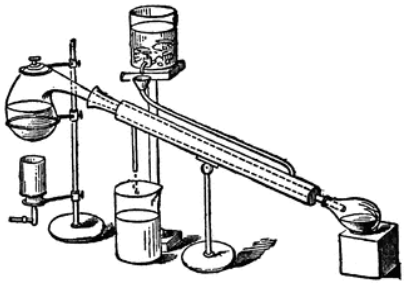
SOUTHWEST RETORT



SIXTY-FIFTH YEAR **DECEMBER 2012**

Published for the advancement of
Chemists, Chemical Engineers
and Chemistry in this area

published by
The Dallas-Fort Worth Section, with the cooperation of five other local sections of the American Chemical Society in the Southwest Region.

Vol. 65(4) December 2012

Editorial and Business Offices:

Editor: Connie Hendrickson, 802 South Jefferson, Irving, TX 75060;

972-786-4249; retort@acsdfw.org

Copy Editor: Mike Vance: vance2276@gmail.com

Business Manager: Kirby Drake, 9715 Dartridge, Dallas, Texas, 75238-1827; 214-553-9810; kbdrake2000@yahoo.com

The Southwest Retort is published monthly, September through May, by the Dallas-Ft. Worth Section of the American Chemical Society, Inc., for the ACS Sections of the Southwest Region. Contact the Editor for subscription and advertisement information.

A Legacy of Excellence: Bob Roe and Jay Chew…….....12-13

TABLE OF CONTENTS

Fifty Years Ago……..…….4

ARTICLES and COLUMNS

Reformulated Gasoline……..6

And Another Thing…….....…..9

Nanoparticles in Brain Injuries...8

A Legacy of Excellence:

Bob Roe and Jay Chew……..12-13

Hagfish Slime.....14

Durian: the Stinky Fruit ……..15

Five Questions……..…...……16-17

George Hague……..…….17

From the Editor……..…..……18

AROUND-THE-AREA....10

Employment Listings…….3

DFW SECTION.....11

SWRM 2014

INDEX OF ADVERTISERS

ANA-LAB……...……...5

Huffman Laboratories…….3

Sponsor Members……...…..2

Contact the DFW Section

General: info@acsdfw.org

Education: ncw@acsdfw.org

Elections: canddates@acsdfw.org

Twitter: acsdfw

SPONSOR MEMBERS

OXYCHEM

HALLIBURTON

TEXAS EASTMAN

EMPLOYMENT CLEARING HOUSE

Job applicants should send name, email, and phone, along with type of position and geographical area desired; employers may contact job applicants directly. If you have an opening, send your listing, including contact info for your company, to retort@acsdfw.org. Deadlines are the 7th of each month.

Positions Available:

Northeast Community College in Mt. Pleasant has an opening for a chemist teaching introductory and general chemistry, and possibly organic, beginning in the spring 2013 semester. If you are interested, or know someone who might be, please contact Larry Brough at 903-434-8304 or lbrough@ntcc.edu. Please be prompt as they are looking to fill the position ***as soon as possible***.

Positions Wanted:

Need someone to proofread/copy-edit your next paper, grant, or presentation? Let an experienced proofreader and PhD chemist do it for you! I have a strong grasp of English grammar and scientific writing and can condense text without losing the underlying meaning. Competitive rates! Contact Mike Vance at vance2276@gmail.com or 408-786-7451.

Dynamic research scientist with PhD in chemistry is seeking academic or industrial career opportunity: extensive experience in academia and industry specializing in organic, peptide and analytical chemistry. Visit LinkedIn account (www.linkedin.com/pub/eunice-murage/15/a5a/ba) and/or contact me for a copy of my resume. Email mureun@gmail.com or 214-923-9256.

Recent double masters (organic and analytical) graduate of Texas Woman's University actively seeking job in chemical industries. Experienced in methods development, and analysis using chromatographic and spectroscopic techniques. Excellent management and organization skills, instruments maintenance and troubleshooting. Shylajadharanipathi@gmail.com

FIFTY YEARS AGO IN THE SOUTHWEST RETORT

Almost the entire December issue was taken up with listing the titles, times, and places of the various oral presentations for the ACS Southwest Regional Meeting held Dec. 6-8 at the Statler Hilton Hotel in Dallas. A special address was given on Friday, Dec. 7 by **Dr. Calvin A. VanderWerf** of the University of Kansas on the topic "So You Want To Be A Chemist."

