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C&E NEWS EDITOR TO SPEAK IN NEW YORK

The Editor-in-Chief of the magazine Chemical & Engineering News, Madeleine Jacobs, will speak at the dinner meeting of the Association of Consulting Chemists and Chemical Engineers on September 26. This exiting event will be at the Chemists Club in Manhattan.

Ms. Jacobs, who assumed the top post at the magazine 5 years ago, will tell how she overhauled this magazine so that it can better serve three segments of chemical activity: business, government and academia while representing the hundreds of thousands of American Chemical Society members who receive it every week. That's quite a daunting task.

As the top executive, she takes part in planning and selecting stories, ensuring accuracy, maintaining balance and objectivity, meeting unrelenting deadlines and seeing that the information is appealing to read. She also coordinates the efforts of 44 reporters and editors in seven news bureaus around the world, and has to be responsive to readers. The audience will be interested in Jacobs' experience of publishing in the electronic world. C&EN has been published in a web edition for two years.

The scientific, journalism and public relations experience of Madeleine Jacobs is extensive and impressive. After a B.S in chemistry at George Washington University and graduate work in organic chemistry she joined the staff of C&EN in 1969 and served as an assistant editor and writer in Washington and on the West Coast. Starting in 1972, she gained more and broader experience as a writer and editor with the National Institute of Allergy and Infectious Diseases. Next came the National Bureau of Standards, where she rose to the position of chief of media liaison and oversaw the publication of a monthly research news magazine and numerous publications reporting on science research.

Jacobs' next journalism work was with the Smithsonian Institution as the chief science writer, assistant director and then director of the Office of Public Affairs. Her work there included launching the nationally syndicated Smithsonian News Service (a monthly feature story service for 1,500 daily And weekly newspapers) and overseeing the publication of three periodicals. Then came the assignment as director of the Office of Public Affairs and the principal media spokesperson for the entire Institution.

This diverse and progressively important experience prepared Jacobs for the return to Chemical & Engineering News, where she became managing editor and, two years later, Editor-in Chief. She

has been rebuilding and reorganizing the staff for greater flexibility and efficiency, overseeing the redesign of the magazine, the expansion of the editorial staff into the Pacific Rim, and coordinating marketing and advertising efforts which have resulted in a 63% increase in advertising revenues since 1993.

Everyone who comes to this meeting will have a chance to meet this dynamic personality in person and participate in discussion of some of the hot topics that are part of today's real world of applied chemistry and its burgeoning electronic forms. Reservations for the dinner should be made early, as there will be limited space. Call the Association of Consulting Chemists and Chemical Engineers at (973) 729-6671 or e-mail accce@chemconsult.org before September 15.

CONSULTANTS AS LEADERS

Consultants are usually thought of as following the lead of clients. Sometimes, though, you engage a consultant to solve a problem that he is convinced stands in the way of his progress and you discover that an entirely different problem is probably the one needing correcting. If you are to earn your fee, you must help the client. If, as is sometimes the case, the client is stubborn and fixated on his own formulation of the case, you must lead the client.

Guiding principles for the consultant can be found among those in an unlikely place: the book "Leading at the Edge," by Dennis N. T. Perkins. Perkins analyzed the extraordinary story of how Sir Ernest Shackleton saved all the members of his marooned expedition to Antarctica when they lost their ship in the ice and had to get themselves back to civilization. Perkins drew up a set of 10 rules of leadership he attributes to Shackleton that resulted in success. They are as follows.

1. Never lose sight of the ultimate goal, and focus energy on short-term objectives.
2. Set a personal example with visible, memorable symbols and behavior.
3. Instill optimism and self-confidence, but stay grounded in reality.
4. Take care of yourself: Maintain your stamina and let go of guilt.
5. Reinforce the team message constantly: "We are one - we live or die together."
6. Minimize status differences and insist on mutual respect.
7. Master conflict - deal with anger in small doses, engage dissidents, and avoid needless power struggles.
8. Find something to celebrate and something to laugh about.
9. Be willing to take the Big Risk.
10. Never give up - there's always another move.

