tion of the rays transmitted by the shaded glass; the above-mentioned yellow glasses reduce the global coefficient of transmission to figures varying from 0.70 to 0.95 according to colouring and thickness. This is not very troublesome because the lost light is principally taken from the rays which are more refrangible than the yellow and hence which would be the most absorbed by mist. Their curtailment at the start therefore scarcely modifies the useful efficiency of a lighthouse, the candle power of which in clear weather is always superabundant.

In order to reduce the losses by reflexion, the optical apparatus for new establishments might be carried out in yellow glass. Illumination by electric incandescence lends itself to a simpler solution, namely the use of yellow glass bulbs of much larger size than those of motor-car headlights; but for this the co-operation of the manufacturers would be necessary.

Failing these solutions, the use of yellow sleeves around the white illuminants remains a rational one, because an additional loss of 9 per cent entails but a much smaller proportion of reduction of optical range, and the mistier the weather, the smaller comparatively will be this proportion.

The greater the photochromatic ratio, that is the factor by which the illumination received by the eye must be multiplied in order that a very small point of light, seen as a neutral and grayish point at a great distance, may appear distinctly coloured, the more the light behaves at a great distance like a white light; this proves (and it may be verified by sight) that in hazy weather the yellow colouring gives rise to no confusion with a red light and there can therefore be no disadvantage in its use. It is certainly preferable to the reddish colour of the petroleum oil lights.

Moreover the yellow colouring which, in contrast to what has happened ashore, has never been utilised for maritime lights (1), may be of real advantage as a distinctive characteristic, for instance for harbour lights which at present are white, by better avoiding confusion with electric street-lighting or private installations the number of which in seaports is continually increasing.

To sum up: although entailing a certain reduction in the range, it would seem that to give a suitably chosen yellow colour to the lights which at present are white, could improve maritime lighting from the point of view of safety, by diminishing the dazzling effect at the harbour entrances and rendering its character more distinctive.

The same would appear to hold good for the lights of airports, where the question of dazzle must also be taken into consideration.

TIEFSEEBUCH.

(THE DEEP-SEA BOOK.)

E. S. MITTLER & SOHN, BERLIN, 1934.

(viii + 144 pp., 68 figs. 33 plates, 22 × 14 cm.)

This handbook forms the third volume of a series entitled *Das Meer in volkstümlichen Darstellungen* (The Sea, Popular Descriptions), published by the Institut für Meereskunde of Berlin, under the editorship of Prof. Dr. G. WÜST, and its full title is "The Deep-sea Book, an outline of modern deep-sea research".

The names of the contributors, each of whom has written a short chapter on a subject on which he is a recognised authority, are a guarantee that the information given is reliable.

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(1) *An orange light was established in September* 1930 *for experimental purposes in the Princes Channel (River Thames approach) — see Admiralty* Notice to Mariners, *No.* 1334 of 1930. *It has since been withdrawn.* (I.H.B.).

These chapters are :-

1. Germany's part in Deep-sea Research,
   by Prof. W. STAHLBERG.
2. Oceanographic Instruments and Methods,
   by Dr. O. von SCHUBERT.
3. Is the deep sea at rest ?
   by Prof. Dr. A. DEFANT.
4. What Nourishment does the deep sea contain for Animal and Vegetable Life ?
   by Dr. H. WATTENBERG.
5. What lives in the deep sea ?
   by Dr. F. GESSNER.
6. Of what does the Bottom of the deep-sea consist ?
   by Prof. Dr. C. W. CORRENS.
7. The Gulf Stream problem,
   by Prof. Dr. G. WÜST.

As indicated in the title, this work is not intended for the technician, being but a superficial account of the various subjects dealt with, but the amount of information on the physical, chemical, biological and geological researches being carried out in the oceans, thus condensed, is surprising.

This book might well be translated into other languages so that the seamen of all nations may learn of and perhaps be induced to take greater interest in the work which is being done in the waters over which they sail.

G. S. S.

FIZICHESKAYA OKEANOGRAFIYA, UCHEBNIK DLYA UNIVERSITETOV

(PHYSICAL OCEANOGRAPHY, A MANUAL FOR UNIVERSITIES.)

by

J. SCHOKALSKY.

(1 Vol. 8vo, 360 pages, 162 figs., Leningrad, 1933 (in Russian) ; Price, 6 Rb.)

This book, says the author in his brief preface, is neither a re-issue of the *Okeanografiya* of 1917, nor a rearrangement thereof, but rather, as the sub-title indicates, a scientific "Manual" intended for universities and other higher educational institutions, brought up to date with regard to the latest oceanographic work, and, in this respect, most valuable.

The following are the various chapters concerning static oceanography :-

(1) the distribution of land and sea ; (2) the level of the oceans and the seas ; (3) the submarine relief ; (4) the depths ; (5) the composition and salinity of sea water ; (6) the temperatures, transparency and colour of sea water.

The following dynamic oceanography is dealt with :-

(1) the waves ; (2) the tides ; (3) the currents.
