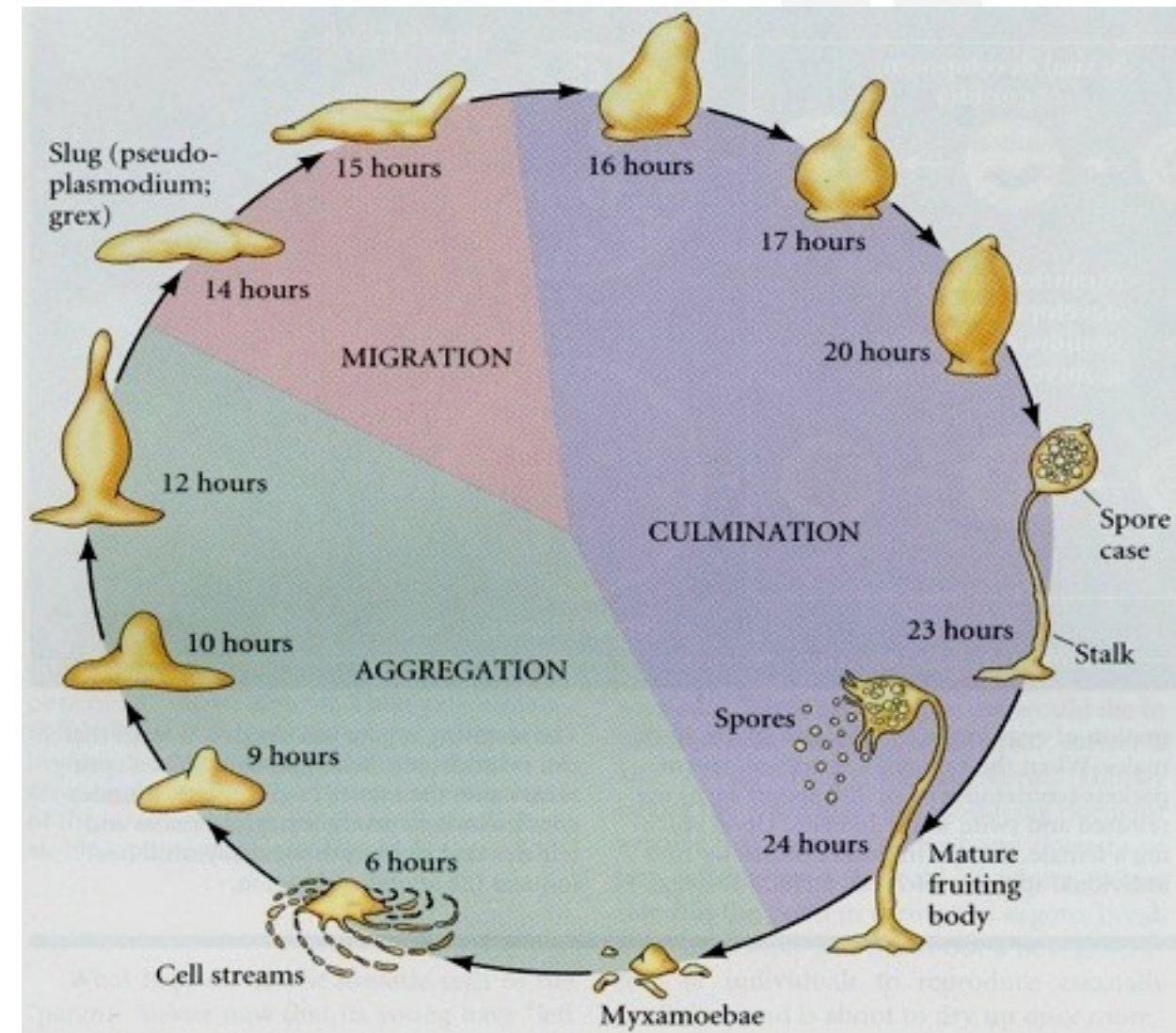
