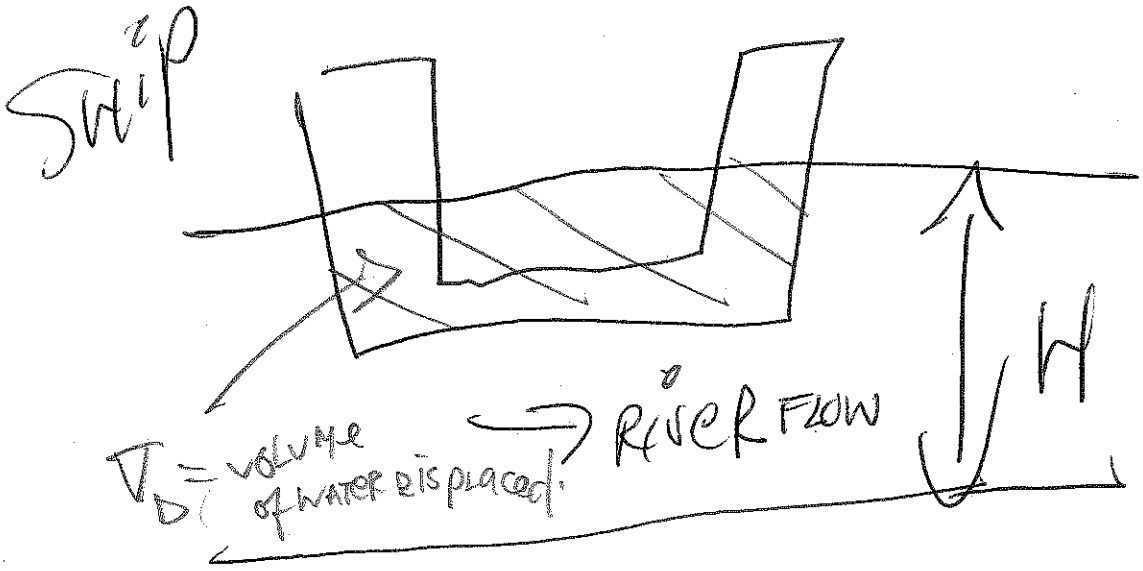
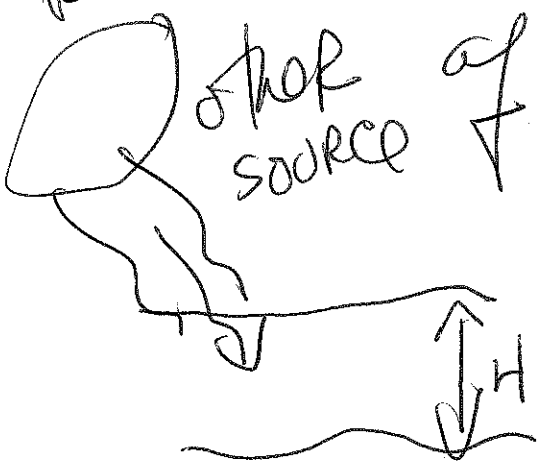
See Sf chron article link:

11-27-12

1. What's water level (Mississippi) of Mississippi are lowering. It is getting smaller.



RESERVOIR WHY? H is lowering because other source of reduced flow from another source of water.

