

SUBSTRATE REACTIONS  
(sung to the tune *Stairway to Heaven*)  
eat your heart out Robert Plant

There's a protein that's made to introduce two substrates  
And it speeds up a substrate reaction.  
Now reactants one and two are in love, this is true  
But our protein helps to introduce them.  
Oooo, and they make neat products  
When an enzyme brings two substrates together.  
Enzymes have active sites that hold substrates just right  
When creating an enzyme-substrate complex.  
It is simple you see, lock and key theory,  
When reactants stick to the enzyme.  
When reactions are done, all are changed except one  
And the thing that won't change is the enzyme.

Sometimes an enzyme needs a helper: a coenzyme,  
To help it do what must be done.  
It helps the enzyme speed up substrate reactions,  
Their common names are Vitamins.

Oooo and it makes me wonder,  
What would happen without protein enzymes.  
So stick this in your head, without enzymes you're dead  
Ant the same if you don't have coenzymes.  
A pH, high or low, will break peptides, you know,  
In a process called denaturation.  
It's the same thing with heat, but cold enzymes drag their feet.  
You can die from a too slow reaction.  
Ooooo, and it makes me wonder,  
About enzymes and cellular regulation.

If there's more substrates than enzymes in a reaction,  
It's called the point of saturation.  
With more substrates than an enzyme can handle  
Substrate reactions start to level.

Life would be quite pathetic  
Without saturation kinetics,  
And a process or cell regulation.  
Oooo, it really makes me wonder,  
Enzymes speed substrate reactions.