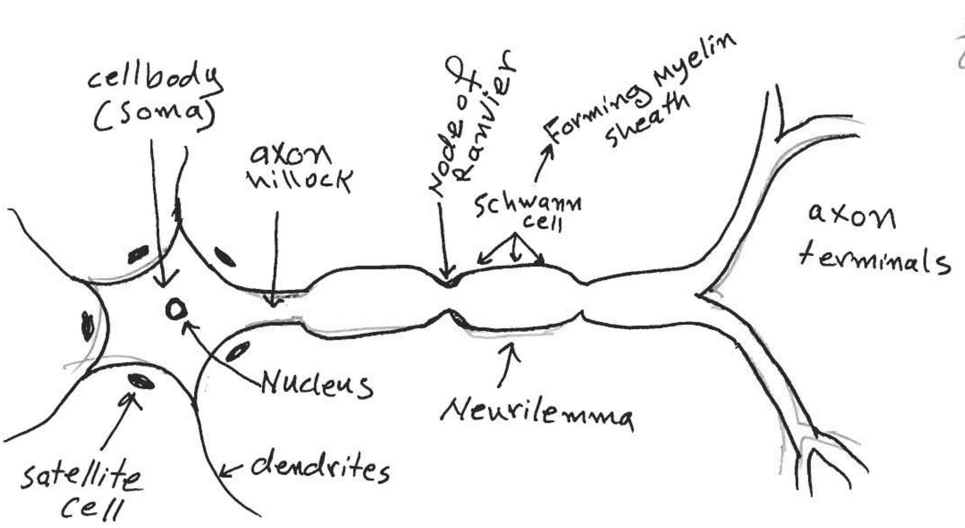
MUSCLE AND NERVE

1-Nerve



Neuron
(cellbody + axon + dendrites)

The following ionic fluxes are responsible for the **electric phenomen** resting membrane potential:

1. Sodium-Potassium pump: This is called Na^+-K^+ ATPase pump which extrudes three sodium ions outside the cell and intrudes two potassium ions inside. This results in much positive ions outside plasma membrane.
2. Sodium channels are inactive at rest. They are voltage gated channels i.e. they are activated by electric current. This means that sodium **influx** is not possible unless membrane potential is changed from resting to action potential.
3. Potassium channels allow continuous passive diffusion of K^+ outside the cell due to concentration gradient. This K^+ **efflux** results in **diffusion potential** and increased positive charges outside plasma membrane which is the major factor responsible for resting membrane potential.
4. Chloride ions stand still inside the cell due to their higher concentration outside the cell. This conserves negative charges inside plasma membrane.
5. Anionic proteins and phosphates can not leave the cell due to their large size making plasma membrane impermeable to their efflux. This adds to the negativity of plasma membrane interior.

Fig. 3

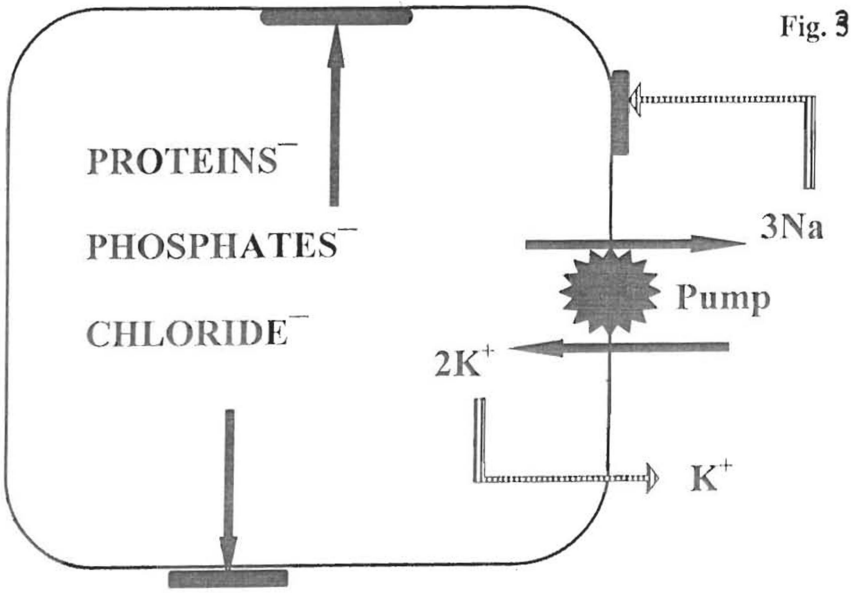
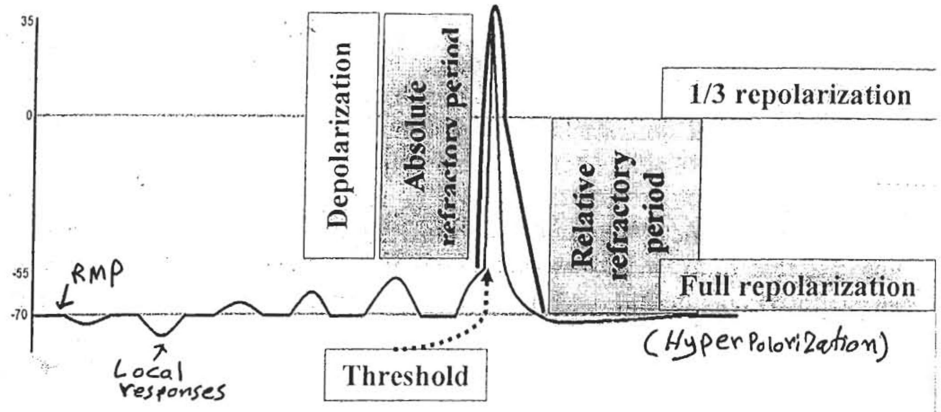


Fig. 5:



Calcium ions stabilize the membrane by increasing threshold potential (toward more positive position) so, lack of Ca^{++} results in lower threshold potential which makes the membrane very excitable and continuously firing **(tetanus)**.