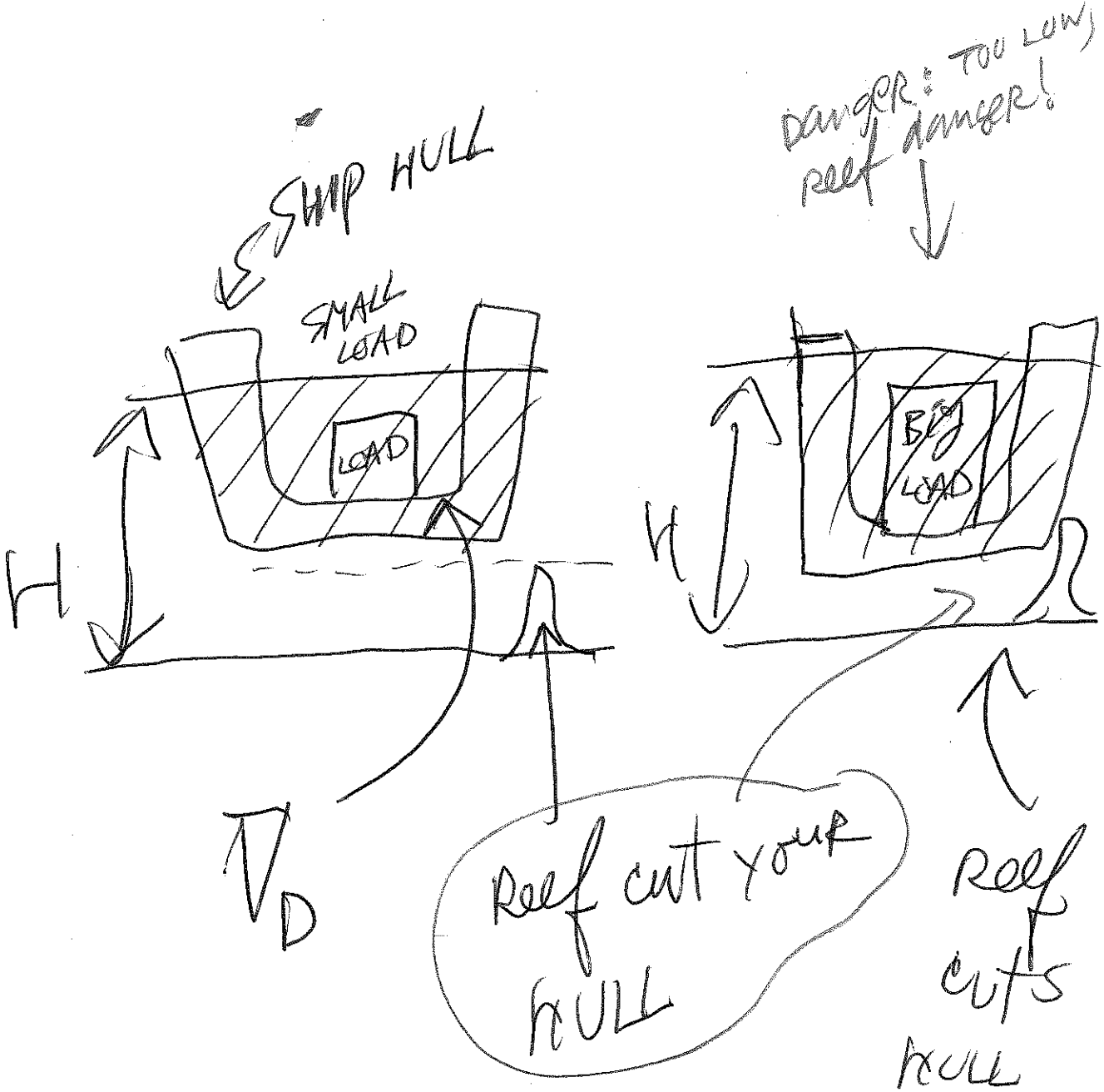


Example: LOAD limits for recreational yatching (YACHTING)

yatch

BIG LOAD

Regulations governing LOAD limits.



Weight of Ship + LOAD

$= (1000\ \frac{kg}{m^3}) \cdot g_0 \nabla_D$; as ∇_D grows, Ship get lower.

GTitantic!

(1) With reduced load limits, there is concern about disrupting commercial water traffic. This concerns sof creation. FLOW is being reduced to protect a basin. [EXPLAIN]

(2)

IF River depth decreases, the loads allowed on the ship must be reduced, thereby reducing $ made. THIS is the result of the THEORY of FLUIDS and the Buoyant force B.

B = weight of water displaced by ship + LOAD.

(3) mention experiments supporting THEORY of BUOYANT force = (1000) g · V_b ·

cite a source, like a textbook with diagrams.

