ECOLOGICAL Energetic.

So far as the ecdgeical energetic is concerned it will be better first to know the energy and than we will discuss the energetics what it is! As a matter of fact energy is the capacity to do work wether that work be on a graph scale as seeing mount and moving air masses over continents o on a small scale such as transmitting a nerve semple from cell to cell. All living organisms must work and energy is the basic force responsible for running the mechi of life. A virus a bacterium a tall tree a any other organism need energy for metabo activities. In this world only the green pla have the monpoly to capture the solar radia through the process of photosynthesis and con it into chemical form. The potential energ is transfered from one organism to anothe as food. The source of solar energy is th sun where nuclear rearrangement like continuous transmutation of hydrogen ato into hellium is taking place there by releasing a fantastically enormous amou of energy which radiates in all the directions in the form of electromegnat waves. Approximately 150 million of the sun energy out put reaches the earth atmos and a fraction of it is available to green plants. In ecological energetics we are mainly concerned with the

1. Quantity of energy reaching on ecosystem /uni area and / unit ~~or~~ time.

(ii) Quantity of energy trapped by green plants converted into a chemical form.
(iii) Quantity & path of energy flow from gr plants to the organism of different trop level over a period of time in a know area.

As reported by Philipson 1966 approxi -tely 50 x 10^8 cal/m^2/ year of solar energy re -es the earth atmosphere which is 150 mill fraction of total solar radiation. About 3 of the incoming solar radiation is reflect back by clouds and 9% by ozon layer wat vapours & another atmospheric ~~reaction~~ gasses Thus living approximately 47% to reach the surface of earth, actually. There are many factors on which the quantity of so radiation depends. Some of thos are clar of atmosphere and latitude. It is supposed to increase with the increase in latitude b in northern & southern hemisphere. Only a smal fraction of the light energy that is 1-5 reaching the earth surface is trapped by green plants and converted into chemical form or potential energy by photosynthesis The rest of the energy is either lost heat or to evaporate water part of th potential energy of green plants is passed on from one organism to another as they ar successively eaten. The second law of thermo -dynamics states that when ever there is transformation of energy there is increas in tropic and decrease in useful energ As the energy is transformed from one org to another in the form of food in t

ecosystem a large part of heat is degraded as heat & the reminder is stored in the living tissues. Ultimately the entire energy trapped by green plants at one time is lost from the ecosystem in several stages. The clearly depicts the unidirectional flow of energy in the ecosystem in contrast to the material like CO_2, N_2, P etc. are used again and over again in the ecosystem and this cycling occurs. It is well known that the energy never moves in free condition rather moves through organic material from one trophic level to another. The rate at which the solar energy is converted into chemical form by green plant per unit area per unit time is reffered to as primary productivity. A fraction of thes organic production is lost by way of respiration of primary producers and the net gain in weight is only the difference between gross production and the quantity of energy is lost due to respiration. Heterotrophic organisms derived their food from the wt. primary production. A very small fraction of the organic matter injested by herb-vours is infact used in net increase in their wt and the rest is either lost as heat or remain unassimilated and excreted out as whical matter. The productivity of organic matter of heterotrophic organism is called secondry production and ecosystem is supposed to be balanced so long as the out put energy is equal to the input energy.

About 20 Y. of potential energy resulting from primary production by green plant is lost as heat of respiration and the rest furnicesses the energy required by other tropic level in an ecosystem. Some energy in the form of food is consumed by herbivorous or aminovorous who may be in turn eaten by carnivorous & soon to top carnivours. However much of the injusted food energy is not assimilated herbivour may assimilate only 10 Y. of the injusted food where as the assimilation coficient of carnivours is typically higher.

Lindeman 1942 was first to give an energy flow diagram. Through different tropic level in sedasbglak of minnesota of the total 118872 cal/cm²/year in coming solar radiation. The green plants would capture only 111 cal/cm²/year. That is less than 1 Y. in corresponding area and time energy passed on to herbivour was only 10 the calarie and to carnivour only 3 cal Odam 1957 also gave figure and diagram from energy flow in silver spring Florida U.S.A and reported that out of ~~total~~ total 111×10^4 k-cal/m²/year is used up by green plants in photosynthesis and the rest 38919 k-cal of energy is lost as heat. Again out of this 11977 k-cal of energy is lost way of respiration and only 8833 k-energy remain in net production. At each tropic level further the energy n

have three roots. One to next tropic lev
of food. ~~It~~ Two through death to deco
-poses and three as heat of respiratio
in metabolism.

In fact ~~every~~ every citiz
should be educated at least in known
technical term about the constant cycling
of material and flow of energy in an
type of ecosystem of which he is a
part or of those he is connected with
for his usuall requirment due to which
his action will remain properly regulated