Some of these rules can be seen to be useful to the consultant with the stubborn client who needs to be brought around to seeing the case as the consultant does. Numbers 1, 3, 5, 6, 7 and 10 seem most applicable. Number 9 can be useful, though you might lose the client's confidence if you take the risk of pressing your own solution at the wrong time. You should avoid leading the client into taking the Big Risk, however. If the client proposes one and insists on taking it you may join in the decision and become the follower.

It may seem strange to recommend leading as a strategy for serving a client, but keep it in mind for the cases where your ideas about a case are better for the client than those he initially brought to you. Handling it with confidence (rule 3) is essential.

How did the first life on earth get started and how long ago was it? It is widely held by geochemists that shortly after the molten Earth cooled down after the Hadean period (Hades, get it?) enough to have liquid water, the atmosphere was devoid of oxygen and life as we know it couldn't exist. Somehow several billion years later organic compounds in the sea developed the ability to aggregate into larger structures and then to replicate themselves. The primitive organisms are assumed to have converted chemicals in the seas to early plants that gave off oxygen so that eventually animal forms appeared. But where did the organic chemicals come from and what were the essential ingredients?

Some say that the early Earth was "seeded" by such compounds riding on cometary fragments from outer space. But a new possibility has been proposed in a Science Magazine article that focuses on the chemistry taking place deep in the seas at thermal vents. What if, deep in the hot oceans, gasses from below, including carbon oxides and hydrogen sulfide, met on the catalytically active surface of minerals such as iron sulfide and underwent reactions resulting in carbon-to-carbon bond formation.

The journal reported that chemists of the Geophysical Laboratory, Carnegie Institution of Washington explored the potential catalytic role of iron sulfide at 250°C and elevated pressures in the transformation of alkyl thiols, carbon monoxide and other one-carbon compunds into many more complex organic compounds, including pyruvic acid. They call this a critical step for the origin of life, as many biosynthetic pathways of living forms branch from pyruvic acid and pyruvates.

The authors chose the conditions for the laboratory experiments to duplicate what is going on today in the deep seas at geothermal vents along the mid-ocean ridges where new sea bottom is being formed from molten magma below. They propose that the workings of organic chemistry were taking place in the presence of iron sulfides surfaces as catalyst in post-Hadean times, before actual self-replicating life processes began.

INTERNET SITES OF INTEREST

CONNECT TO PROSPECTS
A peek at requests for proposals in this site showed a few in the engineering and materials areas and would be worth a look by a consultant fishing for new clients. Two examples follow.
1. Project Details: "The primer must create a cured bond, after vulcanization, of 7 pounds per lineal inch peel per ASTM D 413 between Flexfab Fluorocarbon compound DF-5338 and Flexfab silicone compound RCL-04258. Bond must not separate at 450F."
2. Project Details: "In the molding of optical grade parts, the plastic part must adhere to the mold during the forming process, but not adhere so well as to make removal from the mold too difficult. When the part does not adhere well enough, prerelease occurs, manifesting as defects on the part. If the part adheres too well, the molds can be destroyed during the demolding process. The goal of this project is to achieve the appropriate balance of adherence to the mold surface to allow high yields of parts without prerelease or mold damage through chemical, process, or mechanical means."

http://www.hellobrain.com

FINDING ANALYTICAL FACTS
A Swedish site with lots of links. http://www.anachem.umu.se

OPPORTUNITY TO CONNECT
This site is another that promises to bring together consultants with clients who need them. Fees are steep but big projects may be large enough to justify them. The operators of this site mention the following areas: chemistry, process or market, experts in various facets of evaluation and business development, science, engineering, operations, finance, sales and distribution, market knowledge for pigments and dyes, acrolein and derivatives, environmental processes for the pharmaceutical waste stream treatment.
http:www.chemicalpartners.com

OUTSOURCING FACILITY
Outsourcing is the name given to "farming out" work that your company cannot or does not wish to do in-house. Here is a rich site, one of whose parts has many consultants and consulting companies listed. We have requested that our association be listed in their "outsourcingsearch" machine.
http://www.outsourcing-center.com/

