in achieving relatively long-term metastability of the refrigerant and long-time detector operation by rapid recompression, has succeeded not only in significantly reducing the space demand but in obtaining a sufficiently large exposure (active mass × active time) to provide new limits in the WIMP–proton coupling sector comparable with the KIMS experiment.

In contrast, the PICASSO group ran 8 devices throughout 2007 and has been running its full 32-device complement since January 2008; the SIMPLE group is similarly preparing a 30-device deployment. It is thus quite disappointing to find in the PHYSICS TODAY story no mention of the current implementation of their superheated liquid capabilities or their already obtained results—which are prominently not adapted from the *Science* publication in the story's figure. It's as if the previous activity never existed.

References

1. T. A. Girard et al., *Phys. Lett. B* **621**, 233 (2005), and references therein.
2. M. Barnabé-Heider et al., *Phys. Lett. B* **624**, 186 (2005), and references therein.

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Schwarzschild replies: We thank the letter writers for pointing out these useful details. To make the story's figure less crowded and thus more accessible to nonexpert readers, we retained from the COUPP collaboration's original figure only those experimental limits from earlier null results that were not superseded at all putative WIMP masses by the COUPP results we were reporting. In a news story, we generally cannot provide a comprehensive review of the background.

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Flocking for survival

Wasn't it Arthur Conan Doyle, in *The Adventures of Sherlock Holmes*, who wrote, "You have seen, but have you observed?"

I read with interest the item "Statistical Physics Is for the Birds" (PHYSICS TODAY, October 2007, page 28). The most interesting part is that the investigators set up their apparatus in the proximity of the Rome railway station. There, flocking is more clearly observed, most likely because the air in that environment is warm and therefore rising. The birds find an easy supper in the insects that are rising in the warm air. Larks in flight exhibit similar behavior, as was qualitatively explained by Jasper McKee in his book *Physics in the Real World*. He writes,

> While vacationing in England earlier this year, I was told that it would be a hot summer because the larks were flying so high. Is this merely an old person's tale, or is there a scientific basis for the forecast?
>
> Answer: This turns out to be a straight forward question in physics. As the days get longer and spring arrives, air near the earth warms up and occasionally can become rather hot. In early summer when this occurs, the air higher up is still cold and the hot air rises more violently than usual. This air carries with it light insects, which are the food of the lark, and are forced upwards against gravity until the strength of the air current is completely spent. As a result, the lark's breakfast is laid out for him at a greater height than would normally be expected. The lark is therefore flying high not as a sign of hot weather, but as an indication that air in contact with the earth is unusually warm. As a result, the bird flies higher for an easy breakfast. The high flying lark is therefore not a harbinger of summer but rather the result of the warmth of air at ground level in late spring.[1]

Flocking as described in the article is a signature of the search for sustenance and a manifestation of the survival instinct. It is also obvious when one attempts to feed a bird and soon a whole flock comes to compete for the prize. In warmer climates, an army of ants forms if a crumb of bread is left outside. And when a flock is endangered by an imminent attack, the easiest way to minimize damage is to disperse—again, an instinctive survival response.

The researchers' work is noteworthy for its original attempt at quantifying survival instinct. I look forward to learning the outcome of their study of that very interesting and complex topic.

Reference

1. J. McKee, *Physics in the Real World*, Minerva Press, London (1999), p. 19.

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See www.pt.ims.ca/16306-10