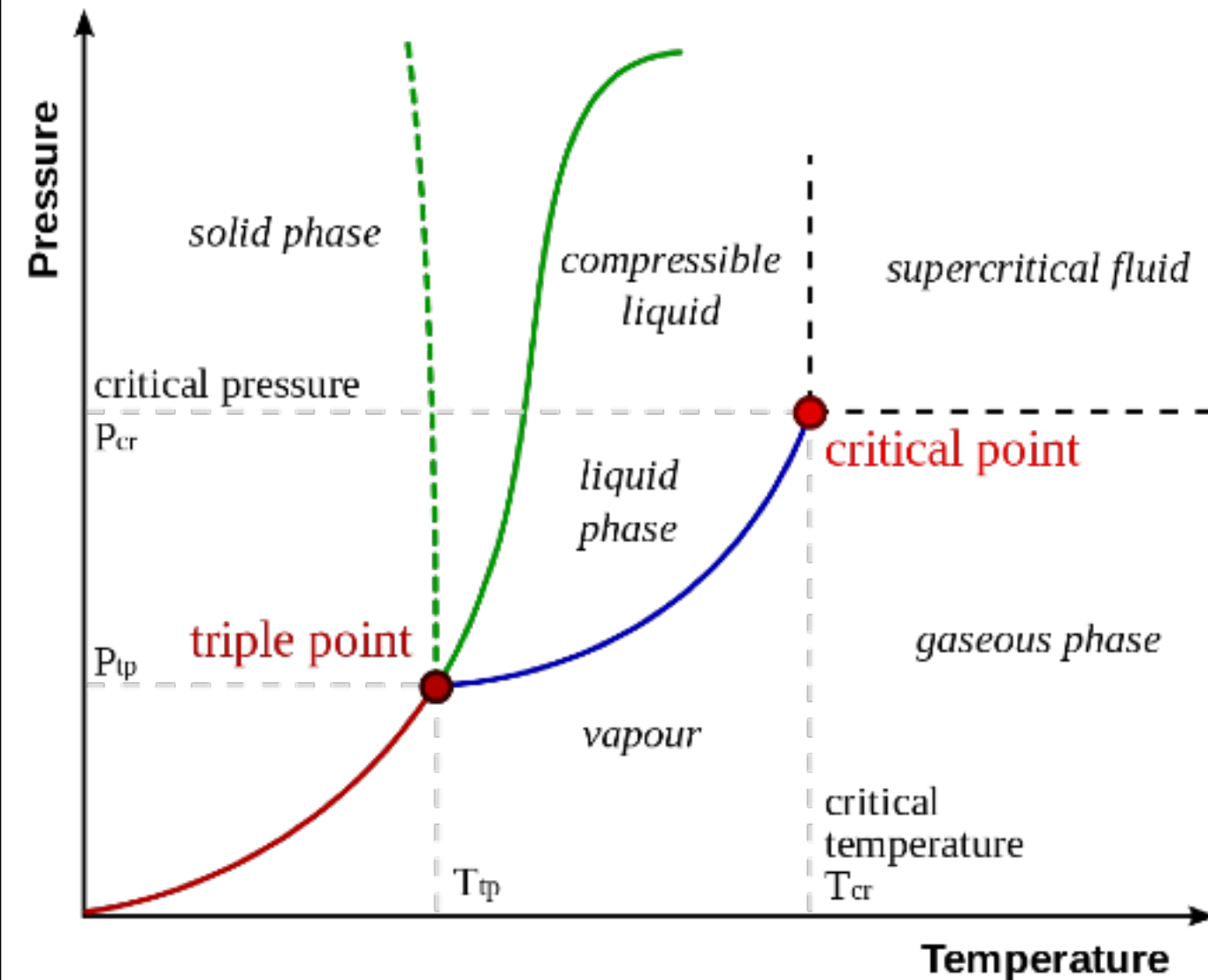