This is a listing of the General Committee members for the Regional Meeting, whose efforts resulted in a smoothly running endeavor: Chairman, **Raymond C. Sangster**; Vice Chairman, **Rowland E. Johnson**; Program, **C. Gordon Peattie**, **I. Trachtenberg**; Hotel, **Russell O. Bowmand**; Registration, **George W. Towns**; Finance, **Norman Uranson**; Student Affiliates, **Robert W. Higgins, R. B. Escue, Jr.**; Equipment, **Robert W. Laux**; Publicity, **Roscoe Libecap**; Awards, **Morton F. Mason**; Hospitality, **Peggy Dunlap**; Tours, **Morris Bock**; Ladies Program, **Elinor R. Johnson, Mildred Burkhalter**; Employment, **Richard D. Ashmore**; Section Chairman, **Ed F. Meyer**; Managing Editor, *Retort*, **Jean Roberts**.

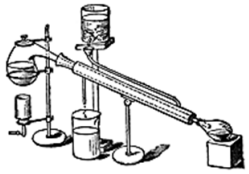
The 29th Annual Chemical Engineering Symposium of the ACS Division of Industrial and Engineering Chemistry will be held Dec. 27-28 at Rice University in Houston. The theme of the meeting is "Thermodynamics and Transport Properties of Fluids." This symposium is being held for the first time in the Southwest and is being coordinated with the 50th anniversary celebration at Rice University. The banquet address will be given by **H. Gershinowitz**, Chairman of the Royal Dutch Shell Research Council.

CONTRIBUTED BY E. THOMAS STROM

to send your articles, news items, and opinion pieces to the Southwest

RETORT!

retort@acsdfw.org



Reformulated Gasoline

By John Spessard, PE

Tetraethyl Lead RIP

Tetraethyl lead (TEL) was mixed with gasoline starting in the 1920s. It served as an effective antiknock agent and it also prevented exhaust valve and seat wear. Because of its toxicity and damage to catalytic converters, it began to be phased out in the United States in the 1970s. This required the auto industry to specify hardened valve seats and upgraded exhaust valve materials. In the US in 1995 TEL was completely banned in road vehicles. It was banned in race cars in 2008. TEL is still used in 100 octane aviation gasoline. It serves both as an octane enhancer and an upper cylinder lubricant. While TEL levels in aviation gasoline have been reduced, at present there is not an effective substitute.

A manganese-containing additive, methylcyclopentadienyl manganese tricarbonyl (MMT) was used for a time as an antiknock agent, but its safety was controversial.

Oxygenated Gasoline

Oxygenated organic compounds have been added to gasoline to reduce carbon monoxide emissions. Oxygenated gasoline is required in 17 states and all ozone non-attainment areas. Oxygenates are particularly necessary during winter weather. Alcohols and ethers have been used as oxygenates. Ethers have the advantages of better solubility in gasoline, higher fuel value and are less susceptible to air oxidation. (As a former amateur wine maker, I know the latter all too well.) Methyl tertiary butyl ether (MTBE) was the first widely adopted additive. Besides reducing carbon monoxide emissions, it was also a good fuel, blended well with gasoline and had a good octane rating. However, it was found in groundwater sources and its use has been phased out.

Ethanol is the current oxygenate of choice. There are on the market gasoline-ethanol blends containing 10% ethanol (E10) and 15 % ethanol (E15). Politics and economics are in part responsible for ethanol being the oxygenate of choice. The EPA has implemented the U.S. Corporate Average Fuel Economy Standards (CAFÉ). The standards give an effective 54% fuel efficiency bonus to vehicles capable of running on E15. This dispensation is valuable to North American auto manufacturers in avoiding fines for failing to meet EPA's CAFÉ standards. Additionally, American farmers and corn ethanol producers have benefited greatly from higher corn prices and a protected market for domestically produced ethanol. Brazil produces fuel ethanol from sugar cane, but protective tariffs inhibit importation of Brazilian ethanol.

