of proteins in solution is increased by decreasing the hydrogen-bonding capacity of the environment. In the light of the results given here, this suggests that at least the regions of proteins where the side-chains are mainly hydrocarbon will be in a helical conformation at the lipid-water interface. Quite possibly the unfolding observed with proteins at interfaces is often a loss of the tertiary structure.

The possibility that the α -helix is stable at the lipid-water interface is of considerable importance in relation to the biochemical activity of interfaces. In contrast to extended chain conformations, the all-round arrangement of side-chains in relatively well-defined positions could lead to specific interactions with adjacent protein, with the components of the lipid and with the aqueous phase.

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BIOCHEMISTRY

Alkaline Phosphatase in Human Eccrine Sweat

In the course of histochemical investigations on the human eccrine sweat gland alkaline phosphatase reactivity in the luminal portion of the ampulla was observed¹. This observation has been repeated frequently, and it has been noted that this reactivity may continue into the proximal part of the coiled duct. Dr. G. H. Findlay of Pretoria suggested that this phenomenon might represent deposition of alkaline phosphatase, if the enzyme were present in sweat. We have found no reference to enable us to answer this question. A random sample of sweat was accordingly collected from a normal male volunteer half an hour after the onset of profuse sweating in a 'hot box'. It contained 2.9 King-Armstrong units of alkaline phosphatase.

Further estimations were therefore made in the sweat of 5 normal adult males and one suffering from miliaria rubra ('prickly heat'). The subjects performed light exercise under simulated tropical conditions (temp.: wet bulb 90° F; dry bulb 93° F) and hourly sweat samples were collected from the inter-scapular region after washing with distilled water.

Table 1. ALKALINE PHOSPHATASE CONTENT OF SWEAT SAMPLES IN KING-ARMSTRONG UNITS

Subject	Hours				
	1	2	3	4	5
Ku	0.1	1.2	5.3	2.2	2.7
Mo	0.7	1.4	*	2.9	*
He	1.4	1.0	1.6	1.5	1.9
Be	3.2	1.4	2.4	2.1	1.3
Br	1.8	2.9	2.0	1.6	2.8
Na (miliaria)	5.0	0.8	1.6	6.1	10.6

*Insufficient sweat available.

The method of estimating the levels of enzyme activity was that described by King and Wootton².

The source of this enzyme in sweat is presumably the secretory cells of the sweat coil, the cytoplasm of which shows marked acid and alkaline phosphomonoesterase activity. We cannot say whether it is present in microsomal particles, as in milk³; if this were the case it might help to elucidate the mechanism of eccrine secretion. Alternatively or additionally it could indicate increased permeability of the secretory cell membrane, analogous to that occurring in the kidney under experimental conditions⁴; the high figures obtained in a case of miliaria—a disease of the eccrine sweat unit—are of interest in this connexion and warrant further investigation.

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Uridine Diphosphate Glucose-Glycogen Synthetase Activity in the Chick Embryo

In a recent paper¹, it was shown histochemically that glycogen synthesis began earlier than the appearance of phosphorylase in some tissues of the chick embryo. In skeletal muscle, in particular, glycogen synthesis preceded the appearance of phosphorylase by about ten days^{1,2}. Because of that finding, it was suggested that the chick embryo, like the adult mammal, may be synthesizing glycogen through the uridine diphosphate glucose-glycogen (UDPG) pathway.

In the investigation reported here fresh and frozen tissues of the chick embryos of white leghorn fowls were homogenized in sucrose and tested for the activity of UDPG-synthetase by the method of Leloir and Goldemberg³.

The results indicate that in the heart, liver, skeletal muscle and brain UDPG-synthetase activity occurred earlier in development than phosphorylase and paralleled the appearance of glycogen in the tissues. Fig. 1 shows the activity of UDPG-synthetase in skeletal muscle of the chick embryo. It can be seen that UDPG-synthetase activity was detected from the fourth day when glycogen synthesis was reported to begin^{4,5}, and about 10 days earlier than the date when phosphorylase was detectable histochemically¹. The evidence supports the theory that early glycogen metabolism of the embryo proceeds without insulin, for that hormone was not found in embryo pancreases until the 12th day⁶.

These findings may help in the future understanding of such live and myopathic glycogen storage diseases which indicate the ability of these tissues to synthesize glycogen without being able to break down the carbohydrate.

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