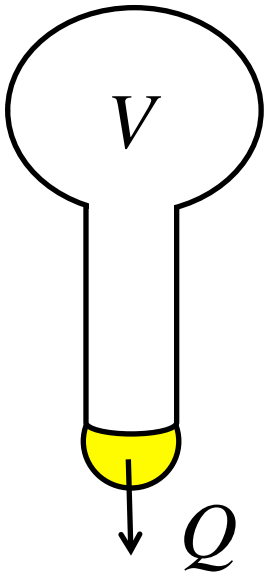
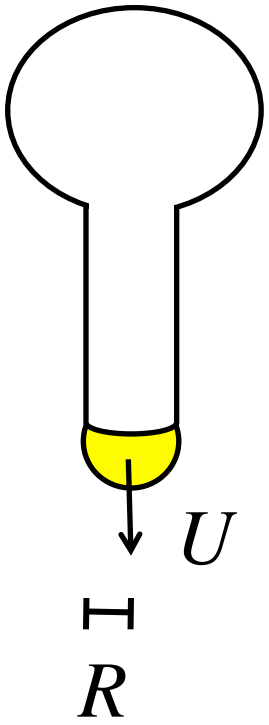


$$Q = \frac{V}{T}$$

Q : flow rate

V : volume

T : time



$$Q = UA$$

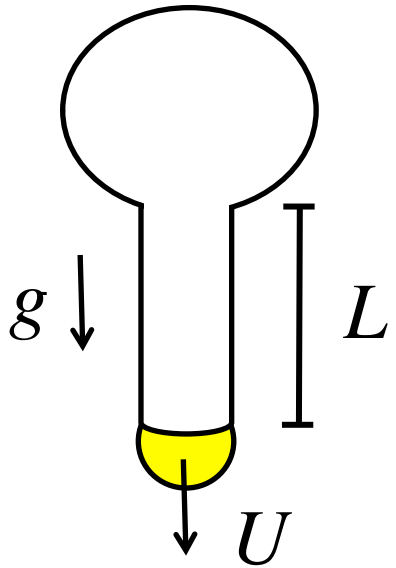
$$A = \pi R^2$$

Q : flow rate

U : fluid speed

A : cross sectional area

R : radius of tube

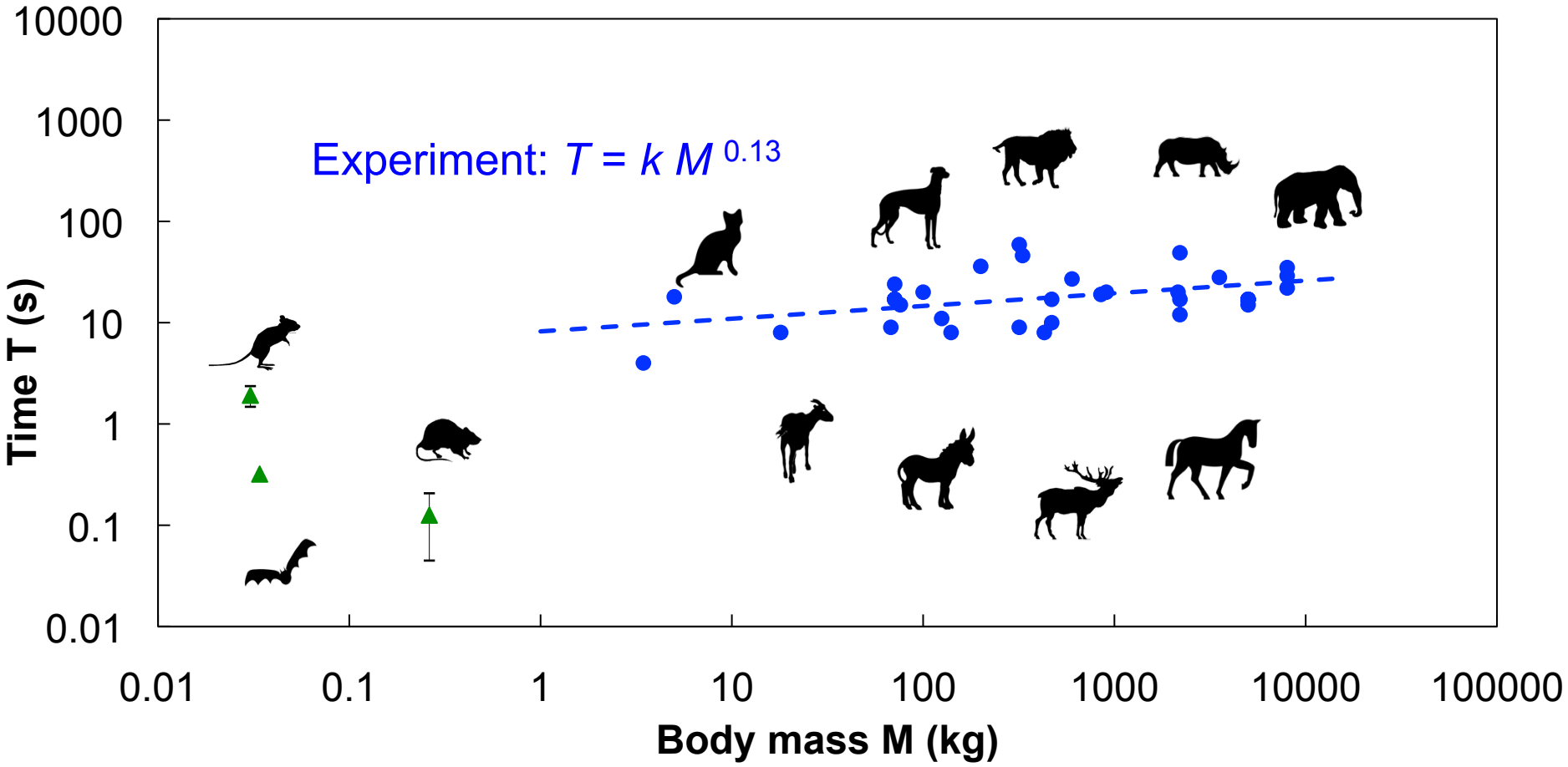


$$U = \sqrt{2gL}$$

U : fluid speed

g : gravity acceleration

L : height of fluid


Experiment: $T = k\,M^{0.13}$
Time T (s)
10000
1000
100
10
1
0.1
0.01
0.01
0.1
1
10
100
1000
10000
100000
Body mass M (kg)

Animal	Radius (mm)	Length (mm)	Bladder volume (mL)
Dog	1.4	220	280
Cow	3.4	550	2,300
Elephant	7.4	1,300	18,000