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China now leads world in sulfur emissions, research shows

A
d the new century begins, the dark reaches of the world have shifted from the West to the East. An ambitious analysis of global sulfur emissions spanning two centuries shows that the United States, Europe, and the former Soviet Union have stabilized their emissions over the past 20 years, while mainland China's sulfur emissions have soared. China now holds the dubious distinction of the country with the highest production of sulfur emissions. Coal consumption overwhelmingly accounted for the largest contributions to sulfur emissions worldwide. Other activities taken into account in the analysis were metal smelting and oil consumption.

The data were gathered and analyzed by Rudolf B. Husar, Ph.D., professor of mechanical engineering and director of the University's Center for Air Pollution Impact, Trends, and Analysis (CAPITA), the world's largest private library of air pollution statistics. He published the analysis in the journal Atmospheric Environment. Co-authors are Janja D. Husar, Ph.D., research associate in CAPITA, and Allan S. Lefohn, Ph.D., of A.S.L. Environmental and Associates in Helena, Montana. The Department of Energy funded part of the research. "Fuel consumption is the key principle behind sulfur emissions," Husar said. "And it is relatively easy to get because most countries have first round of their consumption." Husar and his colleagues relied on a vast network to get their fuel and metal smelting information. Nineteenth-century data were found in literature and in occasional obscure publications. The 20th-century data were mostly based on League of Nations — later United Nations — publications, mineral yearbooks of the U.S. Bureau of Mines, and Hurst's Book of Mines. The researchers also used fuel consumption data from 1900 to 1990 that had been compiled by the U.S. Department of Energy's Oak Ridge National Laboratory. To estimate emissions in the 20th century, the researchers had to analyze a large amount of information based on the individual country's activities also figured into the analysis.

The stabilizing U.S. and Soviet Union sulfur emissions have occurred in part with strict regulations in the United States from high- to low-sulfur stoves and tighter environmental controls," Husar said. "In the former Soviet Union, there has been a greater reliance on natural fuels such as natural gas and nuclear power have made an impact. In both countries, particularly the United States, the shift from a small number of large coal-fired power plants to many smaller plants was a factor in their stabilization. In China, the shift from a small number of large coal-fired power plants to many smaller plants has also been a factor in the increase in sulfur emissions.

Washington People: Derek Herl, Ph.D., probes personal roots of public issues

Day care
New service will help WU families find providers

By Bevco Roeger

Addressing an oft-cited need on campus, Washington University has entered into a contract with the Child Day Care Association (CDCA) of St. Louis nonprofit group, to help staff and faculty find suitable day care facilities for their children. Under the agreement, employees can turn to the association for information and referral service for comprehensive information about area day care centers. "We were concerned about finding the one that best meets the needs of each family," said Florence Klem, assistant vice president for community relations, the CDCA. "We reviewed many options, under the leadership of Chancellor Mark S. Wrighton, who appointed a group to review options, and we determined that CDCA was the best choice for us," said Klem. In response to the report, Community Relations, the newsletter is desk-staffed with mutual understanding and respect with neighbors through the sharing of information. In addition to the mailing, the newsletter also has been mailed to a few locations on campus. "WU Neighbor News is a vehicle for keeping neighbors informed and ultimately involved in the life of the University," said Community Relations. The newsletter is desk-staffed with mutual understanding and respect with neighbors through the sharing of information. In addition to the mailing, the newsletter also has been mailed to a few locations on campus.
The campus tour season is in full swing as the University community moves into April Welcome, Undergraduate Admissions’ annual full-court press to introduce admitted students to life at Washington University.

**Rolling out the April Welcome wagon**

*BY CHRISTINE FARMER*

The University is rolling out the April Welcome wagon in April for students admitted to nearly fall’s freshman class. April Welcome, an annual month-long event, will bring about 1,800 prospective students and their families to campus for a sampling of life at Washington University.

"All students have that anticipation of making that transition in their decision to attend Washington University, so making it feel real for visiting students feel like they belong here is very important," said Nanette H. Tarbouni, director of admissions. "The involvement and enthusiasm of our current students and the entire University community is quite impressive — and crucial to making the month successful."