Continued on the next page

Reid Vapor Pressure

Reid Vapor Pressure (RVP) is defined as the absolute vapor pressure exerted by a liquid at 100 degrees F as determined by the test method ASTM-D-223. This differs from the true vapor pressure of gasoline in that it also includes the presence of air and water vapor in the confined space of the test equipment.

Gasoline requires some volatility to function as fuel. This volatility renders gasoline as a source of hydrocarbon emissions. Therefore maximum RVP standards have been issued to achieve a RVP low enough to reduce emissions but high enough to function as a fuel. Greater gasoline volatility is required in the winter than in the summer. Marathon provides gasoline with a RVP of 9 pounds per square inch (psi) for winter use and 7.0 and 7.8 psi for summer use.

Achieving these standards require that petroleum refiners provide different blends of gasoline for summer and winter use. "Summer" and "winter" vary by location. For example in the Cincinnati/Dayton area, a 7.8 psi "summer" gasoline is required from June 1 through September 30. After then a 9.0 psi gasoline is allowed. In the Atlanta, Georgia area, 7.0 psi gasoline is required from June 1 through September 15.

To a petroleum refinery in blending gasoline, more lighter hydrocarbons can be used in the winter than in the summer. N-butane is a good example. It boils at minus 0.5 C. It is relatively cheap and has a good octane rating. The refiner can use more of it in the winter gasoline and little, if any, in the summer gasoline. Summer gasoline may require more benzene-toluene-xylene aromatics. These solvents are relatively expensive and they have alternative markets. This means that for the refinery, changing gasoline blends requires changing the mode of operation. Gasoline terminals may have to stock both summer and winter blends near the changeover periods.

From the ACS Press Room

New advance could help soldiers, athletes, others rebound from traumatic brain injuries

Credit: U.S. Army

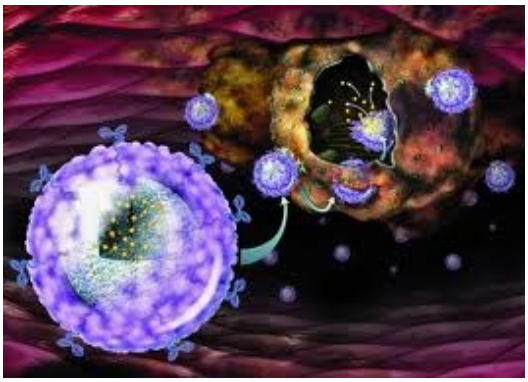
Antioxidant Carbon Particles Improve Cerebrovascular Dysfunction Following Traumatic Brain Injury *ACS Nano*

A potential new treatment for traumatic brain injury (TBI), which affects thousands of soldiers, auto accident victims, athletes and others each year, has shown promise in laboratory research, scientists are reporting. TBI can occur in individuals who experience a violent blow to the head that makes the brain collide with the inside of the skull, like a gunshot injury or exposure to a nearby explosion. The report on TBI, which currently cannot be treated and may result in permanent brain damage or death, appears in the journal *ACS Nano*.

Thomas Kent, James Tour and colleagues explain that TBI disrupts the supply of oxygen-rich blood to the brain. With the brain so oxygen-needy — accounting for only 2 percent of a person's weight, but claiming 20 percent of the body's oxygen supply — even a mild injury, such as a concussion, can have serious consequences. Reduced blood flow and resuscitation result in a build-up of free-radicals, which can kill brain cells. Despite years of far-ranging efforts, no effective treatment has emerged for TBI. That's why the scientists tried a new approach, based on nanoparticles so small that 1000 would fit across the width of a human hair.

They describe development and successful laboratory tests of nanoparticles, called PEG-HCCs. In laboratory rats, the nanoparticles acted like antioxidants, rapidly restoring blood flow to the brain following resuscitation after TBI. "This finding is of major importance for improving patient health under clinically relevant conditions during resuscitative care, and it has direct implications for the current [TBI] warfighter victims in the Afghanistan and Middle East theaters," they say.

The authors acknowledge funding from the Department of Defense, the National Science Foundation and the National Institutes of Health.



...AND ANOTHER THING...

