Air Force Materials and Manufacturing Alumni Association (AFMMAA) Newsletter

Fourth Edition ***Fall 2004***

Gathering of Past AFML Directors

A gala gathering of all of the living Past Directors of the Materials and Manufacturing Directorate, Air Force Research Laboratory (more commonly known as the Materials Lab) was held in June 2004. The event consisted of a social hour and dinner on Tuesday evening 29 June at the Five Seasons Country Club in Bellbrook, Ohio followed by a visit to the Laboratory on Wednesday 30 June for the Past Directors to see and hear about current events and initiatives. Dr. Charles Browning, the current Director, planned and hosted the overall event. Invited to the Dinner were all the Past Directors and their wives, current members of the ML family, ML alumni, friends and spouses. The Air Force Materials and Manufacturing Alumni Association (AFMMAA) played a major role in organizing and hosting the Dinner. In attendance were Past Directors Dr. Al Lovelace, Lt Gen (Ret) Dick Saxer, Mr. George Peterson, Dr. Frank Kelley, Brig Gen (Ret) Phil Bouchard, Dr. Gary Denman, Dr. Vince Russo and current Director Dr. Charlie Browning. Over 80 people were in attendance at the dinner.

A social hour was held prior to the buffet dinner to allow attendees to mingle and exchange stories about "the good old days". During this social hour, a continuous slide show was projected on a large screen presenting a fascinating collection of historical events that have occurred in the Laboratory over many years. Dr. Browning served as Master-of-Ceremonies for the program following the buffet dinner when many in attendance were given the opportunity to discuss past developments. The 75th Anniversary Banquet video was also shown, which includes a significant historical coverage of ML past events. Select photos documenting the event are included within this newsletter.

The following day, the Past Directors were invited to the Lab for a full day's activity, including a breakfast with an AFRL and ML overview by Dr. Browning. A tour of the Lab included stops and demonstrations in various facilities, including such activities as Focused Ion Beam, Pulsed Laser Deposition, ManTech, Failure Analysis, Versadeck (Virtual Reality), Biomimetics and a final discussion between the Past Directors and the ML Executive Group. Several photos taken during the Lab visit are also included.

All of the Past Directors agreed this was a "fabulous" event and recommended having another such get together in several years.

Continued ML Historical Review

At the end of WWII, there were 214 members of the Materials Laboratory. By 1949, the strength had dropped to 120 individuals. A larger proportion of the effort was done through the use of contracts to universities, industrial laboratories, and other government laboratories. The program was expanding while the manpower slots were shrinking.

In 1947 efforts were initiated on zirconium and its alloys. The following year saw the start of AF titanium research which had been done to this point by the RAND Corporation..

1948 saw the beginning of two additional important areas of research. The need for high temperature materials resulted in the launch of ceramic material research. A contract was issued for effort on fluorocarbons, the first polymer efforts at the Materials Laboratory.

The late 1940s saw efforts on plastic radomes which were being severely damaged by rain erosion with aircraft flying at high speeds.

The 1950s were filled with many advancements. These included: development of polyethylene storage bottles, major advancements in plastic laminates, and a major expansion of polymer research. Equilibrium diagrams were prepared for many titanium alloys setting the stage for substantial alloy development.

The Materials Laboratory initiated programs concerned with atomic, bacteriological, chemical and radiological warfare decontamination after receiving responsibility for this area in 1950. Cleaning and decontamination equipment and techniques were developed.

In 1953, the Materials Laboratory added the Nucleonics Task Group. This Group evaluated the effects of nuclear radiation on aircraft materials; established criteria for materials to withstand radiation; assisted other laboratories in the operation of aircraft equipment in intense radiation fields; and assisted in the development of radioisotope techniques applicable to AF requirements.

In the mid 1950's, efforts concentrated on high temperature materials, both organic and inorganic. Efforts in non-destructive testing were expanded. A mass spectrograph was put into operation in 1955. Work proceeded on titanium alloys with application by Pratt and Whitney and North American. A rain repellant aircraft windshield coating was developed. Efforts on elastomers were expanded to include nuclear radiation effects. Greases, oils and hydraulic fluids with broader operating temperatures and improved performance were developed.

In 1959, a relationship was developed with the newly organized Advanced Research Projects Agency. ARPA selected the Materials Laboratory to perform research on solid propellants and polymers. The Laboratory was gaining an extraordinary reputation for polymer research.