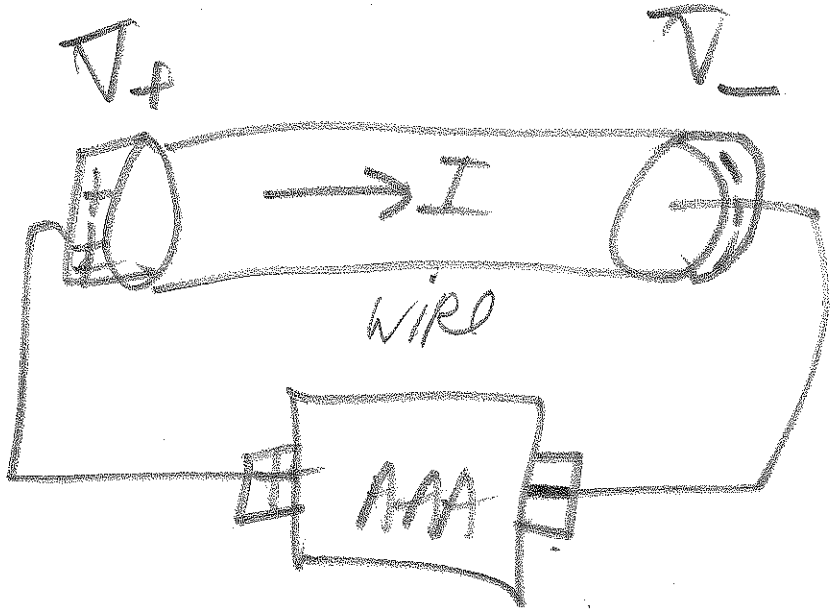
(4) cite other events like this, illustrating the problem of reduced water levels.

Ch 23

Ohms Law

$$\frac{V_+ - V_-}{\text{resistance}} = \text{current}$$

$$\frac{\Delta V}{R} = I$$



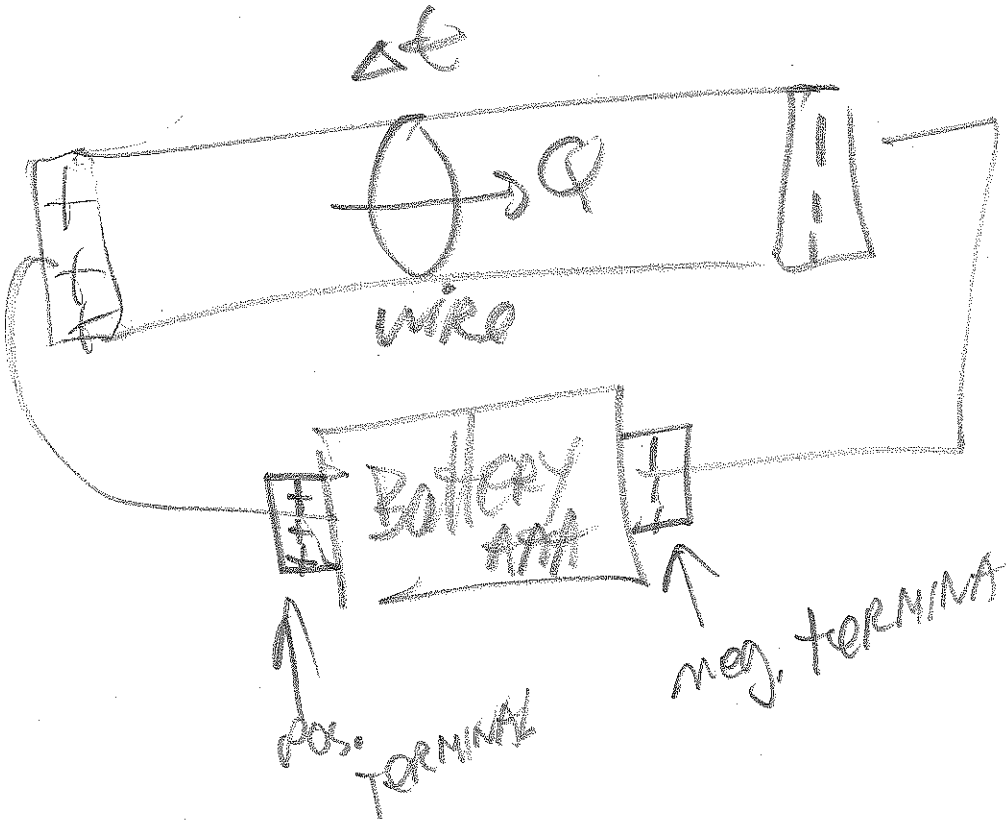
current = $\frac{\text{charge}}{\text{time}}$

