The T6000 was a hardwired processor. It was not a programmable computer. Every point had hardware in the field mounted channel racks located in the motor control centers and hardware in the processor itself. These were connected via a 44 conductor trunk cable. It contained 12 address wires for selection of the points and several common wires to pass the values represented by voltages. Address decoders received the 12 wires and produced a signal to connect the selected point to a particular wire. There were wires in the cable for the transfer of analog values, wires for binary values, wires for the start and stop functions, wires for the analog reset function and wires for the intercom function. A selected analog input voltage was connected over the cable to the B block in the processor where scaling and ranging was done and the result was passed to the voltage to frequency converter. The frequency was counted in the C block for a period of time to get the number for readout, printout and limit alarming. The processor scanned through the points sequentially and the scan was actually audible. You could hear the reed relays clicking as each point was connected to the processor. The scan read the analog points at 30 per second and the binary contact points at 80 per second. The scan would actually dwell on a point while its value was being printed so during printouts the scan would be slower. The readout of a value had to wait until the scan reached the address of the desired point.

The hardware was implemented using mostly transistors and diodes. See the picture of a similar transistor based 10 bit address counter PC board from 1967.
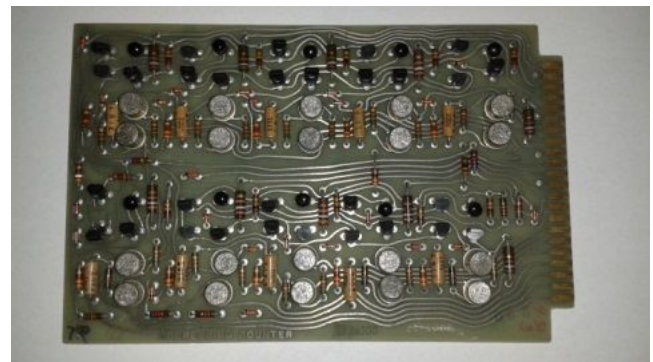
As mentioned reed relays were also used in the circuits. The PC boards were in rack mounted card cages in multiple bays. See the standard processer picture.
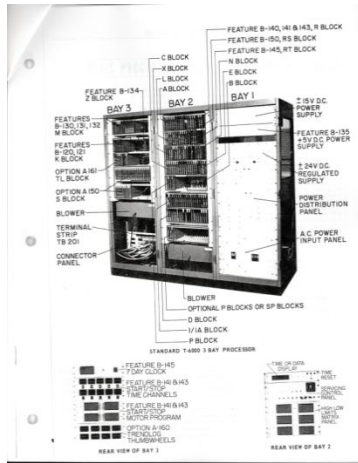
The PC boards were connected via the pins on the backside of the edge card connectors. Part of the installation job involved making numerous connections between boards in the new module and the existing processor.

The Panel Division produced beautiful Graphmite face panels and cabinets for the Control Consoles of the user interface. This included a place for the Kodak Random Access slide projector used for the Graphic Display function. The projector was automatically indexed by the SP block circuitry to the desired slide. The design and production of the slides was another chore for the engineering team. Around the projector screen were projected value displays controlled by the P block circuits. Those displays would show the value of points on the slide using three digits and a letter for the units. I think there were three of these displays on each side of the projector screen. Systems and points were selected with a five digit selector switch and could also be brought up automatically by alarms or change of state conditions. There was an IBM Selectric I/O writer that was used for printouts of

point values, group logs, change of state logs, trend logs and alarms. Remember the dancing IBM Selectric printhead ball? Programming of start/stop schedules was via selector switches and a diode pin board that assigned a particular schedule to a particular point. Alarm limits were set in a similar manner. Binary points could be status, change of state or alarm points and Start/Stop status points could show an alarm if the status did not match the command. There was also an audible alarm and light to indicate when points were in the alarm state. An analog reset point could be selected and the value run up or down with thumbwheels to, for example, adjust the discharge air temperature setpoint. This positioned a remote servo at the motor control center that changed a voltage or pneumatic signal in the system.

