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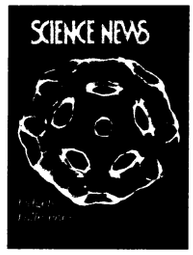
This Week

Research Notes

Articles

Cover: This computer image maps the electron densities of the 60 vibrating carbon atoms in a buckyball heated to 1,000 kelvins. Yellow represents the lowest densities; dark pink indicates the highest. (Image by Tom Palmer, Visualization Group, N.C. Supercomputing Center/based on work by Jerzy Bernholc, Qiming Zhang, Jae-Yel Yi, Charles Brabec, N.C. State Univ.)



Departments

Letters

Cold fusion clue?

The phenomenon described in "Bubble Light in the Blink of an Eye" (SN: 5/11/91, p.292) may be worth exploring as a partial explanation for "cold fusion" phenomena.

Active electrodes immersed in heavy water could be unintentionally affected by sound-wave cycles and/or produce them. Bubbles sonically trapped in an experimental "fusion" container — or, perhaps more likely, in cracks in the metal electrodes themselves — might act first as sonic absorbers. As the bubbles collapsed, they would become energy emitters, producing both thermal and photonic activity. The photons may not all (or even primarily) be in the visible spectrum — and heat may not always be converted to light, especially if the sound traps are irregularly maintained.

Naturally, most cold fusion advocates attribute measured thermal and photonic phenomena to fusion. But maybe they need to "think outside the box." Maybe the phenomena are unrecognized effects of sonoluminescence, or maybe they are links in a real fusion process. Sonoluminescence may not explain all of cold fusion, but it could help solve the mystery.

E.G. Ross
Science Editor
THE POSITIVE ECONOMIST BULLETIN
Eugene, Ore.

Polished performance

"Wine glasses and ringing bells" (SN: 5/11/91, p.303) reminded me of a 25-note "Glass Harmonica" owned by the Frick Art Museum in Pittsburgh. I was given the task of preparing the instrument for concert performance, only to discover that two of the glasses were cosmetic replacements, in no way tunable to the desired pitch. It appeared that the early craftsman simply had large numbers of glasses blown and then selected those that were basically correct or slightly higher in pitch. The latter were then tuned by adding a small amount of water. Too much water destroyed the tone quality and greatly reduced the reverberation period.

To solve this problem, I had glasses blown to dimensions prorated from the adjoining ones. All of these proved to be several whole steps too sharp. Careful use of calipers revealed thicker walls on the replacements. A grinding and polishing lathe was then constructed. Using a soft leather lap and opticians' grinding compounds reduced the wall thickness, and the pitch began to drop dramatically.

Conversely, removing material from the bot-

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tom of the glasses (in the proximity of the stem) increased the frequency of vibration.

For those who wish to experiment, Bruno Hoffman of Stuttgart — the world's greatest performer in this idiom — suggests using cider vinegar to clean both the glasses and the performer's fingers.

Robert M. Fischer
Valencia, Pa.

Hormonal memory

"Randy Reptiles" (SN: 5/11/91, p.300) describes experimental results suggesting that high testosterone levels in the previous summer initiated courting behavior in garter snakes in the next spring. These results are in line with our data obtained in deer.

Experiments performed in the last 15 years indicate that high testosterone levels in the rutting season (fall) will influence the intensity of antler growth in the following spring, when the testosterone levels are at the minimum. Antler growth will continue in castrates but will diminish with each successive year. A testosterone "boost" given in the fall will reinvigorate the next antler growth.

This unusual phenomenon of "remembering" the previous growth process was called a "trophical memory" more than 30 years ago by T. Bubenik and R. Pavlansky. It was hypothesized that this "memory" involves activation of brain centers by androgens.

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