= $\frac{\text{coulomb}}{\text{sec}}$

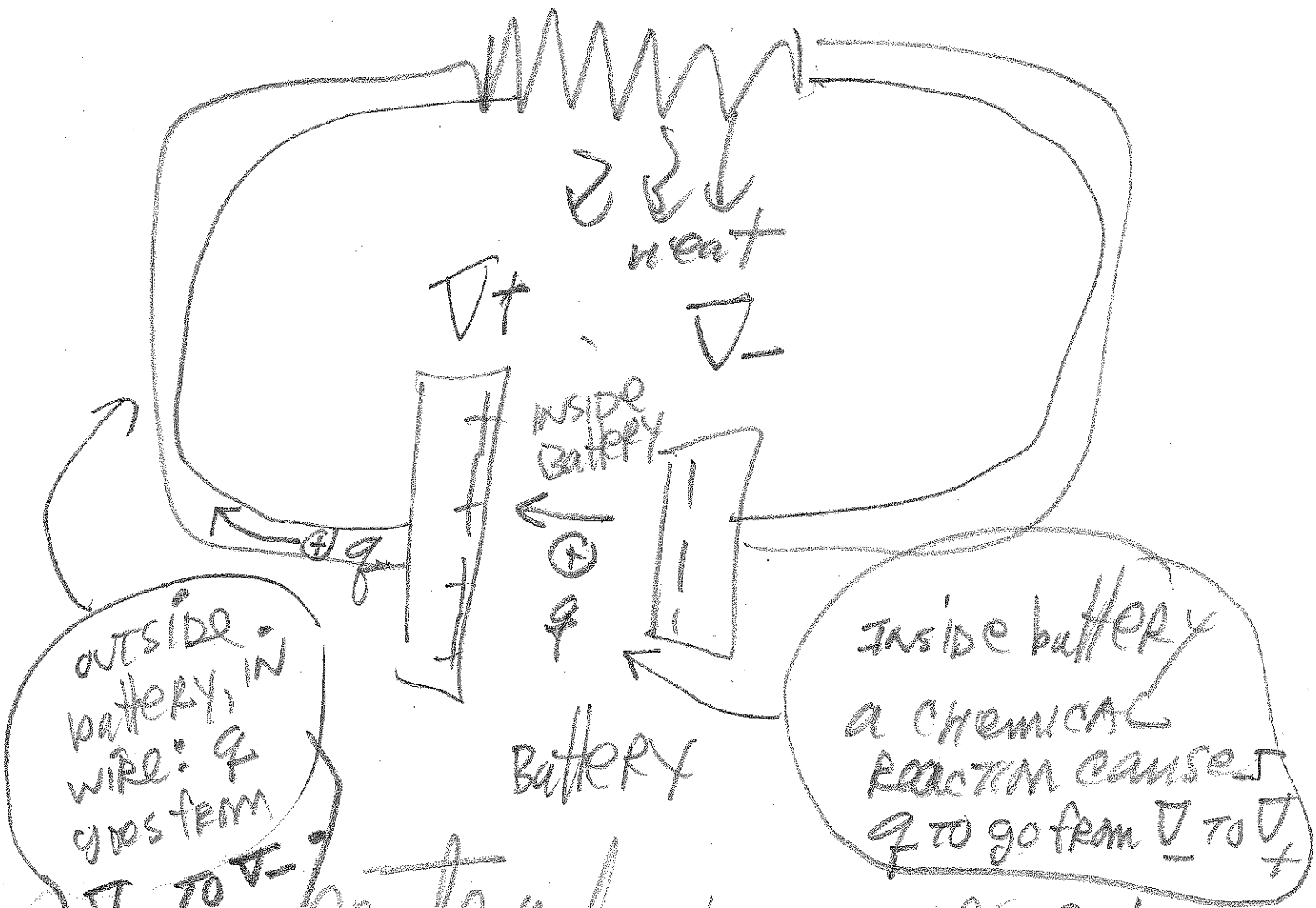
= [Ampere]