It's interesting that so many of the features of later systems, including today's, showed up in the T6000. Technology has moved forward and things that were hard to implement then are now easy but so much of the feature set has not changed in 50 years. I can imagine some neat new features that are past due.

Thanks to Ken Wirth, JCI History and Records, for documents used to refresh my memories of the T6000.

I am looking for the schematic sheets for the JC80 J1 aka Modcomp I computer. I am also looking for the schematic sheets for the COM-TRAN TEN computer used by the Air Force, Navy, Army, technical schools and colleges to train electronics and computer technicians and engineers in the 1970s through the 1990s. Any help would be appreciated. Contact me via 937-256-9698 or swftec@aol.com or via the WSJ website @stephen-frey.

About the WSJ Society

The WSJ Society is a social group of people who share career experiences at Johnson Controls, Inc. The Society brings its members together to enjoy and help each other; and, contribute to community. Activities of the society are described at the website: www.WSJSociety.com.

This Newsletter is published quarterly to contribute to those goals. Member stories and ideas are welcomed and encouraged.

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Jude Anders	VP-Communications
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For membership information and dues payment, please contact Brian Bould, Treasurer

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Checks should be made payable to **WSJ Society**, and mailed to:

> **WSJ Society**
> **P. O. Box 1425**
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In Remembrance

Alice Voight passed away September 22, 2018 at the age of 95. Her three children, and six grandchildren survive her. She worked in the Milwaukee Michigan St. facility,

Ted Jones passed away February 15, 2019. He is survived by his wife, Edie, their 4 children and 7 grandchildren. He worked for JCI for over 30 years.

Florence Marks passed away June 13, 2019. Her daughter and grandchildren survive her. She worked in the office on Michigan Street in Milwaukee.

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On **May 1, 1908**, the Singer Sewing Machine Company opened its new building on Broadway in New York City. In the prior year, the New York branch of the Johnson Service Company (Johnson Controls' former name) installed 128 thermostats and 160 valves at a cost of $5,390 in the soon-to-be-completed skyscraper. From 1908 to 1909, the Singer Building was the tallest building in the world at 612 feet, which easily surpassed the previous holder of that distinction, the 511-foot-tall Philadelphia City Hall (which also included a Johnson Service Company temperature regulation system, not to mention a Johnson-made tower clock larger than London's "Big Ben"). The Beaux-Arts style, red brick building was designed by architect Ernest Flagg and was originally supposed to be only 35 stories, but the Singer Company soon decided to nearly double the height of the building. The Singer Building lost its title as the world's tallest building when the Metropolitan Life Insurance Tower (also located in New York City) surpassed it at 700 feet upon its completion in 1909. Unfortunately, in 1968 the Singer Building also became the tallest building ever to be demolished, as it made way for the U. S. Steel Building (now known as 1 Liberty Plaza). Today, Johnson Controls is still installing systems in the world's tallest buildings. The company supplied 24 chiller units to the cooling plant for the "Downtown Burj Dubai" development in the United Arab Emirates, which includes the current holder of the world's tallest building title - the 2,722-foot-high Burj Khalifa (or Burj Dubai Tower).

The Singer Building towers over its neighbors in this 1908 photograph taken from a nearby New York Street corner

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TIME?

..... YES, and time to renew your membership!

Keep in touch with your life-long work associates via the Newsletter! **Annual Association membership dues are $5**…. You may choose to pay several years in advance or pay a **lifetime membership of $50** as over 500 members have chosen to do. New members (only) paying after September 1st will be credited for both the current and next year. Send dues money to Brian Bould. Not sure you've paid your dues?   Check the **first line of this issue's mailing label.** In addition to your name, it **identifies** the division from which you retired (B= Battery, C= Controls, X=Corporate and **the last year for which you paid dues** (2005, 2006, Life).

MEMBERSHIP ENTITLEMENT COMES WITH 10 YEARS

If you are retired from Johnson Controls or still working there with 10 years of employment, you are eligible for membership in the Johnson Controls Retirement Society.

Send your membership fee to our treasurer, Brian Bould. The address is listed inside this newsletter.