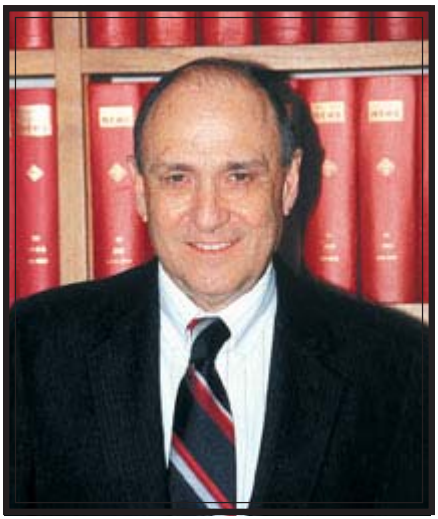
Chemical Bond

Volume 56
Number 4
May 2005

St. Louis Section, American Chemical Society



Clayton Callis, past ACS president and board member, dies at age 81

HELP WANTED!!

A consortium of the Illinois Local Sections of the American Chemical Society seeks assistance at the **2005 Illinois State Fair** to be held **August 12-21** in Springfield. In 2004, over 7700 visitors came to the ACS tent, located in Conservation World, and we had over 50 volunteers. The State Fair is coming sooner that we might think and we need your help!

Your assistance is appreciated in any way you can give it, but we especially need help in the following areas:

- **Financially** – you, your company or organization, or your Local Section can all help and you will be duly acknowledged!
- **Time** – volunteer to work a shift at the fair, organize a day at the fair with your group/organization to work (we offer free admission and parking!), or join the committee!
- **Resources** – gifts-in-kind of materials for demonstrations, help assembling posters for display, give-aways, etc. are all appreciated

Interested? Visit **www.acsillinoisstatefair.org** or send an e-mail to Frank Kravitz (fk1456@sbcglobal.net) or Cherlyn Bradley (cbrad1027@aol.com). Our next committee meeting is April 9 in Normal, IL

The St. Louis Section of the American Chemical Society announces a

Member Picnic

Saturday, June 11, 2005

Tower Grove Park

12:00 pm

Face Painting, Favors, Games, Ballons, Surprises

Do not miss this event!

Bring the family. Enjoy food, friends, and fine Spring weather.
Just $5 per person. Kids under 12 are free.

Questions & Reservations (by May 26th, please) contact:
Sue Dudek, susan.dudek@pfizer.com, or at: Pfizer, Inc.
700 Chesterfield Parkway West
Mail Code A2G
Chesterfield, MO 63017
phone: (314) 274-2464/fax: (314) 274-4426

Chemical Bond

Volume 56 **No. 4** **May, 2005**

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In this issue . . .

Meeting & Seminars

Board of Directors

St. Louis Section–ACS Board of Directors meets on the second Thursday of each month, at the **Glen Echo Country Club** (map available on website). Meetings are open to all members, and all are encouraged to attend. Elected officers and chairs of major committees have the right to vote; others in attendance have voice but no vote. If you want to attend the dinner, please contact Ted Gast (ted@cfgastco.com) at least one week prior to the meeting date. The cost of dinner is $18. Members wishing to become active in section activities are welcomed to their first dinner for free, compliments of the section.

Date: *May 12*
Social hour: 5:30 pm
Dinner: 6:30 pm
Business meeting: 7:15 pm

Fall meeting dates: Sept. 8
Oct. 13
Nov. 10

Can't wait for Snail Mail?
Get the Chemical Bond at
http://www.umsl.edu/~acs/

2005 High School Chemistry Award Winners

REGULAR DIVISION

Student		School	Teacher
1st)	Yi-Peng Huang	Clayton High School	Michael Howe
2nd)	JiSoo Min	Clayton High School	Michael Howe
3rd)	Jim An	Clayton High School	Michael Howe
4th)	Robert McGibbon	Clayton High School	Brad Krone
5th)	Zoe Liberman	Clayton High School	Michael Howe
HM)	Robert Nightingale	John Burroughs School	Mary Harris
HM)	Katherine Wallace	John Burroughs School	Sandra Mueller
HM)	Jack Altman	Clayton High School	Michael Howe
HM)	Nicole Shelpman	O'Fallon Township HS Illinois	Ken Gattung
HM)	Andrew Bassett	Clayton High School	Michael Howe
HM)	Paul Cooper	John Burroughs School	Sandra Mueller
HM)	Jon Holland	St. Louis Priory School	James T. Dodds
HM)	Jesse Calvert	Clayton High School	Michael Howe
HM)	John Sanders	St. Louis Priory School	James T. Dodds
HM)	Jin Tao	John Burroughs School	Sandra Mueller