About half of the students who participate in April Welcome end up enrolling at Washington University. All of our students, including the members of our guest Student Admissions Committee, do a wonderful job representing our University."

Throughout the month, the undergraduate admissions office will extend its hours for prospective students and their parents. In addition to its regular 8:30 a.m. to 5 p.m. weekday hours, the office will be open from 9 a.m. to 3 p.m. Saturdays and Sundays. Student Financial Services will have their hours in downtown in hours from 1 to 4 p.m. Mondays and Fridays and from 1 to 3 p.m. Tuesdays, Wednesdays and Thursdays.

Additional campus tours will be added to the schedule for April Welcome. Tours will leave from the undergraduate admissions office at 10 a.m. and 11 a.m. and 2:30 p.m. Mondays and Fridays; at 11 a.m. and 2:30 a.m. Tuesdays, Wednesdays and Thursdays; at 10:30 a.m. and noon on Saturdays and at noon on Sundays.

**Clinical psychologist keynotes MLK symposium**

*BY DAVID MANNINGER*

**Displacement, deracination, are themes of German symposium**

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**New in cyberspace**

You might have noticed the University’s new redesigned Web page, which was developed by a task force chaired by a charge from Chancellor Mark S. Wrighton. Shirley K. Baker, vice chancellor for information technology and dean of University Libraries, chaired the group, which spent a year redesigning and developing the site.

The Web site gets more than a million hits per week, with 40 percent of those coming from outside the University. The University’s 10,000-plus Web pages serve prospective and current students, faculty, staff, parents, alumni, community members and the general public via the Web. Users can register for courses, renew library books or apply for jobs through the site.

The Web task force will continue to work on expanding the University’s Web presence and growth. Feedback from the University community about the site is always welcome. Click on the community link at the bottom of the home page to access a screen for making suggestions.

**Campus tour quiz:** These lamps shed light on what part of the Medical Center.

**New outreach service**

The Saturday Neighborhood Health Center, operated by students at the School of Medicine and the George Washington Brown School of Social Work, has added diagnosis and treatment of skin problems to its services with the help of Michael Heffernan, M.D., instructor in dermatology. The clinic offers free health care services on a walk-in basis to adults who have no health insurance.

**Head count**

With strong support from local communities, colleges and universities across the country are making unprecedented efforts to encourage students to fill out their U.S. Census forms, according to USA Today. The efforts stem from lessons learned following the 1990 Census, when many college communities missed out on millions of dollars in federal aid because students failed to fill out their forms.

**Did you know?**

Washington University’s School of Medicine ranked third among the nation’s medical schools in the amounts of grant support received from the National Institutes of Health (NIH) in 1999 — up from fourth the year before. The NIH recently released $225.6 million in research funding, after John Hopkins University ($255 million) and the University of Pennsylvania ($254.4 million). The NIH supports numerous basic and clinical research projects aimed at understanding or treating a variety of diseases, including cancer, heart disease and AIDS.
A diagnosis of Alzheimer's disease, at least in its mildest forms, does not necessarily mean that a person is more likely to have automobile accidents. School of Medicine investigators have found that most older adults with very mild or mild dementia have similar crash rates per mile compared to age-matched controls.

"We shouldn't restrict or revoke driving privileges based on a diagnosis of Alzheimer's alone, but we should be concerned on disease severity and functional impairment," said David B. Carr, M.D., assistant professor of medicine and a member of the professional honor society Alpha Omega Alpha. Carr is also a member of the executive committee of the Retiree Luncheon and the Retirees Association will hold its 16th annual luncheon at Bevo Mill Sunday, April 15.

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Famed Irish poet visits for April 11 reading

Poetry reading

Who: Nuala Nic Dhomhnaill

When: West Campus Conference

Where: P.0. 1113, Campus Box 1113, St. Louis, MO 63133-1113

When: 8 a.m.

