Letters to the Editor

Presenting thoughts, comments, opinions, and anecdotes inspired by recent issues

[Editor's Note: This ode to dislocations was composed by Sharvan Kumar, a long-time TMS member and professor in the engineering department of Brown University.]

DISLOCATIONS: COMPLEX AND BEAUTIFUL

Taylor, Polanyi, and Orowan in1934,
Identified a dislocation not known before,
In a perfect crystal, they were minor defects
Linear in dimension, but with profound effects

Burgers then defined their vector
Be they screw or edge in character.
Bragg and Nye used many a soap bubble
To view these dislocations with little trouble,

Peierls and Nabarro dug a bit more
And found the energy associated with the core.
Vitek and Duesbery, the core of the bcc screw
Dissected and confirmed, non-planarity is true.

When stressed excessively, they climb and glide
As they gracefully enable slip and slide
In great numbers they march out from a Frank–Read source
And then they really are a *tour de force*

Cottrell and Bilby examined their lineage
And proclaimed they knew how they strain-age,
While Eshelby, Bacon, Koehler and Peach
With elegant physics their interactions, did teach

Their split personality Shockley found
In silver and gold, where many faults they bound
Cockayne first analyzed them in the dark
His approach, in science books, left a mark

Jogs, dipoles and superkinks
Interact with vacancies and provide them sinks
Combine they do within a grain
And account for all the measured strain

At sonic speed, they can move
Till they come to rest at a grain boundary groove
Ask Gilman and Petch, and they will confirm
Their capricious nature in no uncertain term

With heat and stress together they reconfigure
Into tilt and twist boundaries, as they dynamically recover
Friedel, Seeger and Hirth, in books their virtues extolled
In classrooms, these stories many times retold

In multiphase materials, they are quite a spectacle
As they ferociously cut through or bow around an obstacle
And yet at interfaces, misfit strain they gently relieve
Transforming coherency to incoherency, I believe

Strengthen and weaken, they paradoxically will
Be it in copper, niobium, steel or nickel,
These whimsical dislocations were so surreal
Till Whelan and Hirsch proved they were real.

Sharvan Kumar
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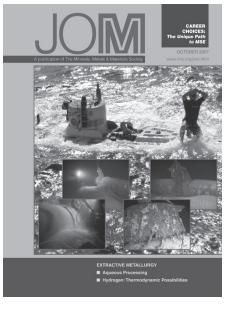
CORRECTION I

Dear Colleagues,

I noticed that in a recent *JOM* publication [JOM*, 59 (10) (2007)],* on page 45, there is Table I on pressure oxidation plants on gold with numerous mistakes. For instance, it claims that Barrick Gold has a pressure leach facility in Toronto, Canada, where our head offices are. . . . and this is not the only mistake. I believe your manuscript editing process has failed in this case.



In a subsequent message, Dr. Kondos supplied this additional information:

As regards our gold pressure oxidation operations, we have two: Goldstrike, Nevada processing ore, in acidic environment, with operating capacity of 18,000 t/d, operating temperature of 215°C, operating pressure of 2.90 MPa and retention time of 60 min.; Porgera, Papua, New Guinea processing concentrate, in acidic environment, with operating capacity of 2,400–2,600 t/d, operating temperature of 197.5°C, operating pressure of 1.75 MPa, and retention time of 84–112 min.

The pressure oxidation plants McLaughlin, Mercur, and Getchell are not operational any longer.

Peter D. Kondos, Ph.D.
Manager, Research and Development
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CORRECTION II

In the February 2008 issue, some incorrect information was published in "Carbon Dioxide Reduction Technologies: A Synopsis of the Symposium at TMS 2008" [JOM*, 60 (2) (2008) pp. 36–41*]. Lary Kavanaugh's name was misspelled; The University of La Verne is in California, not Ontario; and Jean-Pierre Birat is with Arcelor Research in Maizicres-les-Metz, France, rather than Liege, Belgium.