By Denise L. Merkle

Objectivity - or Thankfulness Therefor

The geographical area now defined as the Unites States of America has celebrated good harvests since at least the early 1600s. Thanksgiving, despite being tinged—sometimes fraught—with controversy, persists as a holiday that almost all U.S. Americans enjoy. In 1863, President Abraham Lincoln set the last Thursday in November as Thanksgiving Day. The South's unwillingness to accept Lincoln as President delayed the implementation of a standardized celebration, however, ultimately, Thanksgiving prevailed. A nationwide fete, with its resultant unification, was Lincoln's intention, and allegedly was the reason Sarah Jospha Hale persisted in a 40-year letter-writing campaign to encourage the establishment of the holiday. Our current fourth-Thursday-in-November Thanksgiving was set in 1941, by President Franklin D. Roosevelt, so that, on November 22nd of this year, US citizens, residents, visitors—anyone—expressed gratitude for the things that matter most to them. (In the process, many, many people ate much more pumpkin pie than was good for them, but that's another issue.)

I realized, as I contemplated Thanksgiving, that chemistry is something I consider every Thanksgiving. Not only are the emulsification of gravy and the carmelization of marshmallows of great importance, but the predictability of science is, too. The idea that an element is an element, a formula is a formula, and a reaction is a reaction is quite soothing. The objectiveness of science meant a lot to me this year, especially. Although results of experiments are not always as hypothesized, it is rare that exactly repeating an experiment—especially one that has been 'worked out'—yields results that differ from the last 10 times the reagents were combined. Changing one parameter might lead to new observations, but the next time that parameter is changed, the products have real potential to be the very same.

What is the point, you may ask, of emphasizing the intrinsically impersonal characteristics of chemistry? The point is that, recently, the subjectivity of the Arts has revealed itself to my science-minded brain. The actual demonstration of the dependence on human nature and experience of what was previously only an abstract concept was disconcerting. Extremely disconcerting. What sounds like a perfect solo to one person will not be so to another. A painting that draws raves from one art enthusiast will bring only confusion to someone standing close by. A dance is not necessarily a dance.

So in this season of gratitude, where we, as a nation (or at least a significant fraction of a nation) reflect on those things that bring joy to our lives, I again anchor chemistry—and science—irreversibly at the top of my list. Their objectivity, freedom from opinion, reliance on well-documented observation, and requirement for statistical significance are very far removed from assessments of the Arts. And for that, I am truly, truly thankful.

Around the Area

UTA

Welch Professor Dan Armstrong received a Phase II NIH grant for $990,000 and also received a continuing Supelco Grant of $26,000 per year. Dan recently received the UTA Award for Distinguished Record of Research Creative Activity. He gave the Keynote dinner address at the Society of Analytical Chemistry Pittsburgh meeting held at Duquesne University on Sept. 10. He also gave the opening and plenary lecture at COLACRO in Florianopolis, Brazil, on Oct. 3-4.

Dr. Alejandro Bugarin has received a $22,000 water purification solvent system. He also received a donated ozonizer from Alcon, which will be available for all the organic labs.

Dr. Tom Strom of UTA, **Dr. Jim Marshall** and **Hannah Tarver** of UNT are working to get the entire group of printed issues of *The Southwest* ***RETORT*** online in the UNT data base in a keyword-searchable format. Much of it is available already, and the entire archive should be available in 2013.

UNT

Wes Borden spent the fall in Kyoto, Japan, at the Fukui Institute for Fundamental Chemistry as a Fellow of the Japanese Society for Promotion of Science. He gave lectures in Japan at Kyoto, Tokyo, Gifu, and Hiroshima Universities. He also spent nine days in China, lecturing at Peking, Soochow, and Nanjing Universities and at the Eli Lilly -PKU International Symposium on Organic Chemistry at Peking University,

Heart O' Texas

The Heart O' Texas section will be hosting the 2013 Southwest Regional ACS meeting. Organizing of symposia will begin soon, under the direction of **Dr. Bob Kane** of Baylor University's Chemistry Department.

