

# LETTERS TO NATURE

## PHYSICAL SCIENCES

### The World Rift System and Plate Tectonics or 1971 and All That

"I'll put a girdle round about the earth in forty minutes"  
(Puck)<sup>1</sup>

They put a girdle round the Earth  
And named it the Worldwide Rift;  
It helps explain the ocean floor  
And Continental Drift.

Vine and Matthews sailed away  
Exploring the ocean bed;  
It took much longer getting them back;  
They said it was seafloor spread.

It appears that the oceans were mostly formed  
By Cenozoic streams  
Of mantle flooding up the cracks  
And gumming up the seams.

Our Earth can scarce make up its mind;  
It flips its magnetic poles  
And the magnetized basalts so produced  
Give temporal controls.

When all believed the Earth was flat  
It was but a single plate,  
But even then the edges were  
Hot subjects for debate.

They can't curl down; they must curl up  
To form a kind of dish  
To stop the oceans spilling out  
And losing all the fish.

We now all know the Earth is round  
And moves about the Sun<sup>2</sup>,  
So what the ocean spreaders said  
Could not be simply done.

Unless the Earth itself enlarged  
And kept on getting bigger,  
But gravity opposes this:  
It is a constant figure.

And so the plate has been revived  
In present day tectonics,  
Though sial and sima still remain  
As crustal term mnemonics.

Both kinds of crust now constitute  
The grander types of plates  
And as they move upon the Earth  
They suffer subtle fates.

The edges which are growing still  
Are hid beneath the oceans,  
While those around the island arcs  
Show self-consuming motions.

Yet others seem to hit or slide  
Performing curious functions,  
And where they can't make up their minds  
You there have triple junctions.

On continents the crustal plates  
Are edged by earthquake foci,  
And little plates proliferate  
By joining up the loci.

As alchemists once sought the stone  
For magic transmutations,  
The motions of the plates are shown  
By seismic computations.

Geologists naively thought  
That rifts were due to faulting,  
By subsidence of crustal strips  
Along a pre-rift vaulting.

Their evidence was solely based  
On visual observations  
Of structure and stratigraphy  
And such out-moded notions.

But others now hold better views  
And think that each "mañana"  
Brings Africa a step more close  
To the fate of old Gondwana.

McKenzie sees his moving plates  
Wedging the rift asunder,  
And one day ships will sail the rift  
To maritime Uganda.

Girdler and Khan from the gravity highs  
That they have in the Gregory rift  
See the mantle rearing its ugly head  
And East Africa going adrift.

But the OAU no doubt will vote  
At a suitable early date  
To stop that drift and plug the rift  
Before it is too late.

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<sup>1</sup> Shakespeare, W., *A Midsummer Night's Dream* (1599).

<sup>2</sup> Copernicus, N., *On the Revolution of the Celestial Orbs* (1543).

Other, more familiar, references will be found in recent issues of *Nature*.

Addendum: Headline in *The Times*, June 18, 1971, page 6:  
"Emperor tries to close African rift."