ENGINEERS CLUB ***express***
JUNE 2017

CELEBRATE FATHER'S DAY (A LITTLE EARLY) AT THE ENGINEER'S CLUB

It's that time of year to celebrate Dad . . . What better way to honor Dad than to bring him to **Friday Night Dinner** at the Engineers Club on June 16! On June 16, in honor of Father's Day, Dads eat half price. Make sure to make a reservation for what is sure to be a great evening of fellowship and gratitude for what all our fathers do for us throughout the year.

*This offer is exclusively for our members and not guests. One discount per member number please***.**

ANNUAL MEETING, TUESDAY, JUNE 13

The Engineers Club of Dayton will hold its Annual Meeting on Tuesday, June 13, at which new officers and members of the Board of Governors and Engineers Club of Dayton Foundation are installed, and member awards are presented. The cocktail hour begins at 5 p.m., followed by dinner at 6 p.m., and the annual meeting" at 7:15pm.

Limited seating is available so you must make reservations to attend. Call Brenda at 228-2148 by 3 p.m. on June 6 to make reservations. Entrée selections are:
- Duet Plate of Sliced New York Strip & Chicken Cordon Bleu - $30.95
- Roasted Portobello Mushroom - $25.95

INDEPENDENCE DAY CELEBRATION ON THE LAWN, JULY 3rd

Plan to bring the family for great food and the best spot in town to watch Dayton's fabulous fireworks display. Chef Laura & Chef Geoff will be preparing Hamburgers, Hot Dogs, Brats, Smoked Sausages, Baked Beans, Pasta Salad, Potato Salad, Fresh Fruit Salad, Chips, Cookies, and Brownies. Dinner will run from 6:30-8:30 p.m. and then you are welcome to stay to watch the firework display from the lawn at 10 p.m.

Limited seating is available, so please make a reservation by calling Brenda at 228-2148 by June 28 at 3 p.m. The costs are $15.95++ for each adult and $7.95++ for each child ages 6-11; children 5 & under eat for free. Please remember that no outside

food or beverages will be permitted inside the Club, or on the front lawn. Bring your own chairs for a front row seat in our front lawn for Dayton's fireworks at 10.

Parking is available on a first-come, first-serve basis, and is only available for members who are attending the 4th of July Cookout here at the Engineers Club, and not just the festival located across the street. We will do our best to secure parking for everyone, but we cannot guarantee parking, so please come a couple of minutes early in case you need to park in a close-by parking lot.

RAMP UP YOUR KID'S ENERGY FOR SCIENCE SATURDAY, JUNE 10

YouTube sensation Mister C is presenting his program, "Exciting Energy," at the Engineers Club on Saturday, June 10th.

Free admission. Doors open at 9 a.m., and the show runs from 9:30 - 10:30 a.m. Presented by the Dayton Regional STEM Center.

HAPPY BIRTHDAY TO THESE MEMBERS…

John Barber, Jean Cochoy, Christina Combs, David Corcoran, Theodore Fecke, Jennifer Heaton, Loralyn Hickey, Diane Buchanan Johnson, Barbara Hildebrant, Walter Hoy, James Kauppila, Margaret Kile, Stan Kirk, Zoe Dell Nutter, Nicole Pohl, Jim Riegle, Timothy Schlangen, Howard Schumacher, Harry Seifert, Jerry Smith, Linda Stuart, Catherine Taylor, Donald Vanderkarr, Jon VanDonkelaar, & **Roland Watts.**

…AND WELCOME OUR NEW MEMBER

- Greg Robinson from Oakwood, Owner at HCS, Inc.

UPCOMING TUESDAY LUNCHEON PROGRAMS

Lunch: 11:15 a.m. - noon
Program: noon - 1 p.m.

June 6
'Factory Tour of the Airstream Factory in Jackson Center, Ohio'
Lunch at Club at 11 a.m.

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 5 p.m.

June 13
'Status of the Triumph of Flight Monument'
Walt Hoy

June 20
'Free Libraries'
Ryan Ireland, Librarian, published writer
Point man for the Free Library Project in Greene County and beyond

June 27
'Pumpkin Tossing Trebuchet'
Eric Puschmann
Thanks: Chuck Martel

July 4
Club Closed for Holiday

All members and their guests are invited to the programs.

TUESDAY LUNCHEON PROGRAM REPORT

Sponsored by the Barn Gang
By Neil Webster

May 2
'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 U.S. 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. Millennial, 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 rather 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 9
***‘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 who 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.

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 16-bit machine is four times as fast as a 4-bit machine because four times as much information can be transferred to the bus at every transaction.

There are still applications for relay computers, but they are slow by modern standards.

May 16
***‘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 U.S .men. This may be where the mistaken spelling 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 23

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

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 30

'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 ongoing 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 Third St. Bridge over the Little Miami. Get those orange barrels ready!