

## SARAH GLAZ

### Calculus

I tell my students the story of Newton versus Leibniz,  
the war of symbols, lasting five generations,  
between The Continent and British Isles,  
involving deeply hurt sensibilities,  
and grievous blows to national pride;  
on such weighty issues as publication priority  
and working systems of logical notation:  
whether the derivative must be denoted by a "prime,"  
an apostrophe atop the right hand corner of a function,  
evaluated by Newton's fluxions method,  $\Delta y/\Delta x$ ;  
or by a formal quotient of differentials  $dy/dx$ ,  
intimating future possibilities,  
terminology that guides the mind.

The genius of both men lies in grasping simplicity  
out of the swirl of ideas guarded by Chaos,  
becoming channels, through which her light poured clarity  
on the relation binding slope of tangent line  
to area of planar region lying below a curve,  
The Fundamental Theorem of Calculus,  
basis of modern mathematics, claims nothing more.

While Leibniz—suave, debonair, philosopher and politician,  
published his proof to jubilant cheers of continental followers,  
the Isles seethed unnerved,  
they knew of Newton's secret files,  
locked in deep secret drawers—  
for fear of theft and stranger paranoid delusions,  
hiding an earlier version of the same result.  
The battle escalated to public accusation,  
charges of blatant plagiarism,  
excommunication from The Royal Math. Society,  
a few blackened eyes,  
(no duels);  
and raged for long after both men were buried,  
splitting Isles from Continent, barring unified progress,  
till black bile drained and turbulent spirits becalmed.

Calculus—Latin for small stones,  
primitive means of calculation; evolving to abaci;  
later to principles of enumeration advanced by widespread use  
of the Hindu-Arabic numeral system employed to this day,  
as practiced by *algebristas*—barbers and bone setters in Medieval Spain;  
before Calculus came the  $\Sigma$  (sigma) notion—  
sums of infinite yet countable series;  
and culminating in addition of uncountable many dimensionless line segments—  
the integral  $\int$  —snake,

first to thirst for knowledge, at any price.

That abstract concepts, applicable—at start,  
merely to the unseen unsensed objects: orbits of distant stars,  
could generate intense earthly passions,  
is inconceivable today;  
when Mathematics is considered a dry discipline,  
depleted of life sap, devoid of emotion,  
alive only in convoluted brain cells of weird scientific minds.

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