Baylor

Over the past few years, the American Chemical Society Environmental Division has collaborated with the Society of Environmental Toxicology and Chemistry in the SETAC/ACS ENVR student exchange program. The program is designed to improve the professional and scientific interactions of student members of the two participating organizations as well as promote networking between the ACS and SETAC. This year's recipient is **Eleanor Robinson** from Baylor University. Her research is titled "Reconstruction of Pesticide, PCB, and PBDE Profiles in Gray and Blue Whale Earplugs." Last year Eleanor's research was highlighted in a ***Science*** news of the week article. Under the tutelage of her advisor Dr. Sascha Usenko, Eleanor seeks to develop ultra-trace analytical techniques capable of measuring a wide range of persistent organic pollutants in whale earwax or cerumen. The specific research goal is to reconstruct lifetime contaminant profiles for an individual whale. Eleanor will receive $1,000 to attendance the Spring ACS meeting in New Orleans."

DFW to host SWRM 2014

Volunteers Needed! As many of you know, the Dallas-Fort Worth Local Section will host the 2014 Southwest Regional Meeting (SWRM 2014). Local sections within the Region typically host SWRM every 10 years. SWRM 2004 was quite successful, and we look forward to maintaining the same high standard in 2014.

Volunteers will form the backbone of success for SWRM 2014. We are in the planning stages for SWRM 2014, and we need volunteers to serve in a variety of capacities. We are looking for volunteers related to PR, funding, exhibits, as well as program chair. If you would like to organize a symposium or event, that would be great. No effort is too small to make a big contribution.

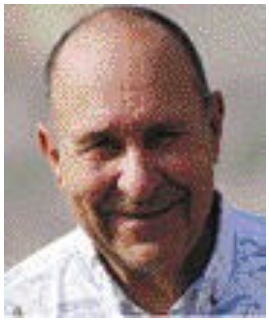
There will be a planning meeting during the first week of October to discuss the plans, next steps and ways to participate. If you would like to be involved in any way in SWRM 2014, please contact me as soon as possible at **swrm@acsdfw.org.** More details about the planning meeting will be circulated via email soon.

Participating in a SWRM is a unique and rewarding experience, and I encourage you all to consider how you can play a part! **Kirby B. Drake, General Chair SWRM 2014**

IN MEMORIUM:
BOB ROE AND JAY CHEW
A LEGACY OF EXCELLENCE
A Tribute by E. Thomas Strom

Two chemists with long-time ties to the D-FW area and with outstanding accomplishments died within a day of each other last summer. **Dr. Robert (Bob) Roe, Jr.,** died on June 16, and **Dr. Ju-Nam (Jay) Chew** died on June 15. Bob had a very visible career in chemical education, while Jay labored in the anonymity characteristic of industrial chemists; yet both gave much to chemistry, although in different ways.

To my knowledge, Bob Roe was the first person from the Dallas-Fort Worth area to win an ACS national award. He received the James Bryant Conant Award for High School Chemistry Teaching in 1982, while on the faculty in the Science Cluster at Skyline High School. My two children both had Bob for chemistry, and they remember him as an inspiring yet rigorous teacher.



Bob Roe

Bob Roe was born Dec. 16, 1934 in Dallas, TX. He graduated from Forest Avenue High School in 1953 and then joined the Marine Corps, working as an aviation electronics technician. He was very proud of his marine service and was buried at the Dallas-Fort Worth National Cemetery.

After leaving the service, Bob attended SMU as a full-time student while also working 30-40 hours a week at the City of Dallas Water Laboratory. He received his B.S. Ed. degree from SMU in 1959. He then worked as a chemist for DuBois Chemical Co. and for the Flintkote Co. before becoming a chemistry and physics teacher at Bryan Adams High School in Dallas in 1960. He also attended East Texas State University (now Texas A&M-Commerce) and sold houses part-time. He received the M.Ed. degree from East Texas in 1962. His work with the bright students at Bryan Adams and his experience with the Chem Bond, Chem Study, and PSSC curricula motivated him to continue his education. He attended an NSF-sponsored Academic Year Institute in 1963-64 and received an M.D. in Natural Science from New Mexico Highlands University.

After a year of graduate study in biochemistry at Oklahoma State, he taught science at St. Mark's School from 1965-68. He then entered graduate school at North Texas State University (now the University of North Texas), where he received his Ph.D. in physical organic chemistry with W. T. (Tom) Brady as his mentor. His Ph.D. research provided some of the first experimental confirmations of the Woodward-Hoffmann Rules for unsymmetrical ketene-olefin cycloaddition reactions. He then worked for three years at the UT Health Sciences Center in Dallas on the reactions of carcinogenic chemicals with DNA. He then returned to teaching at Skyline. Later he left Skyline, finishing his teaching careers with positions at Highland Park High School and at Hockaday. After retirement, he moved to East Texas.

