New resolution lays groundwork for war

ANALYSIS

"It's the endgame now" on diplomatic road to war

BY PHILIP DUNE
Post Dispatch, Washington Bureau
WASHINGTON — The decision by the United States and Britain to offer a second resolution on Iraq sits mi-

nute by minute, is a move toward war by mid-March, mil-

itary sources say. It also takes the United States' "peace" policy, according to a request by his top ally, British Prime Minister Tony Blair, that before leading a strike against Iraq, the two nations must give the United Nations one more chance to agree its proposal. "This in the final act," said one military officer, is when the defense and foreign policy sec-

ion of the American Enterprise Institute is to the United Nations and the Usability Minister's Office was given to offer a final decision. This will mark the last effort to make the United-

ed Nations put its money where its mouth is.

Lawrence Korb, vice president of the Council on Foreign Rela-

tions, said the White House, which was also joined by Spain on Monday, is making the maximum "influence before going to war. Our last chance. Now is the time to make sure that when this Congress comes back, you can be before you start this war," said Koehn, who was assis-

tant secretary of defense under President Bush.

Jon Wolfish, who directs Har-

vard University's program on nu-

clear security and military prolifer-

ation, said, "My presumption is that the resolution is one (Bush) thinks will win him rather than lose him to take action against Iraq."

See Analysis, A13

U.S., BRITAIN AND SPAIN:

Would give Iraq "two weeks or so" to disarm

BY CHRISTIAN SCHRADER and Peter LLOYD
Associated Press
FRANCE, RUSSIA AND GERMANY:

Propose inspections through at least July 1

BY COLEEN KENNEDY
Post Dispatch, St. Louis
UNITED NATIONS — The United States, Britain and Spain introduced a new draft Security Council resolution Monday declaring that Iraq has surrendered to "real opportu-

nity" to voluntarily disarm and leaving the punitive measures for Iraq's non-U.S.-led military invasion.

Its introduction marked the beginning of what U.S. and British officials characterize as the final push to win council backing for a decision to go to war.

The resolution recalls that the 15-nation council warned Iraq in November that it would impose severe sanctions if it did not scrap its banned weapons programs.

French President Jacques Chirac and German Chancellor Ger
dan Chancellor Ger
dard Schröder (right) and Free

Democratic Party President

Lutz Fromm (left) in Berlin on Monday about their pro-

posal for continued inspections in Iraq.

The Associated Press

TODAY

Bush meets with the prime ministers of Britain and France — a Security Council member that supports the U.S. position.

The Turkish Parliament is expected to debate accepting Iraq's appeal for a UN inspectors' mission. Turkish Prime Minister Abdullah Gulden agreed to do so on condition that the UN Security Council vote to authorize a mission.

Black Hawk helicopter crashes in Kauai. All four crew members were killed.

Lawmakers are united on nursing home bill

Plan seeks to protect older adults, says bipartisan group of legislators

BY ADAM VANCE
Post Dispatch, Washington Bureau
JEFFERSON CITY — In a break from the deadlocked nursing home reform, a bi-partisan effort by Senate and House leaders to protect elderly residents.

The bill combines carrots and sticks — for example, good homes could be inspected less often but homes cited for failing to protect the health and safety of elderly residents.

McDOT
grounds flights for employees

Transportation agency reacts to report that it spent $250,000 last year

BY BILL BELL
Post Dispatch
JEFFERSON CITY — Flights on state-owned airplanes for the Department of Transportation employees were grounded Monday until agency officials complete a review of the practic-

ability of the flights, an agency official said.

The action came in response to a report in Monday's Post-

Dispatch. An agency spokesman said the department had not been using the planes.

Earlier this month, several House analysts asked the de-

partment's inspector general to look into agency policies on state flights.

But the article said "the problem with the flights is not whether there are too many or too few, but that the policy review would take. In 2001, the department was grounded "unless a critical task was too dangerous to perform by secure bridge inspections," the de-

partment's inspector general said.

For the most part, the deci-

sion affects department leaders such as Director Henry Riehle, who flew 35 times last year at a cost of more than $250,000. Riehle, who flew over hurricane-damaged areas.

See Travel, A8

TAKING WINTER TO NEW HEIGHTS

SNOWFALL TOTALS: 4-5 inches fell on Sunday and Monday, 26.4 inches is average for this winter (1.1 is average) | STORY ON 81

The chess buff's guide to new snow

BY TINA RINEHART
Post Dispatch

Heavy metal smarts. While it may sound like music criticism, the conclusion is ac-

tually a new scientific model that may explain for the first time how humans and other mammals detect odors.

Scientists at the University of California, Davis, say they have discovered a gene that opens doors to the world of smell — is to help mammals avoid spoiled food, said Liski. Bacteria often give off mal-

odors that stick strongly to metals, he said.

See Smell, A17

New leader of South Korea is inaugurated

By Rich Minn-hyun

Mitt Romney plans to pursue warming ties with North Korea despite the commu-

nist nation's unflattering portrait of its neighbors.

The North Korean government earlier this month. Among the letters were from young anti-war activists.

