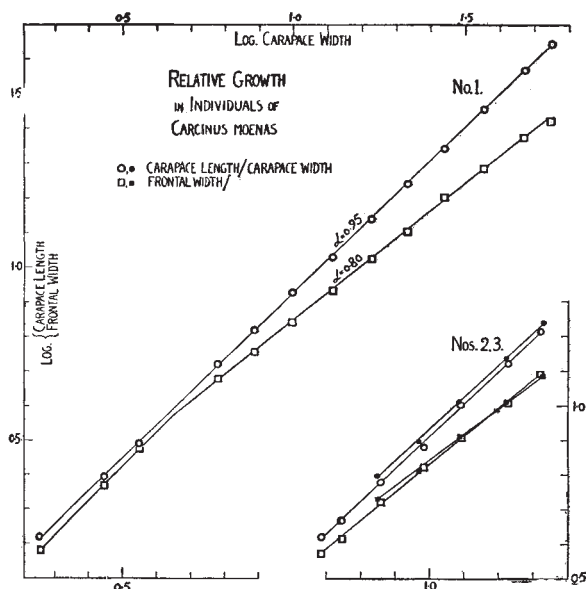


a change, about 8 mm. body size, to a more rapid rate of increase. In *Corophium*² the intermoult time is constant over the whole of post-embryonic life.

Data from two short series of both *Maia squinado* and *Stenorhynchus* sp., and from other short series of *Carcinus*, essentially support the above conclusions.



(7) In *Carcinus* No. 1, a female, a record was obtained of the growth in width of the abdominal segments relative to carapace-length; though less complete than that of the carapace dimensions. For the abdomen 1 segment there is a single phase of simple allometry ($\alpha = 1.07$), but for other segments three phases, with the two transitions at approximately 2.5 and 12.5 mm. body size (? metamorphic and adolescent transitions). The transitions are abrupt but the data did not show this to be simultaneous in all segments, possibly owing to the incompleteness of the data. The growth-centre is in abd. 3 segment during the short first phase and in abd. 6 throughout the rest of growth ($\alpha = 1.5$ for 3rd phase) (c.f.³).

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¹ Davenport, C., Symposium on Quantitative Biology, Cold Spring Harbor, No. 1, 203 (1934).

² Harrison, R. J., *J. Mar. Biol. Ass.*, **24**, 2, 483-93 (1940).

³ Day, J. H., Rep. Dove Marine Lab. (3rd Series), **3**, 49 (1935).

⁴ Needham, A. E., *NATURE*, **136**, 433 (1935).

⁵ Huxley, J. S., and Teissier, G., *NATURE*, **137**, 780 (1936).

⁶ Needham, A. E., *Proc. Zool. Soc. Lond.*, **A**, 289 (1937).

⁷ Brooks, W. K., Sci. Rep. H.M.S. *Challenger*, 16, Stomatopoda, 5, (1873-76).

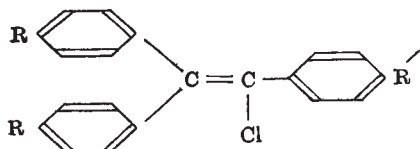
⁸ Przibram, H., "Connecting Laws in Animal Morphology" (London, 1931), p. 32.

Preparation of Triphenylchloroethylene*

THE preparation of triphenylchloroethylene has been effected in various ways^{1, 2, 3, 4, 5, 6}. A better mode of preparation of the compound seems to be through the following series of operations.

* Abridged.

To the Grignard reagent prepared from magnesium (12 gm.), benzyl chloride (60 gm.) and ether (250 c.c.), benzophenone (60 gm.) was added, and after two hours' stirring the solution was left for two hours more and then decomposed with cold aqueous ammonium chloride. Ether extracted the carbinol⁷ which separated from petroleum (b.p. 70-80°) in colourless crystals m.p. 88-89°. Yield was 80-85 gm. The triphenylethylene^{8,9} was best prepared by the vacuum distillation of the carbinol (100 gm.) in presence of 2 drops 20 per cent sulphuric acid. It separated from alcohol in colourless crystals m.p. 70°. Yield was 75 gm. To prepare triphenylchloroethylene, sulphuryl chloride (35 gm.) and a solution of triphenylethylene (50 gm.) in carbon tetrachloride (25 c.c.) were mixed together and benzoyl peroxide (0.2 gm.) was added. The solution was refluxed on a water bath for forty-five minutes, excess of sulphuryl chloride was distilled under reduced pressure, and the oily residue was recrystallized twice from alcohol. The mother liquors were concentrated, and the oily material which thus separated was again recrystallized from the same solvent. Triphenyl chloroethylene (45 gm.), m.p. and mixed m.p. 117° was obtained in colourless crystals.



The preparation, on similar lines, of compounds related to triphenylchloroethylene (where R=H, Cl, Br, COOH, Me, MeO, EtO, ^aPro, ^βPro, etc., and R'=H, Cl, Br, COOH, Me, MeO, etc., in the formula above) is now in progress.

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¹ Schönberg, A., Robson, J. M., Tadros, Wadie, and (in part) Fahim, H. A., *J. Chem. Soc.*, 1327 (1940).

² Robson, J. M., Schönberg, A., and Fahim, H. A., *NATURE*, **142**, 292 (1938).

³ Macpherson, A. I. S., and Robertson, M., *Lancet*, 1362 (1939).

⁴ Gardeur, A., *Bull. Acad. Roy. Belg.*, **34**, 67 (1897).

⁵ Bergmann, E., and Bondi, A., *Ber.*, **64**, 1455 (1931).

⁶ Kharasch, M. S., and Brown, H. C., *J. Amer. Chem. Soc.*, **61**, 3432 (1939).

⁷ Hell, C., and Wiegandt, F., *Ber.*, **37**, 1429 (1904).

⁸ Klages, A., and Heilmann, S., *Ber.*, **37**, 1455 (1904).

⁹ Schlenk, W., and Bergmann, E., *Annalen*, **463**, 44 (1928).

Catalytic Aromatization and Isomerization of 2.2.4.-Trimethyl Pentane

Hoog, Verheus and Zuiderweg¹ have concluded generally that paraffins with structures not readily permitting the formation of a six-membered carbon ring are not appreciably aromatized or isomerized over cyclization catalysts. While studying the cyclization of hydrocarbon mixtures in these laboratories, however, it was found that at 550° C. with a liquid catalyst-space velocity of 0.33 c.c./c.c./hour