

in the neighbourhood of the Mediterranean, one in the China Seas, and one in South America. It is stated in connection with the forestry division that 100,000 acres are under forestry experimentation. The State Agricultural Experiment Stations report an active year, about 400 reports and bulletins having been issued during the year to over half a million addresses. As is fitting at the present time, the volume contains special articles on the resources of Puerto Rico and the Hawaiian Islands.

*Organoterapia.* By Dr. E. Rebuschini. Pp. viii + 442. (Milan: Ulrico Hoepli, 1899.)

IN the introduction Dr. Rebuschini briefly deals with the history and general nature of organotherapy. The main substance of the book is devoted to a detailed account of the glandular secretions and other substances derivable from the several organs of the animal body, and the applications of these fluids to the treatment of disease. As the author points out, the most successful branch of organotherapy up to the present time has been that of the thyroids, and this alone occupies nearly half of the book.

#### LETTERS TO THE EDITOR.

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#### Undercurrents.

IN NATURE for July 13, p. 261, is given an abstract of a paper lately read by Admiral Makaroff, of the Imperial Russian Navy, before the Royal Society of Edinburgh, on the subject of double currents, *i.e.* of currents in reverse directions in different strata of water in certain straits. Admiral Makaroff gives his opinion on the causes of these reverse currents, and as they are diametrically opposed to those that I hold, I think that it may not be uninteresting to give my reasons for differing from him.

Admiral Makaroff considers that difference of density of the water is the primary and, indeed I gather he thinks, the only cause of these opposing currents; but he brings no evidence beyond theoretical considerations in support of his belief.

Let us consider his instance of the Bosphorus.

In 1872, as Admiral Makaroff very kindly mentions, I made a series of observations on the undercurrents in this Strait and in the Dardanelles,<sup>1</sup> and showed that when the surface water, of a very low specific gravity, was flowing from the Black Sea to the Mediterranean, the water in the lower strata of the Straits, of a high specific gravity, was running strong in the opposite direction.

But the surface current does not always flow in this direction. It is sometimes almost still, and on occasions the movement is towards the Black Sea. The lower strata respond, and are either also still, or move in the opposite direction.

It is evident that as the Mediterranean water is always of a high specific gravity, and the Black Sea surface water always of a low specific gravity, if the difference between them is the primary cause of the opposing currents the latter would always flow in the same direction, and that as they do not in fact behave in this manner, there must be some other force at work.

My observations soon led me to conclude that this force is the wind.

The prevailing wind in the summer and autumn, in which I made my observations, is from the N.E. When it blew from this direction, the surface current ran towards the Mediterranean. When it was calm the water was in the Dardanelles, ordinarily, still, and in the Bosphorus often so. When the wind came from the westward, the currents were reversed.

I do not know how the deduction from these facts can be got

<sup>1</sup> Report on the Currents of the Bosphorus and Dardanelles. (Hydrographic Office. Potter, London.)

over. I am quite ready to admit that the difference in specific gravity will cause a slow circulation in the direction in which the two currents ordinarily run, but in the face of their undoubted reversal under the circumstances which I have related, it appears to me that there can only be one conclusion.

It was on the ground that the direction of the wind is the prevailing factor that I believed that we should find a similar condition of affairs in the Strait of Bab-el-Mandeb, and as I stated in a communication to NATURE, vol. lviii. p. 544, these conditions were, by observations most ably carried out by Commander Gedge, R.N., in H.M.S. *Stork* in 1898, proved to exist.

There are here none of the differences of specific gravity demanded by Admiral Makaroff's hypothesis, and I consider that the existence of the reverse undercurrent in Bab-el-Mandeb, when the north-east monsoon is forcing the water on the surface into the Red Sea, absolutely proves the correctness of the theory that wind is the primary cause of this interesting circulation. Admiral Makaroff in his paper merely mentions the Strait of Bab-el-Mandeb as a place where the double-currents occur, but says nothing about them; and I am not aware that any observations but those made by H.M.S. *Stork* have been carried out in this Strait.

Admiral Makaroff is a close and indefatigable observer, and oceanography owes him much, but I cannot help thinking that in this instance his enthusiasm for densities has led him away. However, I shall be glad to hear reasons to the contrary, as I only desire the truth.

W. J. L. WHARTON.  
Floryst, Wimbledon Park, July 25.

#### The Duties of Provincial Professors.

SINCE the appearance of the article "The Duties of Provincial Professors" in NATURE, I have daily been wishing to write to thank you for it, but hitherto have been hindered partly by want of a convenient opportunity, and partly by the feeling that all the points brought forward are so absolutely accurate, and the article is so complete, that it leaves nothing further to be said. The warning it contains as to the danger of making true culture subservient to competition is most timely. I have an experience of many years as an officer in a provincial university college, and know, to my cost, how rank is the growth of the spirit of competition with rival colleges, and how widespread are its roots. And this is at the sacrifice of the best intellects and ability of the colleges. It results usually in the resignation of the most original and brilliant characters who may have sufficient private means to secure a bare independence; while the others remain quite at the mercy of their governing body, who may at any moment—even without any assigned motive—give them notice to resign. This and the very inadequate salaries attached result in constant changes in the staff. Further, the fever of competition induces the different university colleges to take up technical and pedagogical training, adding department after department at a rate greatly in advance of their means, so that no side can be worked to its full development owing to an insufficient staff and an overburdened exchequer.

A question which has frequently arisen in my mind of late is, Are we to allow without protest a different standard of morals to our governing bodies from that accorded to individuals?

In *bulk* their income is derived from public sources; why should councils of university colleges, whose existence depends upon such sources of income, be allowed the power to close their meetings to reporters? Are they to be allowed freedom of method without danger of exposure? Must we quietly allow them to fix the salaries of their officers at their own pleasure at an average which is much below the market value of the services rendered—in some cases even so low as 50 per cent. below the average rate? Is this honest? No: *it is thieving the best energies of some of our most able minds!*

Those of their officers who lack private means know that they dare not speak the thoughts of their hearts. They hardly dare protest, or courteously ask—even in the most considerate manner, for colleges have their known difficulties—for their legitimate due, for they know very well that, until they have another post to step into, they are helpless.

These things ought not to exist. They are a slow poison sapping the life of true education, rendering systems which are almost ideal in theory of no account in practice.

July 25.

VERITAS.