generally turbid. The other group, from the Loop Rd., were always found in clear waters. Thus we find, in a paired-pigment freshwater species, a possible parallel with the results of Munz[5], who reported that the fishes of turbid coastal waters possessed pigments with λ_{max} displaced towards the red end of the spectrum when compared with those from fishes of more clear marine waters.

With regard to seasonal variation, there is a striking similarity between the visual pigment changes observed in a cyprinid living in temperate English fresh water at lat. 52° N. (ref. 1), a poeciliid living in subtropical Florida saline water at lat. 25° N. and a cyprinid living in subtropical Florida fresh water also at lat. 25° N. Clearly, it is necessary to seek some varying requirement of visual sensitivity which is common to fishes living in these very different environments.

In conclusion, it should be pointed out that no direct measurements of the spectral sensitivities of these fishes have been made. While it may be justifiably supposed that scotopic sensitivity approximates to the summed light-absorbing properties of the two extracted pigments mixed in their appropriate proportions, it is pertinent to enquire whether the photopic sensitivity of winter fishes is near 620 mμ (as in the vitamin A_2-dominated retina of *Tinca*[6]) and whether that of summer fishes is near 550 mμ (as in animals possessing vitamin A_1-dominated retinæ[6]). Information of this kind would contribute considerably to our knowledge of rod and cone photochemistry.

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Free α-Amino-N Content of Peripheric and Hepatic Venous Blood of Normal Adults

Although the α-amino-N content of human peripheric venous blood in health and liver disease is well known, the amino-acid content of the hepatic venous blood has been investigated only in the lower animals. Comparative quantitative analyses of peripheric and hepatic venous blood of human beings have not been carried out. Such analyses could clarify the protein synthesis in the liver. The differences between the inflow of amino-acids by the portal vein and hepatic artery, and as an analogue to this, peripheral circulation on one hand and the excretion of amino-acids by the hepatic vein on the other, are a partial measurement for the protein synthesis from amino-acids by the liver.

The quantitative determination of free α-amino-N was carried out according to the colorimetric ninhydrin method of Müting and Kaiser[1,2]. The advantage of this method is that one needs only 0·1 ml. of serum or plasma. The sensitiveness of amino-acids is very high at a concentration of 0·5γ. As a standard we used a 0·1 per cent aqueous solution of glycine (5γ–100γ). The normal range of error of this method is about ±2·0 per cent.

In 60 healthy adults the v. femoralis was punctured. Over a leading wire a 'Teflon'-catheter was inserted forward for about 10 cm. At this position the sample of peripherous venous blood was obtained. Then a catheterization of the v. hepatica was carried out. With sufficient practice the catheterization of the v. hepatica from the v. cava inferior is relatively easy. In most cases the right lobe of the liver was catheterized. Then the blood-sample of v. hepatica was taken. No complications were observed in any of these cases. Most of our patients suffered from congenital or acquired heart diseases. For the pre-operative diagnosis, a catheterization of the heart was necessary. In these patients no signs of cardial decompensation were found. Clinical and biochemical investigations revealed no damage of liver parenchyma.

For those 60 adults not suffering from liver disease, the average free α-amino-N in the peripheral venous blood was 4·15 ± 0·12 mg per cent. This result is similar to most of the values found in the literature by colorimetric or gasometric ninhydrin-method[1]. In contrast, the free α-amino-N of the hepatic venous blood of these patients was 3·45 ± 0·11 mg per cent. There is a difference of 0·61 mg per cent, which has been proved statistically ($P < 0{\cdot}0001$).

Normally, the liver circulation is about 1,530 ± 300 ml./min (ref. 3) to 2,500 ml./min (ref. 4). Taking the first value of 1,530 ml./min and a hæmatocrit of 40 per cent, the daily protein synthesis from amino-acids in the liver $= 0{\cdot}61 \text{ mg} \times \frac{1{,}530}{100} \text{ ml.} \times 60 \text{ min} \times 24 \text{ h}$ in blood or in serum $\times \frac{60}{100} = 8{\cdot}04$ g nitrogen. Supposing a liver circulation of 2,500 ml./min, the daily protein production from amino-acids in the liver is about 14 g nitrogen. This value corresponds with the daily excretion of urea-nitrogen in urine (7–15 g in normal adults). Therefore, it will be supposed, the difference from 0·61 mg per cent α-amino-N is caused only by the protein synthesis from amino-acids.

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Electrical and Mechanical Activity of Isolated Vascular Smooth Muscle of the Rat

Spontaneous electrical and mechanical activity of smooth muscle from the portal vein of the rat were recorded simultaneously for the purpose of determining the relationship of membrane potential to tension development.

A helical strip, 0·5 mm wide and 3 mm long, was cut from the portal vein of a rat, exsanguinated after being stunned by a blow on the head. Smooth muscle of these strips was found by one of us (S. F.) to show conspicuous spontaneous contractions when suspended in a physiological salt solution (NaCl, 118·9; KCl, 4·7; KH_2PO_4, 1·2; $MgSO_4$, 1·2; $NaHCO_3$, 14·9; dextrose, 5·6; $CaCl_2$, 1·5; sucrose, 49·9; and calcium versenate, 0·026 in mM/l.) at 35°–37° C. The muscle strip was mounted in a narrow 2-c.c. bath connected at either end, via polyethylene tubing, to a 20-c.c. syringe. The two syringes were synchronously driven so that one would withdraw bath solution at the same rate (2 c.c./min) that it was injected by the other, thus keeping the surface of the bath at a constant level. High-resistance micro-electrodes (50–70 M) filled with 3 M potassium chloride solution were used to record transmembrane potentials; an electro-mechanotransducer (Grass, model *FT* 0·03) recorded muscle contractions.

The insertion of micro-electrodes into the smooth muscle fibres was carried out with a Peterfi-type micro-