current = $\frac{Q}{\Delta t}$

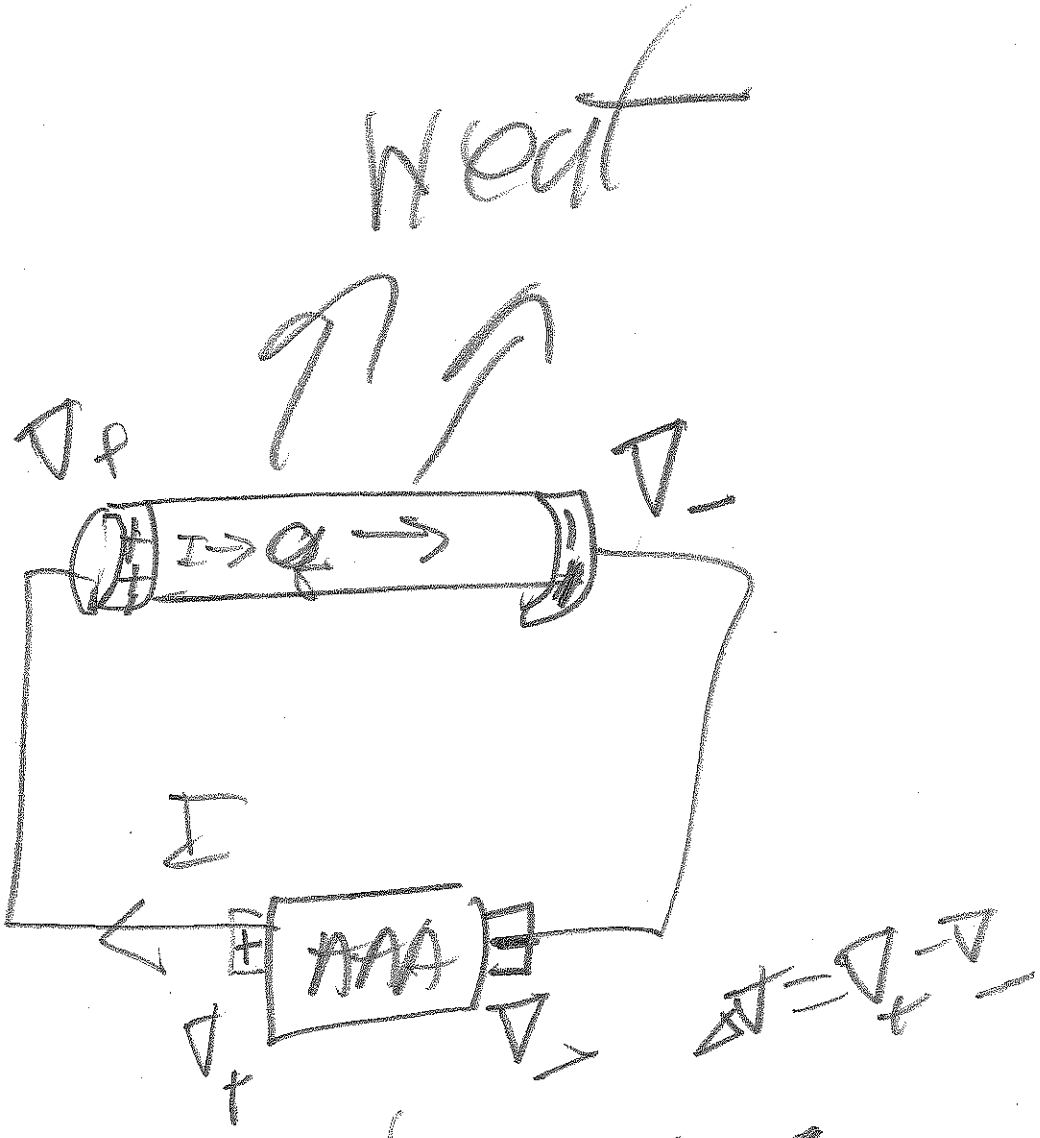
$I = \frac{Q}{\Delta t}$



Resistor



pretend the charges that flow are positive.