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The rise of the "nice"

U of I researchers find that heavy metals, such as zinc and copper, and odor receptors detect odors.

By Tina Rinehart

The Post Dispatch

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The rise of the "nice"

U of I researchers find that heavy metals, such as zinc and copper, and odor receptors detect odors. 
Metals may be the key to smelling odors

Scientists at the University of Illinois at Champaign-Urbana say they have discovered that metals change the shape of smell proteins, called olfactory receptors, which enable us to detect odors. How the researchers say olfactory receptors in the nose work:

1. Metal, such as zinc or copper, attaches itself to a protein strand, causing the protein to change shape and straighten.

2. When the protein changes, it forces the metal to stick inside the cell membrane. The protein strand is forced inside the cell.

3. When an odor attaches to the metal, the loop straightens and changes to its original shape.

4. The metal pops back out of the membrane. The back-and-forth motion creates a message through the membrane, allowing us to smell odor.

Source: University of Illinois at Champaign-Urbana

“Inorganic chemistry stinks.”
Kenneth S. Suslick, University of Illinois at Champaign-Urbana chemist who led the research on how metals aid in detecting foul smells

Smell
U of I researchers say metals help detect odors

Continued from A1

Those metals — zinc, copper, iron, magnesium and others — may come from food and water.

The Illinois researchers have used this bit of wisdom to develop an artificial nose that could help detect noxious chemicals. Metal-binding dyes in the artificial nose change colors when certain odors latch onto the metals. The scientists began to wonder if the human nose worked the same way, Suslick said.

Robert Crabtree, an inorganic chemist at Yale University, thought it might. The idea came to Crabtree 25 years ago when a colleague broke a bottle of vileness-smelling chemicals on the floor. The chemist knew that stinky stuff, such as the hydrogen sulfide that give rotten eggs their smell, or amines, which are responsible for fishy odors, stick to metals well. And people can smell rank odors better than pleasant ones, so Crabtree hypothesized that smell-receptor proteins probably contain metals.

The Yale chemist wrote a paper outlining his idea that day and later published it in a scientific journal.

That seemed to be the end of the story — except for good-natured ribbing from Crabtree’s wife, who has never let him forget that his paper was never cited by other researchers.

“Science, you don’t get many points for a proposal. . . You’ve got to have proof,” Crabtree said. “It took a long time before the proposal was testable.”

To find out if metals play a role in smell, the Illinois researchers examined DNA sequences of the olfactory receptors. The sequences weren’t hard to come by, Suslick said. Mammals have about 1,000 genes for olfactory receptors. That’s about 3 percent of the human genome.

The scientists found a small proportion of protein in about 75 percent of the receptors that looked as if it could bind to metals. The researchers produced that portion in the laboratory and found that it could hold onto metals.

Olfactory receptors look like many other receptor proteins in that they have seven regions that cross a cell’s membrane. Most of these receptor proteins are tightly stitched into the membrane, with only small loops of protein connecting the membrane-spanning regions, Suslick said. But olfactory receptors have one large, floppy loop that hangs outside the cell like a snag on a sweater.

That loop contains the metal-binding part of the protein. When metal ions bind to the protein, the floppy loop changes into a forked-screw-shaped helix that slides into the cell membrane. That action pushes a loop of protein inside the cell out the membrane, just as when a strand of yarn is pulled from the underside of a sweater to hide a snag. The protein is now primed to detect smells.

When a smelly chemical sticks to the metal ion, the loop pops back out of the membrane. That “shuttercock” motion sends a signal to the smell-detecting cell that an odor is present, the researchers say.

Some smell receptors don’t have metal-binding regions but may work in much the same way, Suslick said. Chemical bonds within the protein could mimic the action of the metal ions, he said.

Those receptors that do not bind metals — only a quarter of the smell-detecting proteins — may sniff out pleasant-smelling chemicals, Crabtree speculates. Aromatic chemicals such as esents, which give flowers their scent, don’t stick well to metals, he said.

The model still needs more testing, Suslick said. But the researches have other clues that they may have snuffed out a winning theory. The first symptom of zinc deficiencies is the loss of the sense of smell, Suslick said.

But taking zinc supplements may not improve the sense of smell, he said.

“Most people get all the zinc they need from their diet,” Suslick said, “and excess zinc won’t buy you anything.”

Crabtree, who proclaimed the Illinois researchers’ model “a beautiful mechanism,” said the study provided validation for his idea. That could mean that his wife will have to find something else to torment him about.

“Now I’ve got the upper hand!” Crabtree crowed.

BY TINA HESSMAN
Of the Post-Dispatch

Heavy metal smells. While it may sound like music criticism, the conclusion is actually a new scientific model that may explain for the first time how humans and other mammals detect odors.

Scientists at the University of Illinois have discovered that odor-sensing proteins, called olfactory receptors, may owe much of their stink-detecting capabilities to heavy metals such as zinc or copper.

The discovery is based on simple knowledge that inorganic chemists have had for a long time, but biologists have largely overlooked — things that bind to metals smell strongly and badly.

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Reporters Tina Hessel
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Insides: How humans and other mammals detect odors, A7