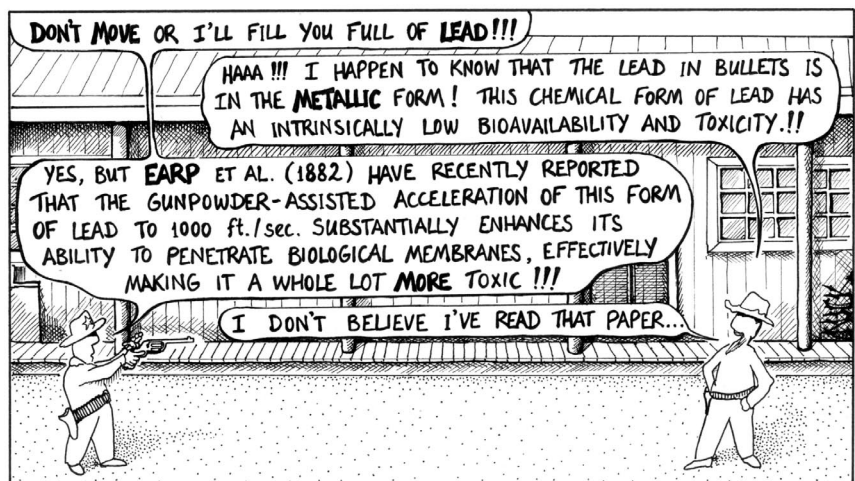




Environmental Scientists in the Wild West

volunteer fighter pilots who had been fighting alongside the Nationalists since well before Pearl Harbor." The statement suggests that the Flying Tigers were still a volunteer group in 1945 and that they had been in combat before 7 December 1941, but both conclusions are incorrect.

The American Volunteer Group (AVG)¹ was created on 15 April 1941 by President Franklin Roosevelt in response to Colonel Claire L. Chennault's conclusion that Chinese Air Force pilots could not be trained in modern air-combat methods in time to prevent a Japanese thrust through western China and into Burma. The pilots and support personnel who joined the AVG arrived in Burma in September 1941. Due to the time that it took Chennault to train the pilots in his innovative combat techniques, the AVG did not actually enter into the fray until 20 December 1941, when they decimated a group of enemy bombers, preventing them from striking Kunming, China.

During the subsequent six months, the AVG established its legendary combat record, and received the "Flying Tigers" nickname from a grateful Chinese populace. The AVG, which was actually part of the Chinese Air Force, was dissolved on 4 July 1942 and replaced by the China Air Task Force (CATF), commanded by Chennault, under the control of the US Army's 10th Air Force. Just before the CATF's creation, many of the original AVG pilots left following a seniority dispute with the army.

On 9 March 1943, the CATF was dissolved, and the next day, the 14th

Air Force was formed, and flew until it was disbanded in December 1945. The CATF and the 14th Air Force were also referred to as the "Flying Tigers," indicative of their heritage. Thus, when Green's plane landed at Xian (also Sian or Hsian)^{1,2} in 1945, the airfield was not used by the famed AVG, but by their equally famous 14th Air Force successors.

My father, Lawrence C. Troha, who served with the 69th Depot Repair Squadron, 301st Air Depot Group, 14th Air Force, in Kunming, supplied me with the historical references.

References

1. Details mentioned are from W. G. Johnson, ed., *Chennault's Flying Tigers: 1941-1945*, vol. 1, 14th Air Force Association, Silver Bay, Minn. (1982), pp. 38-48 and map on back-cover flyleaf.
2. W. G. Johnson, D. Van Cleve, eds., *Chennault's Flying Tigers: 1941-1945*, vol. 2, 14th Air Force Association, Silver Bay, Minn. (1983), p. 116.

ANTHONY L. TROHA

(altroha@ieee.org)

University of California, Davis

A Critical Point

We read with great interest the illuminating review article by Barbara Goss Levi (PHYSICS TODAY, March 2002, page 18), in which she discusses the recent pioneering experiment on superfluid-Mott insulator transition in a system of ultracold atoms in an optical lattice. However, we disagree with the description of the data shown in figure 1, in particular that "the phase

transition occurs somewhere between (f) and (g)." The Garching-Munich group, which performed the experiment Levi describes, associates the quantum critical point with the case (e). We also disagree with the interpretation given by the Garching-Munich group of the interference peaks seen in their experiment. They associate the disappearance of Bragg reflection peaks with the phase transition of the Bose-Einstein condensate from a coherent, superfluid phase to a Mott insulating phase. We contend, however, that one cannot interpret the fading of Bragg peaks as a signature of a phase transition. The appearance of a Mott phase will be seen only in the fine structure of peaks.

The interference pattern of Bragg peaks results from the periodic lattice structure of the system and the phase coherence between lattice sites. As long as phase coherence exists on length scales of several lattice sites, one should see a clear picture of narrow interference peaks, with peak positions being in one-to-one correspondence with the reciprocal lattice space—that is, the Bragg peaks simply reflect the underlying periodic lattice. In a Mott phase, such a coherence is still present near the critical point (when insulating gaps are small) due to quantum hopping of loosely localized atoms to the neighboring sites; the coherence extends over a large correlation length. In this case, the interference signals only the essential quantum nature of the ground state.

The coherence disappears gradually as the tunneling strength grows weaker, as seen between (f) and (g), but this fading of Bragg peaks occurs beyond the critical point. For quantitative details and an extended discussion, see our precise numeric simulation of the experimental situation at <http://arXiv.org/abs/cond-mat/0202510>.

NIKOLAY PROKOF'EV

(prokofev@physics.umass.edu)

University of Massachusetts

Amherst

BORIS SVISTUNOV

(svist@kurm.polyn.kiae.su)

Kurchatov Institute

Moscow

Correction

May 2002, page 10—Michael Berry's correct Web address is http://www.phy.bris.ac.uk/staff/berry_mv.html. ■