ADVANCED DIVISION

Student		School	Teacher
1st)	**James J. Lee**	Parkway Central High School	Mark Schuermann
2nd)	**Sonalee Ravi**	John Burroughs School	Sandra Mueller
3rd)	**Jimmy Li**	Parkway Central High School	Mark Schuermann
4th)	**Max Altman**	Clayton High School	Nathan Peck
5th)	**An-Tu Xie**	Clayton High School	Nathan Peck
HM)	Erik Brinkman	Clayton High School	Nathan Peck
HM)	**Andrew Hoekzema**	Westminster Christian Academy	Andrew Shaw
HM)	Karen Wong	Clayton High School	Nathan Peck
HM)	Dianna Liu	Parkway Central High School	Mark Schuermann
HM)	Evan Sadler	Clayton High School	Nathan Peck
HM)	**Thomas Capps**	St. Louis Priory School	Joseph Gleich
HM)	Steven Golembieski	Clayton High School	Nathan Peck
HM)	Erica Jantho	Clayton High School	Nathan Peck
HM)	Ningning Ma	Clayton High School	Nathan Peck
HM)	Anna Ruman	Parkway Central High School	Mark Schuermann

*Names in **bold type** qualify to take the National Chemistry Olympiad Exam on April 16.

Is There Intelligent Life Out There?

by Jack Bornmann

Is there life beyond our solar system? Is there *intelligent* life beyond our solar system? (When I read our newspapers and listen to the TV news reports, I begin to wonder if there is intelligent life *within* our solar system. Then I realize that you, my readers, are out there and I begin to feel better.)

Letters & Words & More

People have predicted, hypothesized and even argued about the possible existence of intelligent life out there. From this question there has arisen a few ongoing searches for that intelligent life. To date no one has found any evidence that something out there is trying to contact us, but we continue to listen. Please note: we are not deliberately beaming messages out into space (except for that one lone spacecraft with a metal plate containing an engraved message and two figures that might be deemed pornographic by some intelligent race). If we want to make contact, should we not be sending messages as well as listening? There was a time, not so long ago, when we did not know that x-rays existed. Likewise, there was a time when we did not know about radio waves, ultraviolet light, or infrared light. Is there another energy form, unknown to us today, which might make a better form for communications with "the others"? What if "they" are sending messages of this type and we are missing them?

For millions of years mankind, or its predecessor, were hunter-gatherers. Then, with a great leap forward, we discovered agriculture, formed villages, and built cities. Then came the written languages. The intervals between innovations became shorter.

Consider the rapid advances in radio communications within my lifetime. About the time I was born my grandfather in Pittsburgh "tickled the cat's hair" on a crystal set in order to receive KDKA, the first radio station in the United States. In the 1930s the crystal sets became toys and the real radios had vacuum tubes. At the 1939 World's Fair in New York a system of transmitting pictures was demonstrated to the awe-filled eyes of visitors. Further advancement in this field was basically shut down during the Second World War. But, in the 1950s, TV sets became available to those who had money. (Some people who could not afford a TV set, nevertheless, mounted an antenna on their roof to impress the neighbors.)

A short time later solid state rectifiers and amplifiers were developed. At first wires and solder connected these. Then someone invented the printed circuit board with the printed circuit adhering to one side of an insulating board and the solid state devices mounted on the opposite side. Not long after this, the solid state chip was formed, with the circuit, rectifiers, amplifiers, etc. all contained on a single chip.

Take any measure of progress and plot it against time and you will have an exponential curve. The time intervals between major developments are getting smaller.

Now consider this…If the intelligent life we discover is only ten years ahead of us, the beings may be superior, even if they have the same mental capacity as we do. Then, think about how we have, in the past, treated others who were less advanced than we were. We treated them as sub-humans or in some cases declared them non-human, which (we thought) gave us the right to strip away their rights, their land, their culture, their dignity, and their lives. Perhaps the intelligent beings out there will treat us the same way.

Here is a different outlook. Suppose we established contact and jointly developed a computer program that allowed each of us to translate the other's communications to read it or hear it in our own language. But here is the twist: we Christians have a Great Commission, which is "Go ye therefore unto all nations, teaching them and baptizing them . . ." What if all the Christian groups got together and made plans to start teaching about God and encouraged the other religions to join in teaching about Yahweh, Allah and God.?

