

of twenty years earlier gives a clear idea of the author's view that there will, in the next five years or so, be a considerable increase of shipbuilding, and, therefore, of prices above the present low levels. He points to the advantage, where immediate profits can be dispensed with, to be derived from building when prices are low and obtaining a few years later enhanced rates together with capital appreciation.

On the technical side it is shown that for efficiency, design and specification must be suitable for the particular trade for which the vessel is intended, that features which are nothing more than fads must be eliminated, and that accommodation for officers and crew should be such as to attract the best type of men. Drawings of the S.S. *Dumfries* are appended to show the author's idea of a good plain cargo vessel with a well-balanced specification and arranged on simple and efficient lines. Questions of strength and weight should be left to the classification societies as the greatest authorities on the subject and the depositories of data relating to structural trouble

experienced with ships in service. Stream-lining of the rudder and stern frame is recommended as one of the conditions essential to efficiency.

On the subject of service speed, the author indicates the retarding effects on a vessel in a sea-way due to rolling, pitching, heaving and yawing, and the additional fluctuations due to orbital velocity of the surface of the water which in waves 6½ ft. high and 100 ft. in length has been found to be as much as 2¾ knots. To maintain the service speed against such adverse conditions, he considers it advisable to give the vessel a form suitable for a speed ¼–3 knots (according to trade) in excess of the service speed demanded, and suggests that on trial the engines should be able to develop 15 per cent surplus power on the Skelmorlie mile (or 10 per cent on Hartley). As a standard of propulsive efficiency, Ayre's basis is taken and data are adduced regarding four types of vessel, including one of the *B* Standard vessels, and their performances are analysed and compared in detail on this basis.

## Embryology of Angiosperms

AN article by Dr. P. Maheshwari from *Current Science* of June last, entitled "Progress of Work in India on the Embryology of Angiosperms", reviews the considerable amount of research already completed in his own department at the Agra College and at other Indian botanical centres.

Contributions from Agra include a series of papers by B. M. Johri on the embryology of the Alismataceæ as illustrated by species of *Limnophyton* and *Sagittaria*, with a review of previous work on the family: there is some variability in development in the embryo-sac and in endosperm formation. B. L. Gupta gives a comparative account of previous work on the embryology of the Potamogetonaceæ and contributes results of his own researches on pollen and ovule-development in *Potamogeton crispus* and *Wolffia arrhiza*. *Wolffia* shows several important differences in this respect from the allied genus *Lemna*. Similar work on the Centrospermales is found in studies by H. R. Bhargava on *Boerhaavia* (Nyctaginaceæ) and *Mollugo* and *Trianthema* (Aizoaceæ) and by V. Puri and B. Singh on *Digera* (Amarantaceæ). In a comparative review of embryological work on the

Centrospermales, Puri and Singh suggest the separation of the Portulacaceæ, Basellaceæ and Caryophyllaceæ as a distinct order. Species of *Neptunia* (Mimosaceæ), *Eclipta* (Compositæ) and *Cuscuta* have also been studied. In a paper on the gametophytes of *Berberis nepalensis*, Johri discusses the relationship between the families Ranunculaceæ and Berberidaceæ. The marked similarity in members of the two families in sporogenesis and gametogenesis suggests their close alliance in spite of differences in floral structure which have been used to separate them in distinct orders.

Dr. Maheshwari introduces a study of the life-history and anatomy of *Ephedra foliata* with an account of the development of the two gametophytes. With B. Singh he contributes an account of the morphology and anatomy of the fern, *Ophioglossum fibrosum*. In his general article referred to above, he stresses the importance of a study of the plants in their entirety in approaching a natural system of classification. He also refers to the serious difficulty arising from paucity of literature in India, and pleads for a more general exchange of reprints and journals.

## Experiments in Salmon Marking in Norway, 1935

A NOTABLE paper has just been published by Prof. Knut Dahl and Sven Sømme on this subject (*Statens Forsøksvirksomhet for Ferskvannsfiskeri*, Oslo. I. Matem.-Naturwid. Klasse, 1935. No. 12), and it is demonstrated that *Salmo salar* has a wider range in its migratory movements than was supposed, or at any rate than had been proved in Europe.

The Scottish coastal marking carried on for a number of years in the Moray Firth and east and north coasts of Sutherland certainly resulted in a

large number of recaptures and records published by the Fishery Board for Scotland—up to 38 per cent of the fish marked in one of the seasons—and shed a good deal of light on the movements of fish round the coast. Indications were collected also from the capture of salmon, at infrequent intervals, at far distant points, that the Atlantic salmon ranged widely. But the Norwegian results now published prove this to be the case.

The authors are of opinion that the high percentage of recaptures—reaching 48 per cent—is due really