

complete loss of pulmonary elasticity and on this basis the characteristic changes in lung volume, haemo-respiratory exchange, and pulmonary ventilation can be explained. In congestive heart failure there is a marked decrease in distensibility and slight impairment of elasticity. Again the characteristic changes in lung volume, haemo-respiratory exchange, pulmonary ventilation, and venous return to the heart can be explained on this basis. The rationale of increasing the intra-abdominal pressure in the treatment of emphysema and heart failure is described.

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M. Sc.

ZOOLOGY

ARTHUR COHEN

THE SOURCE OF CELLS IN REGENERATION AND GROWTH.

1. The literature dealing with the source of cells in regeneration in a number of groups of animals is reviewed.
  2. The source of cells in the growth of certain tissues of the frog-tadpole, newly-hatched trout and lamprey larvae is recorded.
  3. Increase of epidermal cells results from proliferation of the ordinary epidermal cells: there are no reserve or basal cells.
  4. Retinal sensory elements increase by proliferation of simple peripheral cells at the junction of iris and retina. Differentiation of the sensory cells commences only after division of the cell ceases.
  5. Mitotic division of the nuclei of muscle-fibres was observed. Increase in the number of fibres results from the division of simple, undifferentiated cells at the periphery of the myotome just beneath the epidermis.
  6. Intravascular multiplication of cells of the erythrocytic series by mitosis was observed in the 10mm. frog tadpole.
  7. Increase in number of cartilage cells results from mitotic division of the cartilage cells proper: there was no evidence of perichondrial contribution. In the trout amitotic division was also observed.
  8. Multiplication of notochord cells results from mitotic division of the peripheral highly protoplasmic and non-vacuolated cells.
  9. Gut epithelial cells increase by mitotic division of constituent cells: there was no evidence of basal cells. During division the basal border of the epithelial cell retracts towards the lumen of the gut, thereby assuming a spherical form.
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M. Sc.

EXPERIMENTAL MEDICINE

THEODORE C. ERICKSON

NEUROGENIC HYPERTHERMIA

Neurogenic hyperthermia is a definite syndrome not infrequently seen in neurosurgical practice. It has been only casually mentioned in the literature and no opinion has been previously ventured as to its etiology.

In its most typical form this condition occurs immediately after cranial operations or head injuries as a marked elevation of body temperature with a very rapid cardiac and respiratory rate and a constant unremitting cutaneous vasoconstriction and anhidrosis.

From experimental, clinical and pathological studies there is evidence that neurogenic hyperthermia has its origin in a derangement of the autonomic diencephalic mechanisms which are concerned in normal thermotaxis.

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M. Sc.

ANIMAL NUTRITION AND BREEDING

DUNCAN ARCHIBALD FINLAYSON

THE EFFECT OF FERTILIZATION ON THE NUTRITIVE VALUE OF PASTURE GRASS.

This paper reports a study of the nutritive value of fertilized vs. unfertilized pasture herbage, with particular reference to the quality of the protein, as measured by comparative feeding trials. A technique for the management of growing rabbits as experimental animals for such tests is also described.

Significant differences were found not only between certain pure species of grasses but also between the mixed herbage from fertilized and unfertilized pastures, which could not satisfactorily be explained on the basis of the usually advanced theories, viz., energy value, protein level and mineral (Ca. and P.) content of these feeds.

From the results obtained in these studies, the conclusions seem warranted that: