

TUESDAY LUNCH PROGRAMS

Lunch: 11:15 a.m. - noon
Program: noon - 1:00 p.m.
Sponsored by: Barn Gang

May 2nd

'HR and Payroll' (lots of recent changes) Andrew Robbins and Jeff, ADP

Thanks, Teresa Miller

ADP, automated data processing, serves one in five employees in the US. Two interesting facts emerged: The vast majority of ADP clients are small companies, and payroll processing is less than a quarter of their business. Who knew?

Our guests spoke at length about millennials (18-30 year olds) who are entering the workplace in huge numbers. By 2020, they will comprise 50% of the workforce. By 2025 they will be 75% of the workforce, and they want things to be different.

Businesses must change if they are to attract and retain workers. Millennials, in particular, have little loyalty to organizations. They know what they want and will move 'at the drop of a hat' to get what they think is a better deal. Often, it is not purely wages that contribute to an employee making a change, but it is often the fringe benefits that make the difference.

ADP has a huge database from employers all over the country and all over your area. They are in a unique position to show you wage rates in your area, benefit plans offered by your competitors, and help you to adjust your offerings to improve your hiring rates and retention.

We are in a low unemployment market. There just aren't that many qualified applicants for each job. Organizations need to know where they stand so that they can make competitive offers for the few available candidates.

The only constant is change. Don't be a Smith-Corona. (Inside story)

May 9th

'Relay Computers', Stephen Fry

Once upon a time there were computers that had wires and switches and had to be assembled to do specific tasks. The creative engineers that developed these machines were very inventive, and developed circuitry that was most complex and original.

We got a thorough review of all elements of these curious machines. Simple switches, relays, vacuum tubes, transistors, and diodes are the basic components of the logic systems. These elements are arranged in various ways to yield a specific result. There are numerous different types of circuits: and, or, nor, exclusive gates, adder circuits, latches just to name a few. Arranging these components into various configurations is what yields the calculation or decisions that you are striving for.

Also discussed were the way signals are moved around the computer. These 'data highways' are known as a bus. The number of bits of information tells the capacity of the bus.

A sixteen bit machine is four times as fast as a four bit machine because four times as much information can be transferred to the bus at every transaction.

This was all pretty interesting and gave us an insight into the birth of modern computing. Before software, you had to design a circuit that would execute your orders. You had to use faultless logic so that the machine could not make errors and could remember where it was in a calculation. There are still applications for relay computers, but they are slow by modern standards.

May 16th

***‘Prostate Cancer: Screening, Management, Survival’*, Dr. Borislav Hristov, Lt. Col WPAF
Chief Radiation Oncology Clinic**

Prostate cancer sounds like a terrible topic, but it turns out to be not only interesting, but of interest to a group of men ‘of a certain age’. We are what they call a ‘target rich’ environment.

Approximately 25% of older males will get prostate cancer. It is the second leading cause of cancer deaths in US men. This may be where the mistaken use of the term ‘prostrate cancer’ comes from. But ‘prostrate cancer’ is any form of cancer that kills you and leaves you prostrate.

OK, it isn’t funny, but you hear this a lot, and we need to correct the error. The risk of dying from prostate cancer is about 3%. The good news is that the PSA blood test is remarkably accurate in predicting the cancer. Changes in the PSA over time can give a doctor reasonably accurate information regarding the state of the gland and the rate that cancer may be growing.

Prostate cancer is a slow growing cancer, for the most part, and there are numerous treatment options. Before you get to needing medical intervention, eat your vegetables, especially broccoli, avoid animal fats, lose some weight, and hope for great genetics.

There is a genetic element involved here, and there are tests to determine if you have the failed gene. If you have a family history of prostate cancer, get the genetic test to find out if you are vulnerable. There are drugs being developed to reduce the risks. There are numerous treatments available if you are diagnosed.

May 23rd

***‘Introduction to Aero structures for Managers’*, Dr. Som Soni PhD, AFIT**

Today’s was an interesting talk. We got to find out how Dr. Soni came to be in Dayton, how the Indian educational system works, and how important spirituality is to the culture of the Indian people.

Dr. Soni started his career working with sound and vibration, transitioned into composite materials, and that grew into structures and failure analysis.

Failure, of course, results from repeated stress on materials. The joints are the weakest point, but failures in other areas do happen and are more difficult to predict. Strain results from stress, and stresses cause microscopic failures. Repeated stresses expand the original point of failure until such time as the entire component fails.

Fatigue is the ‘classic’ failure mode of metals where the load distorts the metal and breaks down the crystal structure until the metal cracks and fails. Composite materials have similar failure modes, but they are more difficult to predict.

In aircraft/spacecraft there are the problems of pressurizing a vessel and exposing it to extremes of temperature in addition to the stresses of flight. These various stresses tend to be greater than the sum of the individual elements, but the failure mode is not a multiple of the elements.

Finite element analysis is used to predict failures, but is less reliable with composites. There needs to be much more work in this area to provide reliable results.

May 30th

***'Montgomery County Bridges – Plans and Needs'* Paul Gruner PE, PS, Montgomery County Engineer**

Who would guess that there were over 500 bridges in Montgomery County? Who would have guessed that Ohio has one of the best and most respected County Engineer programs in the Nation? Who would have guessed how complicated it is to finance bridge replacement projects?

There are 'state' bridges, 'county' bridges, 'township' bridges, and 'municipal' bridges. The County Engineering office is responsible for inspecting them all regularly. After inspection and analysis, bridges may require changes in load bearing capacity until repairs or replacement.

Repairs and replacement can take years of design, approvals, and financing. Money comes from a number of sources and the need for repairs and replacement is ever-present. We got to see some interesting pictures of local bridges awaiting replacement. They are safe, but it's better if you don't look under there.

The biggest problem is the use of salt and the reaction of salt and re-bar. Epoxy coated re-bar may delay damages, but as we were reminded, every new technology, every new material has to be tested in the field. Results aren't known for 30 years. Work is on-going to build the 100 year bridge, but we aren't there yet. Replacement of steel reinforcements with carbon based synthetics is being tested. Use of stainless steel and barrier materials are being tested as well, but results may not be known in our lifetimes.

Lots of big projects coming up: replace Alex Bell Rd. bridge (\$12M), replace Stroop Rd. bridge (\$16M), and replace Keowee bridge over the Great Miami (\$20M) which is the last filled arch bridge in Ohio. Design work is progressing on a number of bridges, and in 2019 we will see the replacement of the 3rd St. bridge over the Little Miami. Get those orange barrels ready!

June 6th

'Factory Tour of the Airstream Factory in Jackson Center, Ohio'

Lunch at Club at 11:00

Car pool from Club at noon

1:30/1:45 arrive at factory in Jackson Center

Factory tour (3/4 mile walk, no sandals or open toed shoes)

Return to Engineers Club approximately 5PM

June 13th

'Status of the Spirit of Flight Monument'

Walt Hoy

June 20th

'Free Libraries'

**Ryan Ireland, Librarian, published writer, point-man for the Free Library Project in
Greene County and beyond**

June 27th

'Pumkin Tossing Trebuchet'

Eric Puschmann

Thanks: Chuck Martel

July 4th

Club Closed for Holiday

July 11th

'National V.A. History Center and Archive'

Glenn Costie

V.A. Medical Center Director, President of the Engineers Club of Dayton

July 18th

OPEN

July 25th

'The Lafayette Escadrille in World War I'

Paul Cooper

August 1st

'Pro-approved' wooden baseball bats

Scott Hinsch, Phoenix Baseball Bat Company

August 8th

'Artificial Intelligence(pending)'

Srini Datla, V.P. Digital Manufacturing, Sogeti USA

August 15th

OPEN

August 22nd

OPEN

August 29th

Club closed for annual cleaning

September 5th

OPEN

September 12th
OPEN

September 19th
‘Arts and Economic prosperity’
Randy Cohen, Americans for the Arts

September 26th
OPEN

On Hold
***‘New Wind Generator Support Technologies’*,**
Jim Lockwood, CEO Aerosolutions,
Thanks Bill Lockwood

***‘Driving the new Driver-less Cars’*,**
Mike Brown and/or others