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Seasonal Variation in Birds

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error, of the same magnitude as that obtained in nitrogen-oxygen mixtures of similar concentrations. Cyanide has no effect on such cells.

The oxygen consumption of physiologically active embryonic cells, on the other hand, is considerably depressed by CO/O₂ mixtures, the degree of depression depending upon the concentration of CO. At sub-minimal oxygen tensions the depression is always much greater than in nitrogen-oxygen mixtures of similar concentrations. On such cells cyanide exerts a pronounced depressing effect, but there is always a certain part of the respiratory mechanism (about 20 per cent of the total) which is unaffected by cyanide.

Thus the respiratory mechanism of the developing egg is composed of (1) a cyanide and CO insensitive fraction, and (2) a cyanide and CO sensitive fraction.

The respiration of the diapause egg, however, is completely unaffected by CO and cyanide (except for the stimulation with the former substance) and in this and in other respects it is qualitatively and quantitatively similar to the cyanide insensitive respiratory fraction of the developing egg.

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SEASONAL VARIATION IN BIRDS

EMIL WITSCHI

Wild birds show cyclical alternation between breeding seasons and seasons of sexual inactivity. During the latter the sex glands are at rest and are very small. With the approach of the breeding season they start to grow rapidly, — increasing in volume up to one thousand times. Accompanying this growth of the gonads many secondary sex characters also show a characteristic development. This is true in first respect for the sperm- and oviducts, but also external secondary sex characters often show striking changes. The bill color of the sparrow is light brown during the resting period and becomes blue black in the breeding season. In some birds, as the Rose-breasted Grosbeak, a remarkable change also takes place in the plumage. Experiments have been performed

and will be presented to show the external and hormonal factors that control these seasonal changes.

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SOME FACTORS IN RADIOSENSITIVITY

T. C. EVANS

The respiration and visible development of Mud Wasp larvae and of Grasshopper eggs have been followed after X-irradiation. It has been found that light doses of X-ray caused temporary alterations and heavy doses caused permanent suppression after some development had taken place. It has also been found that inactivity during and following the irradiation increased the resistance to the X-radiation.

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THE DEVELOPMENT OF THE PRONEPHROS IN THE CALIFORNIAN NEWT (*TRITURUS TOROSUS*)

GARDNER M. RILEY

The development of the pronephros and its relation to the subsequent differentiation of other parts of the urogenital system has been studied by descriptive and experimental methods.

The pronephric anlage first appears as a solid thickening of cells proliferated from the lateral surface of the intermediate mesoderm. The swelling increases in thickness without any indication of an extension of the coelom into its mass. The cells orient themselves into the position of the future tube walls and finally a lumen appears between them. Two nephrostomes arise at the level of two adjacent somites. Each nephrostomal tubule becomes lined with cilia. This arrangement of nephrostomes precludes the possibility that another ciliated portion of the collecting tube is homologous to the third nephrostomal tubule of Anurans. The segmental duct also arises as a proliferation of cells from the lat-