Bob was a pioneer in the advanced use of computer techniques in the classroom. His fellow teacher, Dr. Cecilia Sehr, says of him "I was able to observe Bob teaching at Highland Park High School in the 80's. He was inspiring. Watching him, you knew you were in the presence of a great teacher. I have thought of him often when my lab becomes a bit cluttered. Bob always had projects around both for his research and for the students."

Bob also served the ACS D-FW section as Chair in 1984. During his time as Chair, he asked me to briefly serve as *Retort* editor, a time period that somehow morphed into 27 years.

Bob met his wife Anne while student teaching at Hillcrest, and they married on Feb. 21, 1959. Bob is survived by Anne and their three children Kimberlea, Robert, and William, plus two grandchildren.

Jay Chew was born on Oct. 8, 1923 in the village of Soo-Kai in the Guangdong Province of China. At age 5, he traveled with his parents as the son of a treaty merchant to El Paso, TX. He learned Spanish before learning English. His knowledge of English came from immersion in the El Paso schools, and he was an advocate of immersion training as a means of learning a foreign language, writing letters to the Dallas newspapers on the topic. He showed a remarkable academic ability. He won a scholarship to the Texas College of Mines and Metallurgy, but he transferred to UT-Austin, where he finished his chemical engineering degree in three years. He attended graduate school at the University of Michigan, where he met his future wife Pearl Sarah Linn. They were married in Sept. 1947, and the couple returned to Texas. He completed his Ph.D. degree in chemical engineering at UT-Austin in 1953. Jay then joined the Mobil Field Research Laboratory. One of his outstanding achievements there was developing a viscosity correlation of live oils as a function of solution gas/oil ratio. He worked there until retirement in 1985.

Jay Chew

Pearl was an elementary school teacher, and Jay became a teacher part-time, teaching the Unit Operations course at UT-Arlington. After they both retired, they spent a year teaching English at the Southwest Petroleum Institute in Nanchong, China. Jay wrote a two-part article on their experiences that was published in the September and October issues of the 1989 *Southwest Retort*.

Jay and Pearl were committed to volunteer work. Jay delivered Meals on Wheels for 29 years, and he volunteered at Oak Cliff Churches for Emergency Aid for 27 years. Pearl died in Aug. 1996. Jay is survived by his three sons Robert, Larry, and Stephen, and a number of grandchildren.

So, two more of our chemical pioneers have passed from the scene, but they left a legacy of excellence for us to emulate.

From the ACS Press Room

Hagfish slime as a model for tomorrow's natural fabrics

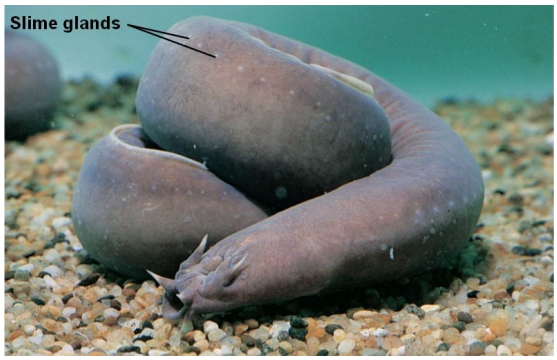
"The Production of Fibers and Films from Solubilized Hagfish Slime Thread Proteins" *Biomacromolecules*

Nylon, Kevlar and other synthetic fabrics: Step aside. If new scientific research pans out, people may be sporting shirts, blouses and other garments made from fibers modeled after those in the icky, super-strong slime from a creature called the hagfish. The study appears in ACS' *Biomacromolecules*.

Lead author Atsuko Negishi, her supervisor Douglas S. Fudge and colleagues explain that petroleum is the raw material for making modern synthetics. Rising prices and the quest for more sustainable alternatives have led scientists to consider the possibilities of using protein-based raw materials, such as spider silk. Another candidate comes from the hagfish, an eel-like fish that produces a thick slime to protect itself against predators. A single Atlantic Hagfish can produce quarts of slime in seconds. It clogs the gills and may suffocate other fish. The slime consists of tens of thousands of remarkably strong threads, each 100 times thinner than a human hair. The scientists set out to investigate spinning spider-silk-like fibers from the proteins of these slime threads.