In 1960, the Materials Laboratory was redesignated Materials Central with four operating laboratories: Nonmetallic Materials Laboratory; Metals and Ceramics Laboratory; Physics Laboratory; and Applications Laboratory. In 1961, Materials Central gained a fifth laboratory, the Manufacturing Technology Laboratory. The primary focus of this organization was to establish commercially feasible methods for production of new materials and manage programs for the advancement of manufacturing processes.

In 1959 the Electronic and Magnetic Materials Section was organized for electronic materials research. The research efforts were groundbreaking in the area of magnetics, superconductivity, and hypervelocity material bombardment.

Titanium technology came into maturity. Alloys of molybdenum, columbium, tantalum and tungsten were developed for applications above 2000 degrees F.. Major efforts were started in graphitic materials. Research efforts established ceramics as a science instead of an art. These materials were used in high temperature structural applications such as leading edges of hypersonic vehicles.

Research for space applications were initiated in the 1960s. Examples are spectrally selective coatings, self-sealants, self-rigidizable expandable structures, high temperature elastomers, heat resistant polybenzimidazole resins, and multi-filament yarns of superalloy fibers.

The Applications group evaluated advanced systems performance requirements and their translation into material requirements. New systems evaluated were the B-70, X-15, X-20, TFX, Aerospace Plane and the Supersonic Transport.

In the mid 1960's, the Manufacturing Technology Laboratory was hard at work in several innovative areas. These included hot pressed and hot rolled beryllium, graphite processing for rocket nozzles, numerical controls for machine tools, digital electronic circuit pilot lines, gallium arsenide devices, and advanced tactical infrared detectors.

Happy Holidays!

Alumni Corner

This comes from Alten "Skip" Grandt – Class of 1979. Left AFML to join Purdue University School of Aeronautics and Astronautics in West Lafayette, IN. Served as the Department Head from 1985-1992.

Henry "Hank" Johnson – Class of 1985 reports from Pasedena, MD: Semi-retired, working primarily in Pat's computer flooring business.

John Rhodehamel reports in from Beavercreek, OH – Class of 1989. He lives on a farm in Beavercreek, and is a part-time instructor at Sinclair Community College in Dayton, OH.

William L. R. Rice (Class of 1959) is enjoying "retired" life at Lake of the Woods, VA. Departed ML in 1959 to work for the Department of Energy (DOE). In 1986, retired from DOE to teach High School physics, then retired from teaching in 1997.

Herbert Schwenker retired from ML in the Class of 1978, living in Venice, FL. He has an office at the National Association of Retired Federal Employees.

James Snide, Class of 1980, from Kettering, OH is Professor Emeritus of Graduate Materials Engineering at University of Dayton. Consulting with Materials and Processes Associates, Inc. primarily with UDRI and SKT.

James Whitney – Class of 1991 is a professor in the Civil Engineering Department at the University of Dayton. He resides in Beavercreek, OH.

Ben Wilcox departed ML in the Class of 1961. He retired from government service in June 2000, having spent the previous 4 years at the Office of Naval Research, London, UK. He currently resides in McLean, VA.

Losses From The ML Family

We regret to report the following passing from the ML Family during the past twelve months:

- Arden Hughes. August 2003
- Michael Donley, September 2003
- Harold Garrett, December 2003

If you know of others, and would care to share their names, please let us know.

So, How Many People Are Assigned To ML?

This past summer at the Annual ML Roadmap Review, Dr. Browning briefed the number of people working in ML (both at Wright-Patterson AFB and Tyndall AFB in Florida). At that time the numbers were: Government 574, IPAs 5, On-Site Contractors 727, for a total of 1,306. This reflects an increase of 80 people over 2003. Of the 574 Government people, 18% are Military and 82% are civilian. Of the 433 Scientists & Engineers (S&E's), 37% have Bachelor's Degrees, 35% have Master's Degrees, and 28% have PhD's.