EDITOR'S FAVORITE
We referred to this in March/April. Google now lists 1,060,000,000 web pages as their reach.
http://www.google.com

ADVICE ON RESUMES FROM AN INTERNET SERVICE

In our March-April issue we listed a client-search site, Guru.com. Some sage advice on how to present your consultancy on the web is part of their site. A paraphrase follows. Your Guru Profile is like an online resume. Guru.com will host your Guru Profile for free, and will include you in the searchable Guru Directory, making it easy for potential clients to find and hire you. Creating your profile is easy, and it takes about 15 minutes. Just follow the pages to create: an overview of your talents, description of your specialties, your availability, payment arrangements, geographic preferences, a summary of your experience that lists previous clients and describes what you did for them; a list of up to three professions that allows people searching Guru.com to find you.

Your profile can include details about your skills, education, references, and work preferences. The more sections and details you add to your profile, the greater your ability to get matched with a client.

To get started, keep these tips in mind. Potential clients want to know about results. Tell them what you can do for their business. Don't be coy, provide all the requested information and tell potential clients as much as possible about what you do. Think like a client - in your profile use the same keywords that a potential client would enter when searching Guru.com.

One of the profiles from the guru.com site follows. Availability - available starting 01/02/2000, 35 hours/week, for 46 weeks Pay - $100 an hour plus per diem if travel involved Logistics - work as

W-2 or 1099; Authorized to work in U.S. Location: Kansas City, MO.

SUBMICROSCOPIC DNA SEPARATION

DNA identification is becoming a useful tool for the medical profession and even law enforcement and the courts. Clever researchers are closing in on the goal of a simple device for converting a drop of blood or other specimen into a purified sample of DNA ready to analyze. Current tabletop procedures use gel electrophoresis plates to separate the DNA from impurities.

A recent Science magazine article tells of experiments in which electophoresis-on-a-chip carries out the separation without the gel by coaxing DNA molecules to migrate through carefully-sized channels under the influence of a charge gradient.

The microchannel is a few microns in height but periodically narrows down to about a tenth of a micron. The size of the DNA is on the order of this narrow region. The larger fragments advance more quickly, having a larger surface area, therefore a greater area in contact with the narrow region, and so there's a higher probability that some part of the molecule will deform and move into the narrow channel, and once it does it pulls the rest of the molecule with it. Other smaller molecules end up being left behind.

The researchers state that they can do some analyses on a small chip in minutes that would previously have taken hours on a large gel. There is some basic science in understanding what happens in these tiny channels and more needs to be worked out. Obviously a great deal of development work remains to be done before reliable, inexpensive devices are being manufactured in quantity, but this addition to the swarm of reports of small chemical and analytical devices of various kinds seems to have a good chance of making it.

NOVEL WAY TO DETECT ODORS

The technical and patent news is full of reports of discovery and invention of sensors and instruments for replacing the human nose for smell response. We reported one in our January/February issue. Now two professors at UI in Champaign, Illinois, Neal A. Rakow and Kenneth Suslick, report a colorful approach based on their long experience working with metalloporphyrin compounds.

In this case the detection is by change in visual color of spots of special mixtures of metalloporphyins, the components of each giving characteristic changes of color after binding with a variety of specific organic compounds. The investigators compiled libraries of color photographs of the resulting colors, for a single compound and for a number of known mixtures of compounds. Exposure of a known mixture of several metalloporphyrins to an unknown mixture of volatile compounds results a unique blend of colors.

This turns out to be a very sensitive test, with the resulting color matches being made on a flatbed scanner or the image of a digital camera of the dye array before and after exposure to the vapor. The method gives parts per million or even billion detection limits of a variety of volatile compounds, including alcohols, amines, ethers, phosphines, phosphites, thioethers, thiols, arenes, halocarbons

and ketones.

Add the fact that water vapor does not affect the performance of the method and that it shows a good linear response to single analytes. We don't think the tea-tasters and USDA meat inspectors will be using this method soon, but the investigators hope that someday there will be devices able to give a digital read-out of smells found by color change of metalloporphyrins.