

MONKEY BUSINESS

Corrected by Ken Herrmann
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“GIVEN a monkey, a typewriter and a stack of paper, by chance alone, words, sentences, even whole books could be written.” This is a doctrine deemed holy by a not-insignificant number of educated men in the biological and geological sciences today.

“Given enough time, chance alone will produce simple life forms... given more time, complex forms of life will come into being... given enough time, even man... highly intelligent man could arise.” But is this true?

The Origin of Species — by chance alone? Could life forms — species — arise by chance “given enough time”? Could Darwin’s book also have come by blind chance?

Given a chimpanzee, a typewriter and a stack of paper, how long would it take the chimp to peck out just the title of Darwin’s controversial book *The Origin of Species*? Eighteen letters and three spaces, a total of twenty-one strokes with the typewriter. And we will simplify the problem by allowing him to use all capital letters.

It should take but a few hundred attempts? Or should it?

Begin with a chimp — of course you must provide him with an intelligent human assistant to note his progress and to insert a fresh sheet of paper each time the chimp makes an error. How long will it take to type Darwin’s title? Twenty-one strokes might take perhaps twenty-one seconds! That is IF he hit the right keys. There is a chance, you will admit, that he might by chance hit the right keys, even the first time. And that given enough time he would certainly get the title right.

How long then to type out Darwin’s entire volume? How long to type out the *Encyclopaedia Britannica* with its 24 volumes, each with over a thousand pages? And given enough time, how long for all the books and publications in the world?



Do we acknowledge that given enough time this chimp could type out all the books in the world? By mere random pecking at the keys?

And by analogy, do we then admit that life forms and man too could originate by chance? ... that the millions of species and billions of billions of different individual creatures alive today are the result of blind chance?

Prepare to Multiply

Let us go back to our chimp and watch over his shoulder as he begins ARX BLMX... but wait, his human assistant removes the sheet of paper, turns in a fresh one and our chimp begins again.

T — Success! He has hit a “T” by accident and we are on our way to words, then books... and even LIFE itself....

There are 44 keys on the typewriter (26 letters, 9 digits, a space bar and numerous symbols and punctuation marks). For simplicity, the other controls are being handled by our human

assistant. He watches for errors (and success), changes sheets and times the proceedings. And feeds the chimp.

The odds of getting that first letter right were 1 in 44 (that’s how many keys there are on a typewriter), but he did it. Now only 20 more successful strokes to go: T, TH, THE!

What were the odds on that first word? One chance in 44 on the T, one in 44 on the H, one in 44 on the E. Prepare to multiply 44 times 44 times 44. The answer is 85,184.

By blind chance alone, our chimp has only one chance in 85,184 of getting these first three letters correct. But let him proceed. One chance in 44 that he will hit the space bar next, then one chance in 44 of hitting the O, then the R, then I, G, I and N. The odds now become astronomical, for 44 times itself 10 times turns out to be about 27,220 million million.

Remember that each time an error was made, his assistant removed the sheet from the typewriter and inserted a fresh one. How high a stack of paper

27,000