AFMMAA Scholarship Fund

The Scholarship Committee selected Ms. Catherine Shelley, daughter of Mr. Timothy Shelley, AFRL/MLQ at Tyndall AFB, FL, was the 2004 winner of the Chief Scientists Award. Mr. Jim Mattice announced the winner at the ML Awards Luncheon, 16 June 2004. Since its inception, AFMMAA has been committed to providing scholarship(s) to the children of current employees (government and contractor) for college attendance. We currently award two scholarships each year – the ML Chief Scientists Scholarship and the AFMMAA Merit Scholarship. Each scholarship is valued at $1,000 per year and can be recompeted for in the second year of college attendance. Up to this time we have been able to fund these scholarships from initial donations to the Association by a past ML Chief Scientist, Dr. Wade Adams, and many of his friends and colleagues. Our continued ability to fund these scholarships depends on added contributions to the AFMMAA by members, friends, and fellow alums. In April 2002, the AFMMAA was approved as a publicly supported organization, qualifying as an organization described in section 501 (c) (3) of the Internal Revenue Code. Contributions to the scholarship fund are tax deductible to the full extent of the law. Prior to the end of the calendar year would be a great time to make a contribution. If you have any questions on this matter, please contact Mr. Jim Mattice, Scholarship Committee Chairman, at jmattice@utcdayton.com or telephone (937) 426-2808.

AFMMAA
P.O. Box 31167
Dayton, OH 45437-0167

Where's Your AFMMAA Membership Card?

Do you still have your membership card? If you were a single year member, please look at the bottom right corner of the card and see if there is an expiration date. If the expiration date reads 9/30/04 your dues are due for the next year. The annual dues are $10.00. The membership year is 1 October to 30 September. A Lifetime Membership is available at any time for $150.00. If your dues lapse for one year your membership will be terminated. Our records indicate that there are still 7 members who did not pay their 2002-2003 membership dues, and their active membership status may be revoked. There are 37 members who did not pay their 2003-2004 membership dues. These members will have their membership revoked next year. So, please pay your 2004-2005, or any dues in arrears, prior to 31 December 2004. That will make your expiration date on your membership card read 9/30/05. We don't want to lose anyone as a valuable resource to the Association.

AFMMAA Website

It's up and running. Under the guidance of Mr. Bob Denison, the AFMMAA website is "constructed." You can now log on and read the Association charter, minutes of past general membership meetings, past editions of the Newsletter, and download a data card to join the Association. So, bookmark this website, www.afmmaa.org or www.afmmaa.com – either one does the trick. Get "on line," check us out, and give us your thoughts and ideas. Let us know where you are, what you're doing in retirement, and where your "buddies" have retired. Also, send us your e-mail address so we can keep connected – it's cheaper than a 37cent stamp to stay in touch. Many thanks to Roger Rucker for his many volunteer hours to allow us to become "connected" in the global environment.

Happy Holidays!!

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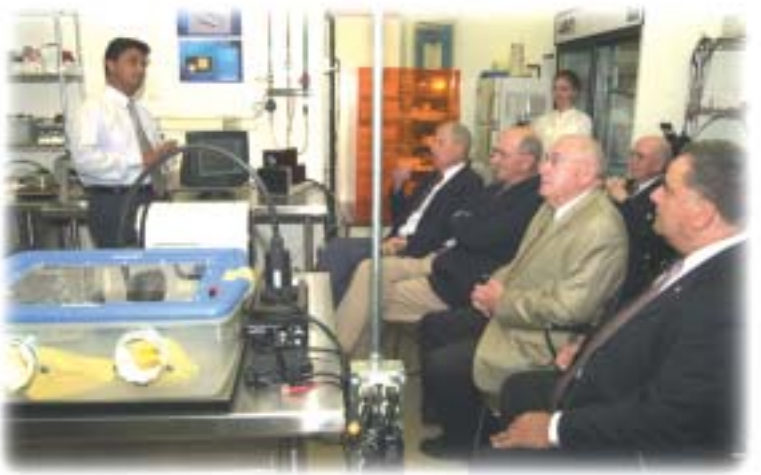

Air Force Materials & Manufacturing Alumni Association (AFMMAA)

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone -- Home: _____ Work: _____ Fax #: _____

E-mail: _____

☐ Check here if we CAN NOT release mailing address, telephone number, and e-mail to other alumni.

Year departed/retired from ML: _____

Recent information about yourself: _____

_____

_____

What areas would you like to support AFMMAA?

_____

Membership Category:

Individual - ($10.00/year)
Lifetime - ($150.00 one time fee)

Make check payable to: AFMMAA

Return to the following address:

P.O. Box 31167
Dayton, OH 45437-0167