Now let us suppose that while we are busy teaching, the communicators develop a means of sending pictures, and the super-intelligent beings learning about God, Allay, and Yahweh look like dogs! My religion asserts that dogs and other animals are not loved by God the way we humans are. Likewise, my church asserts and insists that humans are not animals. That is why they hate the theory of evolution and any biological study that links the biochemistry of man with the parallel biochemistry of animals. Shall we hold to the ancient religious teachings, rejecting animals here on earth and also in outer space? Or should we invigorate our efforts to communicate with the animals on earth as well as in outer space? Remember two things (1) dumb animals are not stupid, dumb means mute, i.e. unable to talk and (2) it takes two to talk. If they are dumb, then so are we!

2005 College Award WINNERS

OUTSTANDING JUNIOR CHEMISTRY STUDENT AWARD

Lindenwood University	Jeannine Haeffner
Maryville University	Bryan P. Wettach
Principia College	Ryan Franking
Saint Louis University	Mark Mans
Southern Illinois University – Edwardsville	Nellie Shaul
University of Missouri – St. Louis	Chloe Bryant
Washington University	Gerald J. Palagallo

OUTSTANDING CHEMICAL TECHNOLOGY STUDENT

St. Louis Community College – Florissant Valley	Monica Shana Kauwe

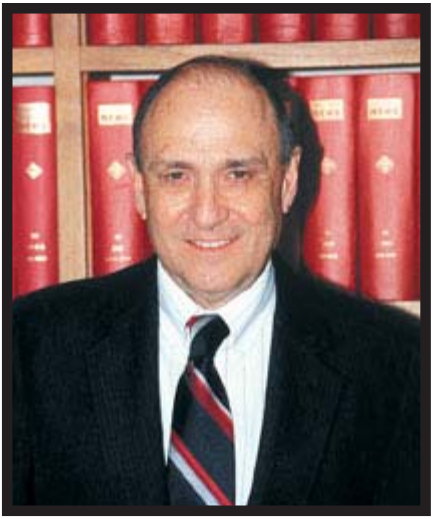
Pick up

rotating

Mass-Vac ad

from p. 7 of January 2005

Clayton Callis Remembered...



Clayton F. Callis, who served the national American Chemical Society and its St. Louis Section in elected offices for nearly 50 years, including ACS president in 1989, died on March 9 at the age of 81. Callis served ACS on dozens of committees and was a member of the ACS Board of Directors from 1977 through 1990 and chair of the board in 1982 and 1983. He started his service in the St. Louis Section in 1958 and went on to become chairman of the section in 1962. He is fondly remembered.

Dr. Clayton F. Callis received his B.A. in chemistry in 1944 from Central Methodist College, Fayette, MO. He received his M.S. degree in 1946 and his Ph.D. degree in inorganic chemistry in 1948 from the University of Illinois, Urbana-Champaign. His thesis research was carried out under the direction of John C. Bailar and he often spoke fondly of his time with "Dr. Bailar" as he called him. Bailar, of course, was a coordination chemist and one of those responsible for the renaissance of inorganic chemistry in the US. Clayton's work involved the chemistry of transition metals complexed to nitrogen-containing ligands. His thesis work included the study of cobalt, nickel and zinc complexes of azo and azomethine dyes. The means of study of these "Werner complexes" were elemental analysis, equivalent conductance and magnetic susceptibility measurements, and the work was published in two articles in the *Journal of the American Chemical Society*. Also during his days as a graduate student at Illinois he wrote a review, as the sole author, on the structure of the heavy metal cyanides for the *Journal of Chemical Education*.

After working on improved processes for separating plutonium from fission products at General Electric in Richland, Washington, Clayton joined Monsanto in 1951 in Anniston, Alabama. He spent five years at the Dayton Laboratories, and moved to St. Louis in 1957. At Monsanto he was principally involved, certainly in the early days, with the chemistry of phosphates and phosphate detergents that Monsanto produced for the detergent industry. This led to seminal work on ^{31}P NMR spectroscopy in collaboration with scientists at Varian Associates. He later published work on the physical properties of inorganic phosphates, on phosphates as polyelectrolites and on the production and analysis of phosphates. Several studies pertained specifically to the detergent industry such as particle size studies, caking of the materials and the use of flocculatants and sequestering agents to facilitate their use. In addition to this he was involved in basic research in phosphorus chemistry and published several articles with colleagues well-known to the chemistry community in

Clayton Callis continued from page 9.
St. Louis including Marvin Crutchfield, John Van Waser, Don Ames and Ray Irani, among others.