Phase Diagram & Order parameter



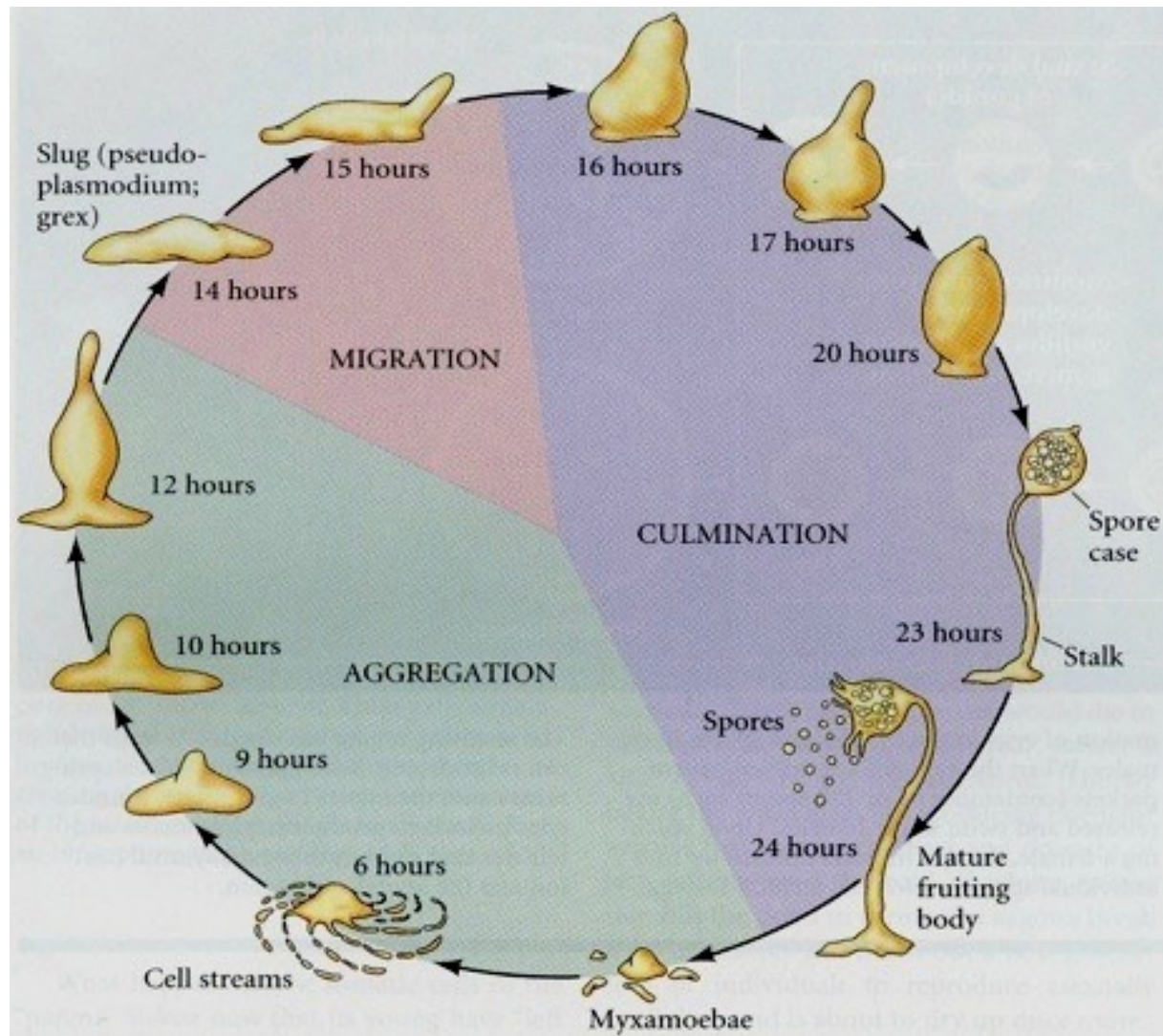
The order parameter is often a qualitative description of a macro state / global organisation of the system, conditional on the control parameters:

H_2O : Ice (Solid), Water (Liquid), Steam (Vapour)

Dictyostelium: Aggregation (Mound), Migration (Slug), Culmination (Fruiting Body)

Dynamic Metaphor vs. Dynamic Measure

Metaphor: State Space / Order Parameter
Measures: Attractor strength / Stability



Order parameter: the qualitatively different states

Control parameter: available food (actually concentration of a chemical that is released if they are starving)

Experiments:

Find out if the process is reversible... add food

perturb the system during the various phases...

the degrees of freedom of the individual components are increasingly constrained by the interaction:

free living amoebae... slug... immovable sporing pod

nb State space and Phase Space (or: Diagram) are different concepts, but often used interchangeably to describe a State Space... see slide 18