They developed a method for drawing hagfish slime thread proteins into fibers comparable to lab-made spider silk. It involved casting a thin self-supporting film of thread proteins on the surface of a salt solution, then grabbing it with forceps and lifting it upwards so it collapses into a single strand. The threads in hagfish slime, they indicate, might be models for synthetic fibers made from renewable, naturally occurring proteins.

The authors acknowledge funding from the Advanced Foods and Materials Network and the Ontario Ministry of Economic Development and Innovation.



More about hagfish

From the ACS Press Room

Scientists sniff out the substances behind the aroma in the "king of fruits"

Characterization of the Major Odor-Active Compounds in Thai Durian (*Durio zibethinus* L. 'Monthong') by Aroma Extract Dilution Analysis and Headspace Gas Chromatography-Olfactometry, *Journal of Agricultural and Food Chemistry*

The latest effort to decipher the unique aroma signature of the durian — revered as the "king of fruits" in southeast Asia but reviled elsewhere as the world's foulest smelling food — has uncovered several new substances that contribute to the fragrance. The research appears in ACS'*Journal of Agricultural and Food Chemistry*.

Martin Steinhaus and colleagues explain that durian, available in Asian food shops in the United States and elsewhere, has a creamy yellowish flesh that can be eaten fresh or used in cakes, ice cream and other foods. Some people relish the durian's smell. Others, however, regard it as nauseating, like rotten onions. Past research identified almost 200 volatile substances in durian. Lacking, however, was information on which of those make a contribution to the characteristic durian smell. The authors set out to identify the big chemical players in the durian's odor signature.

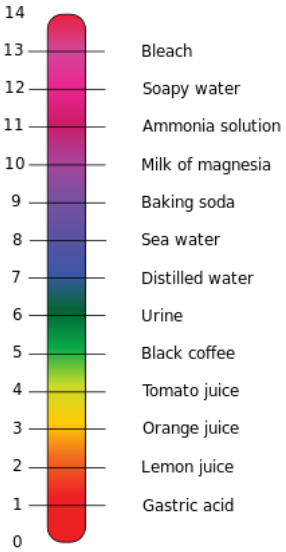
In doing so, they pinpointed 41 highly odor-active compounds, 24 of which scientists had not identified in durian before. Among the most prominent were substances associated with fruity, sweet, sulfurous and oniony smells. The oniony smelling odorants belonged to a compound class that had rarely been found in food before. Four of the newly discovered chemical compounds were previously unknown to science.

More about durian

FIVE QUESTIONS FOR...

Our interviewee for December 2012 is **Bill Hendrickson**. Dr. Hendrickson is Professor and Chairman of the Chemistry Department at the University of Dallas. His service to ACS includes: Secretary of the DFW Section from 1984-85; Chairman-Elect, 1992; Chairman, 1993; and Alternate Councilor from 1996-98. The University of Dallas also hosts Meeting-in-Miniature, most recently in 2012.

1. How old were you when you decided to be a chemist? Was there an event that triggered your interest in chemistry? If so, what was it?



I was a high school junior doing a chemistry assignment on how acid-base indicators work. I found the relationship between visual color changes and the Henderson-Hasselbalch equation to be incredibly satisfying. Here was a mathematical equation I could see. I wanted to learn more about the relationships between chemical properties and equations. Also, I thought it would be highly unlikely to ever get a position as a history professor.

2. Who is your science hero - and why?

George Hague. George was one of the most enthusiastic chemistry teachers I have known. He could fill a high school auditorium with cheering students with his chemistry magic shows as Captain Chemistry. George was not just all show; he was a dedicated teacher who worked hard for the advancement of chemical education.