During his time at Monsanto, Clayton held a number of positions including Director of Research and Development for two Divisions and Director of Technology Planning. He was also a member of the management board of the Industrial Chemical Company. At the time of his retirement in 1985, he was Director of Environmental Operations of Monsanto Fibers and Intermediates Company. After retiring, he became Vice President of Chelan Associates, a consultancy.

Throughout his career Clayton was involved in the governance of the American Chemical Society. He served as Chairman of the St. Louis Section of the American Chemical Society in 1962 and over the years he served both as a director and a councilor of the Section. He was a member of the ACS Board of Directors from 1977 through 1990, and served as Chairman of the Board of Directors in 1982 and 1983. He was elected President of the American Chemical Society for the year 1989. In 1991 he was named Director ad-interim of Chemical Abstracts Service (CAS). He also served as Chairman of the ACS Society Committee on CAS and Chairman of the Society Committee on Budget and Finance.

Dr. Callis received the Central Methodist Distinguished Alumni Award in 1970. His work as a research chemist was honored when he became the second recipient of the St. Louis Section ACS Award in 1971. In 1990 Clayton was recognized for his distinguished service to the profession of chemistry when he received a national award, the Henry A. Hill Award in Professional Relations.

2005 Science Fair Results

by David Haselbauer

Congratulations to the following students for winning special awards from the American Chemical Society, St. Louis Section at area science fairs this year:

Illinois Junior Academy of Science Region 12 Science Fair (3/5/05):

Grades 9-12

First Place: Jonathan Naber, Grade 10, Waterloo Senior High School, "The Electrical Conductivity of Cobalt and Iron-Nickel Based Amorphous Metal Ribbons at Cryogenic Temperatures."

Grades 6-8

First Place: Molly Etling, Grade 7, Freeburg C.C.S.D., "Rivers of the World: What Are the pH Levels?"

Second Place: Alexis Evers, Grade 7, Good Shepherd Lutheran School, "Comparing the Dissolution Rate of Lisinopril in Hydrochloric Acid."

Third Place: Whitney Schmale, Grade 8, St. Libory Elementary, "What Type of Fruit Juice Has the Most Vitamin C?"

St. Charles/Lincoln County Science and Engineering Fair (3/21/05):

Grades 6-8

First Place: Malia Bubuchner, Grade 8, Sts. Joachim & Ann, "What You See Isn't Always What You Get."

Second Place: Tiffany Pedroley, Grade 6, Christian School-First Baptist, "Ready, Aim, Fire!"

Third Place: Sean Blackledge, Grade 6, Jefferson School (St. Charles School District), "The Effect of pH on Voltage in Batteries Made from Fruits and Vegetables."

Greater St. Louis Science Fair (4/8/05):

Honors

First Place: Shiboo Bhatnagar, Grade 12, Parkway South High School, "Enriched Oxygen Combustion of Coal to Reduce Air Pollutant Emissions."

Grades 9-12

First Place: Charles Fliss, Grade 9, Metro Academic and Classical High School, "Cleopatra's Pearl."

Second Place: Morgan Emery, Grade 12, Parkway South High School, "Toxic Toxins."

Third Place: Allison Chambers, Grade 12, Ursuline Academy, "Analysis of Carbohydrate Content of Potatoes."

Grades 6-8

First Place: Emily Goldstein, Grade 7, Parkway Northeast Middle School, "Vitamin C in Orange Juice: Can you 'C' the Change?"

Second Place: David Bruns-Smith, Grade 6, Ladue Middle School, "Decomposition of Metal Carbonates."

Third Place: Laura Keller, Grade 8, Christ Community Lutheran School, "Electroplating."

I would also like to express my thanks to all of the ACS members who gave of their time and talents to help with the judging this year: Richard Berger, Pat Burrell-Standley, Ted Gast, Dr. Shelley Minteer, Dr. Gopal Paul, Jim Pollock, Dr. Kevin Ray, Dr. Alexa Serfis, Becky Treu, Delores Vermont, George Vermont, Dr. Vidyullata Waghulde, and Dr. Brent Znosko.

St. Louis Section
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