The accompanying photograph represents growth stages of *S. holoschista* from the final pelagic larva upto the fifth moult after metamorphosis.

The phenomenon of moulting itself is extremely rapid and is completed in a surprisingly short time. A detailed account of the work will be given shortly.

University Zoological Research Laboratory, Madras, *March* 3, 1943. K. H. ALIKUNHI. R. GOPALA AIYAR.

1. Alikunhi and Aiyar, *Curr. Sci.*, 1942, **11**, No. 2, 56-58. 2. Komai, T., and Tung, Y. M., *Annot. Zool. Jap.*, 1929, **12**, No. 1. 3. Bigelow, R. P., *Bull. Mus. Comp. Zool. Harvard*, 1931, **72**.

METHIONINE CONTENT OF FRESH WATER FISH MUSCLE

METHIONINE is one of the indispensable amino acids required for animal nutrition. An assessment of the methionine and other amino acid contents of foodstuffs is necessary for an accurate evaluation of the nutritive value of food proteins. A preliminary examination of the methionine content of some fresh-water fish muscles by a slightly modified method of Baernstein[1] has revealed that of the varieties so far examined the muscles of *Cirrhina mrigala* are the richest having a methionine content of 3·45 g. per 100 g. dry material. This compares well with figures for Halibut muscle and Shrimp muscle given by Baernstein.[2] Arranged in order of their methionine content we get

Cirrhina mrigala > *Clupea ilisha* > *Labeo rohita* > *Scieana coiter.*

Dept. of Medical Chemistry, Prince of Wales Medical College, Patna, *February* 13, 1943. M. N. RUDRA.

1. *J. Biol. Chem.*, 1936, **115**, 25. 2. *Ibid.*, 1932, **97**, 663.

PETROLEUM AS A SOLVENT FOR MOUNTING MEDIA

R. A. GROAT[1] in his paper on "Two New Mounting Media Superior to Canada Balsam and Gum Damar" has studied the various solvents that could be used. He has tried the lower boiling petroleum distillates like petroleum ethers, ligroins and benzines, as well as other solvents like xylene, toluene, benzene and chlorobenzene, and finds that from considerations of cost, purity, inertness and insolubility of stains in the solvent, toluene is by far the best solvent and is slightly less expensive than xylol.

In India, at the present time, both these solvents, xylene and toluene are equally costly and unavailable. With the possibility of utilising Dhupa Balsam from *Canarium strictum* instead of Canada Balsam,[2] we thought of substituting the cheaper and more easily available petroleum for xylol. Petroleum distillates over various ranges—between 80°-120°, 125°-140°, 145° C. and above, were collected and tried. The first distillate—below 120° C. was unsatisfactory as it evaporated very quickly. The fraction above 145° was also unsuitable as its rate of drying was very slow. The middle fraction, boiling between 125°-140° C., was found highly suitable. Attempts were made to utilise this fraction in place of xylol throughout the processes of manufacture of a slide including the grading up of the fixed material. The results have been very encouraging. This fraction of the petroleum seems to have precious little or no action in dissolving away the stains used. Moreover, when compared with xylol it has the advantage of being perfectly neutral and remaining unchanged through any length of time whereas xylol has the tendency of gaining colour with time. One gallon of ordinary petroleum will yield about a pound of the 125°-140° C. fraction.

Intermediate College, Tumkur, *February* 26, 1943. B. THIRUMALACHAR. M. K. MADHURANATH.

1. Groat, R. A., *Anat. Record*, May 1939, **74**, No. 1, and Suppl. No. 1, May 1939. 2. Thirumalachar, B., "An Indigenous Substitute for Canada Balsam," *Proc. Ind. Sci. Congress*, 1942.

A NEW METHOD OF SYNTHESIS OF δ-*DIETHYLAMINO-ISOPENTYLAMINE* REQUIRED FOR THE MANUFACTURE OF ATEBRIN

THE chief obstacle in the way of preparation of Atebrin in India at the present moment is the scarcity of some important chemicals such as sodium, thionyl chloride, ethylene-chlorhydrin and ethylacetoacetate. None of these is at present manufactured in this country.

The usual method of preparation of Atebrin (standardised recently in these laboratories by Guha and Mukherjee) involves the use of these four chemicals for the preparation of δ-diethylamino-isopentylamine (I). As there appear to be no immediate prospects of supply of these chemicals in India, it occurred to us to investigate alternative methods of preparation of the amine (I) avoiding the use of the four above-mentioned chemicals.

It has now been found that this amine (I) can be obtained by the following series of reactions:—

$$Cl\cdot CH_2CH(OEt)_2 + NHEt_2 \longrightarrow Et_2NCH_2CH(OEt)_2 \text{ (II)} \longrightarrow Et_2NCH_2CHO \text{ (III)}$$

$$Et_2NCH_2CHO \text{ (III)} + \text{acetone} \longrightarrow Et_2NCH_2CH{=}CHCOCH_3 \text{ (IV)}$$

$$Et_2NCH_2CH{=}CHCOCH_3 \xrightarrow{H_2} Et_2N(CH_2)_3COCH_3 \text{ (V)} \longleftarrow Et_2N(CH_2)_3CH(NH_2)CH_3 \text{ (I)}$$