3. Is there anything you wish you'd studied to prepare your career?

I wish I had paid more attention to how my instructors actually taught classes. My first job as a TA at LSU was sitting in on Jim Traynham's undergraduate organic lectures. Unfortunately, I was watching the clock more than watching Professor Traynham; after all, there was research to do. I largely missed out on a wonderful opportunity to learn the profession of teaching. I did not realize what I had missed until my first teaching job at the University of Alabama at Birmingham, when I walked into my first organic class having only given a few departmental seminars and ACS presentations. My only prior experience with teaching was one undergraduate lecture as a replacement for Emil White at Johns Hopkins. There were about 300 students in a large lecture room in Remsen Hall known as ***the pit***. By the time I finished, half the class had left. At least next time, when I was the professor, they stayed until the end of class.

4. Has students' preparedness changed in the time you've been teaching, and if so, how?

I haven't seen any real change over the last 35 years. We are fortunate to have motivated students with decent or superior preparation. Students do have more distractions now, and it is becoming more difficult for them to focus on course work.

5. What is the most gratifying part of your chosen profession? The most challenging?

I get to teach freshmen as part of our summer program. We are a small school and are particularly close to our majors. I am able to follow their development from eager, inexperienced first time freshmen to competent, self-assured graduates. At graduation, I feel I played a small part in their accomplishments. The most challenging is dealing with all the administrative details and meetings I have to endure in order to have the opportunity to work with students.

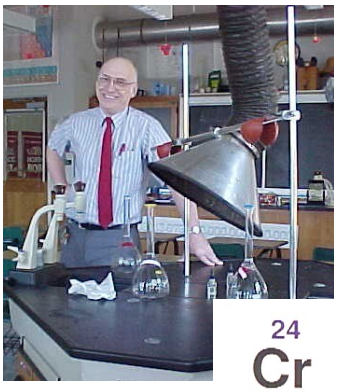
Thank you, Dr. Hendrickson, for your interesting remarks! To volunteer to be interviewed, e-mail to retort@acsdfw.org.

A FEW WORDS ABOUT GEORGE HAGUE...editor

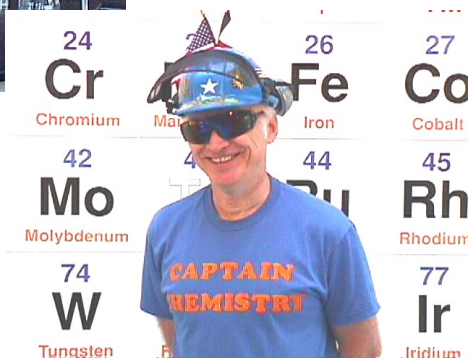
George as Captain Chemistry was unforgettable. He could rock an auditorium, not just with booms and lights, but with cheering students. The only memory more vivid for me is from the National Chemistry Day dinner at the 1989 ACS National Meeting here in Dallas: George was a cheerleader, Clo Reen, from West Texas and I was football player number 40 Cal C. Umm, and we bonded ionically…

George died in 2002 of leukemia at age 61; his Captain Chemistry web site (***http://captainchemistry.org/***) is still on-line and full of his achievements at St. Mark's.

Chem Is Try. The life and teachings of George R. Hague, Texas Chemistry Teacher. 1940-2002 is a PowerPoint presentation posted by the Science Teachers Association of Texas with numerous photos and George's philosophy:



"If you're teaching chemistry,



and you're not having fun, you must be doing something wrong."

From the editor:

Have you ever heard of red dog flour? I ran across the term this week while reading the EPA list of **Inert Ingredients Eligible for FIFRA 25(b) Pesticide Products**. Webster's defines red dog flour as *the lowest grade of flour in milling. It is dark and of little expansive power, is secured largely from the germ or embryo and adjacent parts, and contains a relatively high percentage of protein. It is chiefly useful as feed for farm animals.* I might just need to know that someday; it's always fun to learn something new.

Big Chemist's Retort Built for Movie

FOUR feet in diameter and more than five feet high, what is believed to be the largest chemist's retort ever made was fashioned from a new plastic material for use in a current motion-picture scene. In the film, a magician "creates" a full-grown woman inside of what appears to be an empty glass retort. The scene is shown above.

One more bit of retort and chemistry trivia for you:

February 1940 from *Modern Mechanix*: The movie was *Eternally Yours (1939), starring* Loretta Young, David Niven, Hugh Herbert, and Billie Burke

The "new plastic"...Lucite, Plexiglas [polymethylmethacrylate]

Best regards and best wishes for the coming year,

Connie