

CHEMICAL SAID SONG

A hot spell in a resistance furnace
then 30 to 60 days of annealing at 4500C, after which
the welded shut iron crucible is cracked,
spilling its dusky powders, also
a refractory blackness
that has to be pried out,
some shiny crystals
stuck in the vugs; the purest
calcium, copper and gallium
is what they loaded
in, and now
the Genovese workers fish out twelve compounds,
pick one rhombohedral platelet to mount
on this hundred-thousand dollar
Enraf-Nonius CAD-4 diffractometer,
but the crystal doesn't give
the nice sharp X-ray diffraction pattern it should,
so they pick
a more perfect prism, feed the data
into a supercomputer
and a week of refinement later
it spews out the coordinates
of this pretty incredible molecule —
copper lines stitched into sheets
by bridging, isolated galliums, the sheets
sandwiching calcium ions — pretty enough
to catch my eye when I see it
in the Journal of the Less Common Metals, a neat puzzle
in its rows of marching atoms,
but not too strange
to ask Christian, a German postdoc
to do some calculations
on just this compound
out of the twelve; sure enough,
we explain the electronic structure and
all those intimacies
of copper-copper bonding,
and write a paper
replete with band structures, orbitals, and densities of states
spilling neatly from page to page; we also
come across a gold-potassium alloy
with a like structure,
which makes us happy
because we know that everything

is connected to everything else,
and it rounds out the paper; but really
we should have worried
about those eleven other compounds,
and God knows how many they didn't isolate,
or that will be made one day
when someone uses slightly different conditions,
the copper-gallium lattices
trying out
different stoichiometries
and superstructures,
the wondrous addled richness
of the irreducible world.