rioles et avant tout au point de départ des pré-capillaires, ayant provoqué un rétrécissement de la lumière (Figure 1). Cette lésion a été suivie d'ectasies sacciformes des artérioles et des précapillaires; plus tard de rares micro-anévrismes capillaires sont apparus, situés de préférence au niveau des branches communiquantes entre la couche superficielle et la couche profonde des vaisseaux capillaires (Figure 2). L'injection d'encre de Chine a permis de constater un rétrécissement segmentaire très prononcé et irrégulier du calibre des vaisseaux, une oblitération complète d'un grand nombre de capillaires.

Nous n'avons pu constater la prolifération de cellules endothéliales décrite par HEATH et coll.[2,3]; ce phénomène s'explique très probablement par l'administration de cortisone qui, selon ces mêmes auteurs, supprime la prolifération des cellules endothéliales.

L'étude au microscope électronique montre une hypertrophie des cellules endothéliales rétrécissant la lumière vasculaire jusqu'à l'oblitération presque totale, ainsi que des irrégularités d'épaisseur de la membrane basale (Figure 4).

Les lésions que nous venons de décrire offrent une ressemblance très marquée avec les altérations vasculaires microscopiques et ultramicroscopiques[5] décrites dans la rétinopathie diabétique humaine. Ce fait laisse espérer que les expériences ultérieures dans des circonstances expérimentales différentes permettront de mieux comprendre la pathogénie de la rétinopathie diabétique et de trouver des moyens thérapeutiques plus efficaces que ceux dont nous disposons pour le moment.

*Summary.* Imino-dipropionitrile (IDPN) brings on to the rat an angiopathy which, when the animals are treated with cortisone, presents a great morphologic ressemblance with diabetic retinopathy.

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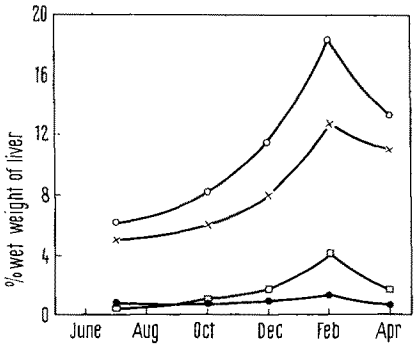
## Seasonal Changes in the Lipids of the Liver of the Frog, *Rana tigrina*

Several workers have studied variations in the chemical constituents and metabolic activity of different organs of the frog as a function of season[1,2]. Even though it is well known that the frog stores fat prior to hibernation, there is no report on the changes in the composition of lipids of any tissue as a function of season. We have, therefore, studied the concentration of various lipid fractions of the liver of the frog, *Rana tigrina*, to find out whether the composition of the lipids changes in different seasons.

The frogs were collected fresh, locally, in July, October, December, February and April. They were pithed and the liver was removed and frozen. It was then extracted in cold acetone, ether and hot ethanol in the order mentioned since these solvents solubilize triglycerides and sterols, glycerophospholipids, and sphingosine phosphatides and phospholipids respectively. The solvent of each fraction was evaporated over a hot water bath at 80 °C and the weight of each lipid fraction was expressed as % wet weight of liver. 5 frogs were used for each determination which was made in the middle of each month mentioned above.

The concentrations of various lipid fractions and the total lipid content of the liver in different months of the year are given in the Figure. The frogs collected in February, when they are still in hibernation, have the highest level of each kind of lipid. The total lipid content of the liver in February is about 3-fold higher than that of July frogs. Whereas the acetone and ethanol fractions of lipids of frogs collected in February are only 2- to 3-fold higher than those of July frogs, it is interesting to note that the ether fraction is approximately 9-fold higher. A sharp decrease occurs in all the fractions and in total lipid of the liver after February. These concentrations are lowest in July which is the period of highest activity during which the animal procures food from the environment and, therefore, there may not be any necessity for storage.

The increase in the concentrations of various lipid fractions in the liver shows that lipogenesis is greatly accelerated before hibernation for the storage of each kind. Though the storage of triglycerides may be of particular use for the supply of energy, it is not clear why the other fractions should accumulate. It would be of interest to know the stimulus for such alterations in lipid composition[3].




Concentrations of various fractions of lipids (% wet weight) of the liver of the frog, *R. tigrina*, collected in different months of the year. ○——○ Total lipids, ●——● glycerol phospholipids, □——□ sphingo- and phospholipids, ×——× triglycerides and sterols. Mean values for 5 animals are given.

*Zusammenfassung.* Zu verschiedenen Jahreszeiten wurden Unterschiede im Lipoidgehalt der Froschleber festgestellt.

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