Tickets: Free; for students and seniors

Washington University in St. Louis
Monday, April 3
10:30 a.m. American Indian Awareness Week Film Series: "Behind the Scenes of the 110-Meter Dash," a powerful narrative about the quest for the world’s fastest man. Docuseries centered on the life and career of American sprinter Carl Lewis. The film is an in-depth look at the history and the science of human performance, including training techniques, nutrition, and mindfulness practices. No registration required. Hour Welcome Reception from 6 to 9 p.m. April 7 and remains on view through April 9. For more information, call 935-6500.

Tuesday, April 4
6:30 p.m. Short course. "Re-engineering Policy in the Global Economy." Dr. Helene M. Haugh, president of St. Louis University. The film explores the challenges and opportunities presented by globalization and offers insights into how policymakers can work together to create a more equitable and sustainable world. For more information, call 935-3210. 

Wednesday, April 5
8:15 a.m. Men’s tennis vs. Marquette University. 9:00 a.m. Women’s tennis vs. Marquette University. 9:30 a.m. Women’s tennis vs. Eastern Illinois University. 9:30 a.m. Men’s tennis vs. Eastern Illinois University. 11:00 a.m. Women’s tennis vs. Eastern Illinois University. 11:00 a.m. Men’s tennis vs. Eastern Illinois University. 1:00 p.m. Women’s tennis vs. Marquette University. 1:00 p.m. Men’s tennis vs. Marquette University. 3:00 p.m. Women’s tennis vs. Marquette University. 3:00 p.m. Men’s tennis vs. Marquette University.

Full schedule can be found at the official website. For more information, contact the Sports Information Office at 935-6288 before 4 p.m. and the American Indian Student Association, 935-4841.
China

Soft coal use yields high emission levels

A service-oriented economy also has made a difference, as have the use of scrubbers and desulfurization techniques in coal-fired power plants.

"For China, it is an immense country with a growing population, and their coal reserves are massive and predominantly soft coal, which is the dirtier kind. China is in the midst of a booming industrialization process. It makes economic sense for them to burn coal because it is so abundant. We've begun to witness a shift away from coal because of cleaner fuels and cleaner consumption methods."

"One of the reasons that emissions haven't really gone up exponentially over the past 100 years in the United States is because of the fact that now perhaps two-thirds of the energy is supplied by relatively clean fuels," he explained. "Also, particularly in the past 60 years or so, pollution controls have reduced the amount of emissions released into the atmosphere. If not for cleaner fuels and emissions controls, the amount of sulfur emissions today would easily be three or four times what they are now."

China estimates that global sulfur emissions in 1850 were approximately 1.2 million metric tons, just 1.7 percent of his 1990 estimate of 75.7 million metric tons. Beginning in 1913, China leveled off and then a decline during World War II. After World War II, the Great Depression saw emissions go somewhere else now."

China's current energy structure began in the 1990s with the goal of reducing sulfur emissions. China is now the world's largest coal consumer, with 65% of its energy needs coming from coal. The country is the world's second-largest emitter of greenhouse gases, behind the United States. China's economy has grown rapidly in recent years, and its coal consumption has increased significantly. This has resulted in increased carbon dioxide emissions, which contribute to climate change. To address this issue, China has set ambitious targets for reducing its greenhouse gas emissions. The country has committed to achieving peak carbon emissions by 2030 and to reaching carbon neutrality by 2060. To achieve these goals, China is investing heavily in renewable energy, energy efficiency, and carbon capture and storage technologies. China is also partnering with other countries and international organizations to share knowledge and best practices, and to collaborate on joint projects that can help to reduce global greenhouse gas emissions.
Academy of Science of St. Louis honors five faculty members

E ven Washington University faculty members with worldwide-renowned reputations will be recognized for contributions and advances in their fields by the Academy of Science of St. Louis. On Wednesday, April 5, at the academy’s 2000 Outstanding St. Louis Scientists Award Dinner, the event will take place at Missouri Co. in Creve Coeur.

