

The continuous drop in liver glycogen content of *C. gachua* is suggestive of mobilization of glycogen from liver to other tissues where glycogen storage is advantageous for energy release.

Increased cardiac activity is an adaptive response to air-breathing<sup>8,9</sup>. Studies on the ultrastructure of heart and muscle of two air-breathing, burrowing Amazon fish, *Lepidosiren paradoxa* and *Symbranchus marmoratus*<sup>10</sup> indicated an overwhelming dependence upon glycogen as a carbon and energy resource. Based on heart LDH studies, Hochachka and Hulbert<sup>10</sup> also suggested that heart glycogen in *L. paradoxa* and *S. marmoratus* serves primarily as a carbon reservoir for energy under conditions of oxygen lack. The accumulation of glycogen in the heart, observed in the present study, could be considered as adaptive to meet the energy demand during increased cardiac function under prolonged exposure. The sudden spurt in muscle glycogen content in 5 hr exposed fish also suggests an adaptive storage of glycogen to be used as energy source for effective air-breathing. The decline in muscle glycogen in 10 hr-exposed fish perhaps indicates a secondary dependency on muscle glycogen (unlike that of 'diving syndrome' where muscle glycogen is the primary source of energy during oxygen debt) as a source of energy upon prolonged exposure to aerial conditions, supplementing the utilization of liver glycogen.

The author is grateful to Dr. K. Meenakshisundaram, Principal and to Dr. M. Rajendran, Professor

and Head of the Department of Zoology, Government Arts College, Coimbatore, for providing facilities in the laboratory.

16 June 1982

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## NEWS

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### KARNATAKA WEATHER GUIDE CALENDAR

KARNATAKA WEATHER GUIDE CALENDAR published by Mr. D. Krishna Rao, "Margosa Lodge", Chamarajapuram, Mysore-570 004.

The Karnataka Weather Guide is a new and novel type of Calendar. Climatological features of Karnataka are presented month-wise in maps. The two main maps in each month show lines of equal rainfall and details of rainy days, temperature and humidity at selected places. Small maps of India showing mean sea level isobars (pressure) and

direction of prevailing winds, for different months are also given. Special maps showing the normal dates of onset and withdrawal of southwest and northwest monsoon, normal tracks of storms affecting Karnataka are included in the appropriate months. Salient weather features of the State in each month are also briefly mentioned.

The meteorological information given in this calendar will be useful to scientists, agriculturists and general public.