rate of heat production

$$= \frac{q \cdot \Delta V}{\Delta t} = \frac{\Delta PE}{\Delta t}$$

$$= I \cdot \Delta V$$

= POWER = current · voltage

Power units:

= current · voltage

= Amp · volt

= Watt.

note also Watt

$= \frac{\text{Joule}}{\text{second}}$

$\Rightarrow \frac{\text{Joule}}{\text{sec}} = \text{Amp} \cdot \text{Volt}$

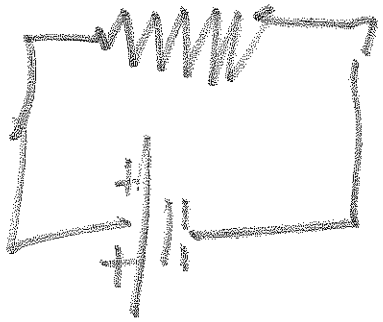
$$\text{Power} = I \cdot \Delta V$$

$$= \frac{\Delta V}{R} \cdot \Delta V$$

$$= \frac{\Delta V^2}{R} = \text{rate of heat production (Watts)}$$

heat

R



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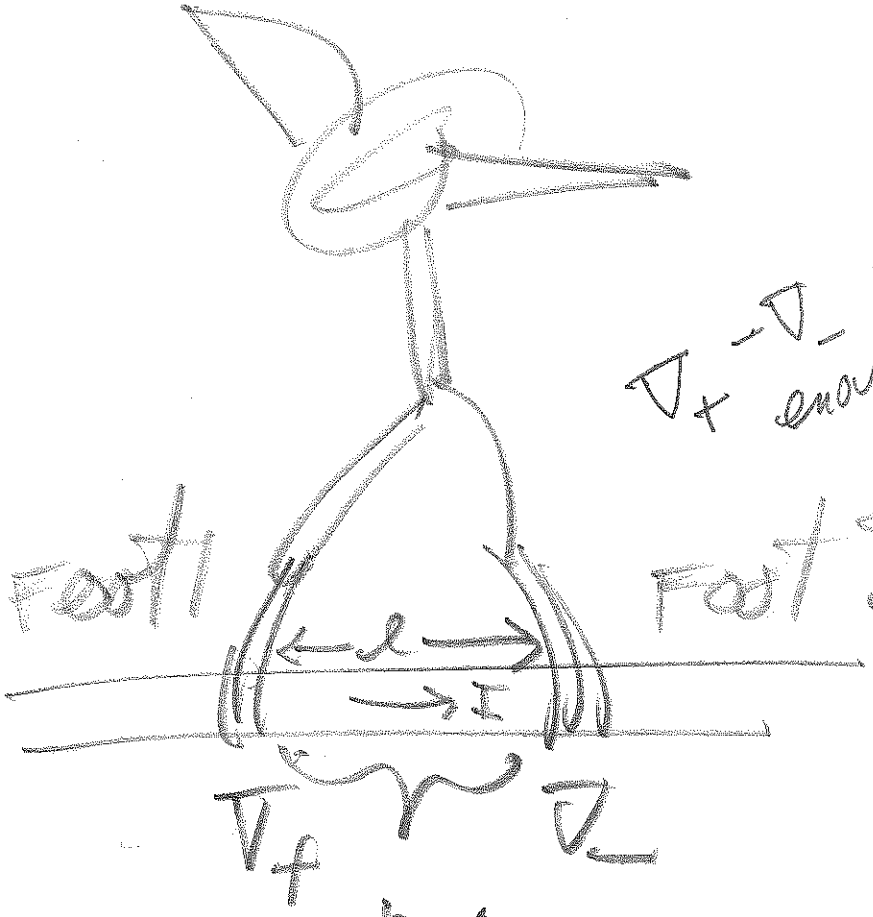

$V_+ - V_-$ is SMALL enough to AVOID injury.

R is for this length.

$V_f - V_\ell = I \cdot R$

R is PROPORTIONAL to length ℓ