Being honored are:
- Steven E. Dowdy, Ph.D., assistant professor of pathology at the School of Medicine and assistant investigator in the Howard Hughes Medical Institute;
- Sarah C.R. Elgin, Ph.D., professor of biology in Arts & Sciences and professor of biochemistry and molecular biophysics at the medical school;
- Philip Needleman, Ph.D., adjunct research professor of molecular biology and pharmacology at the medical school;
- Robert H. Waterston, M.D., Ph.D., the James S. McDonnell Professor of Genetics, head of the Department of Genetics and director of the Genome Sequencing Center at the medical school; and
- Michael E. Wysession, Ph.D., associate professor of earth and environmental sciences in Arts & Sciences.

Both Needleman and Waterston received the Lifetime Achievement Award for their scientific contributions and leadership in their respective fields.

Needleman, known as "Father of CisDEK" in science, has made significant contributions to research into organic nitrates and blood pressure regulation and to the discovery of the chemicals that convey information from the heart to the kidneys.

Waterston is a key player in the Human Genome Project, an international scientific project that consists of many scientists from around the world. His team is headed by a schedule in which they have worked on a draft of the complete DNA of the human genome.

Waterston: Key player in the Human Genome Project

Waterston, key player in the Human Genome Project, is recognized for his contributions and leadership in his field. Just recently, it was announced that researchers had mapped a human chromosome for the first time: some of the mapping of chromosome 22 has been done at Washington University. Waterston has been crucial in ensuring public access to the work his team has done on the Human Genome Project and has set the standard for the daily release of proteins into the body where they can attack and kill the HIV-infected cells. This technology is considered a stepping stone in transforming the drug delivery system into an unlimited number of biomedical problems.

Waterston, considered one of the nation’s leading authorities on the Earth’s interior, has developed a seismology technique to obtain the first complete map of Earth’s core-mantle boundary. Using seismic waves to create images of the structure of deep Earth, he has pioneered a second revolution in plate tectonics.

Founded in 1856, the Academy of Science of St. Louis carries out its mission to publicize interests in science, engineering, and technology and to improve science education through programs in schools and teacher education.

Medical faculty receive promotions

The following School of Medicine faculty members were promoted to professor level (effective May 30, 2000, unless otherwise indicated) following the March 3 meeting of the Board of Trustees.

Carolyn J. Anderson, Ph.D., associate professor of radiology;
J. Perren Cobb, M.D., associate professor of surgery (general surgery);
Jeffrey A. Drehobl, M.D., Ph.D., assistant professor of surgery (general surgery);
Jeffrey M. Gidday, Ph.D., to associate professor of neurology; Terry C. Laintor, M.D., to associate professor of surgery (general surgery);
Mark A. Mintun, M.D., to associate professor of radiology; and
Jean R. Rader, M.D., to associate professor of genitourinary and gynecology.

Aptly, the Board of Trustees recognized the significant contributions that these faculty members have made to their respective fields and the institution. Their promotions reflect the Academy’s commitment to excellence and the advancement of science.

Notables

Notable biographical information about our notables is provided below:

Oscar's Sizing Grill: Freshman Andrea Ugent (left) takes on an Ultimate Frisbee opponent Saturday, March 25. The competition was one of 15 events in the first Residential College Olympics, which drew over 900 South 40 residents out to the Swamp.

Of note

Daniel A. Law, Ph.D., assistant professor of radiology, recently received a three-year $709,653 grant from the National Cancer Institute for a project titled "MRI for Oncology Malignancies".

James G. Miller, Ph.D., the Albert Gordon Hill Professor in Physics in Arts & Sciences, research professor at the School of Medicine and professor of biomedical engineering in the School of Engineering and Applied Science, has been elected to the College of Fellows of the American Institute for Medical and Biological Engineering (AIMBE). He was installed at AIMBE’s annual meeting, held March 3-5 at the National Academy of Sciences in Washing- ton, D.C. He joins founding AIMBE fellows Frank C-P Yin, M.D., Ph.D., chair and the Stephen F. and Camilla T. Brewer Professor of biomedical engineering; and Salvatore P. Suter, Ph.D., the Spencer T. Olin Professor in Engineering, both in the School of Engineering and Applied Science.

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Exploressing personal roots of public issues

Derek Hirst, Ph.D., probes psychology and culture to understand the course of history

By Gerry Eversing

Exploring personal roots of public issues

With President Clinton responding to and allegations of improper conduct in the White House, current Pacific countries have struggled to build firewalls between the public figure and the private person. The struggle includes questions about "past peccadillos" as irrelevant to intensified violations of personal space.

While "no comment" is a cherished campaign play, the notion that politicians should be allowed to separate their public and private selves is truly a modern phenomenon, according to Derek M. Hirst, Ph.D., the William Eliot Smith Professor of History and chair of the Department of Arts & Sciences.

"Our ancestors were sure that the inner and the outer self were seriously misinterpreting the social forces behind past events as in Marvell's case. While historians have lauded Marvell as an early champion of religious tolerance and political freedom, some bothered to dig into his motivations. Hirst and Zwicker conducted an extensive review of Marvell's writings, including early work as one of Britain's most famous lyric love poets and later essays that rank among the nation's most biting political satire. Their conclusion: Marvell's fierce campaign for individual rights grew out of an inner struggle that tugged at every fiber of his personal life—a lifelong effort to reconcile his own powerful homoerotic interests with the societal pressures of a repressive and highly patriarchal British culture.

"Derek Hirst has been a superb collaborator and colleague," Zwicker said. "The opportunity to work with him and to have been one of the most rewarding of my academic experiences, and though we've been doing collaborative work for a long time, the possibility of exploring relationships between politics and culture, as we have now done on the essays of Andrew Marvell, seems only to become more and more interesting."

Hirst and Zwicker's essay on Marvell's sexual identity and politics appeared this year in EIHM, a leading journal of English cultural studies. The team, which has collaborated on interdisciplinary research for more than 20 years, also plans to co-author a book on their research in the next few years. After that Hirst intends to produce a study of the English republicans' experience of the 1650s that will, among other things, explore how our modern understanding of the public and the private began.

Familial writer

Widely published in major history journals, Hirst has two books out this academic year—"Writing and Political Engagement in Seventeenth-Century England" (Cambridge University Press), co-edited with Richard Strier of the University of Chicago and "England in Conflict 1663-1660: Kingdom, Community, Commonwealth" (Oxford University Press/William Edward Arnold of London). A longtime fellow of the prestigious Royal Historical Society, Hirst centers his ongoing research on the way 17th-century

England, which thought of itself in the traditional terms of the country's confessional development. Although people tended to imagine their world as a stable organism, it was in fact a time of considerable commercial change and political innovation. The fact that pornography, for example, became more powerful for the first time was one of the most important political arguments in this period suggests the imaginative power of the stress that were generated.

Hirst grew up close to the turf he studies. The son of a grocer in London, he was reading John Locke at age 14, he was reading John Locke and launching his first explorations of 17th-century history. His academic success led to a fellowship to Cambridge University, where he studied under Sir John Plumb, a leading British historian and former graduate adviser to Hirst's secondary school history teacher. Hirst achieved the top-ranked undergraduate degree in history at Oxford University in 1969 and finished a doctoral degree there in 1973.

He was a fellow of Trinity Hall at Cambridge from 1971 to 1973 and director of studies in history there in 1974 and 1975. Like his mentor, he became interested in how popular culture and other contemporary influences interacted with the historical and policy shapes political history. Hirst might have been content to spend his career at Cambridge, but coincidence and his association with Plumb combined to bring him to America. Plumb also had served as a graduate adviser to Richard W. Davis, another British historian who had served as a graduate adviser to Hirst, said, and referring to England's venerable universities. "It was actually the demands of committee work in the Oxbridge college system are huge. Lots of time and energy go to waste."

Hirst is grateful that the administration here has staff to handle many of the University's day-to-day operational matters, but the responsibilities of administration have forced him to find new roles as chair of the history department, as the office of the history department, as the office of the day-to-day operational matters, as the University's most important public relations department, and as the office of the history department, as the office of the day-to-day operational matters, as the University's most important public relations department, and as the faculty historian.

"Our ancestors were such that the inner and the outer self were two sides of the same coin... Everybody knew, therefore, that personal dysfunction must signal political dislocation."

Derek M. Hirst