

issue licences for all articles which were not made in this country either in sufficient quantity or of approved quality. At the present moment the rate of exchange is such that British manufacturers cannot compete even under the most up-to-date methods of manufacture, and it must always be borne in mind that this is a new industry which has not had time to establish itself or to get over the experimental stages of glass as an industry.

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Mortlakes as a Cause of River-windings.

MR. T. S. ELLIS asks us in NATURE of April 29, p. 264, to believe that the curves of a meandering river, instead of being wholly secondary features, are to a large extent primary, arising from the simplification of a "complicated network of channels." He admits, however, that such a network does not occur in existing rivers, and it will require more than deductive reasoning as to what should happen on a newly exposed land surface to prove that it belongs to any stage of their evolution.

On our sandy and muddy shores we have abundant opportunities for studying inductively the genesis of new stream-systems; and the general resemblance between these transient formations and the river-systems which we regard as youthful lends strong support to existing theory. In these primitive streamlets islands are not uncommon, but they are almost always of narrow lenticular form, with the lens-angles pointing up- and down-stream, and the lateral curves moderate. Save, perhaps, in a few exceptional cases, nothing approaching the sweeping curves of a meandering river is ever seen, and a whole volume of inductive reasoning goes to show that such curves belong to the stages of maturity and old age. How far the "primary consequent streams" approach and how far they deviate from straight lines depends largely upon the angle of slope; and this again, on our shores, is often conditioned, quite apart from the coarseness of material, by the rapidity of the tidal movements; for example, the drainage of the mud-flats of Poole Harbour is quite distinct from that of the mud-banks of the Wye near Chepstow; but there is surely sufficient ground for believing that regional uplift has sometimes been comparatively rapid, and in such circumstances straight consequent streams would be the rule.

Even in Mr. Ellis's special case of Mortlake his conclusions are by no means free from objection. In the first place, admitting the former existence of an island, Mortlake would lie at the head of it, and therefore quite outside the area of the "mort-lake" (as defined by Mr. Ellis) now represented by the Beverley Brook. Secondly, it is surely unreasonable to attempt to evolve primary laws from such obviously secondary conditions as we find on the flood-plain of the Thames.

Lastly, I should like to point out that, even when islands occur, their secondary nature is frequently obvious, and that there are many cases in which one of their limiting channels is due, not to the main river, but to a tributary captured by it. Jumièges, on the Seine, affords a fine example of such capture, but the island has become an isthmus. Between Datchet and Old Windsor the island and backwater ("mort-lake") are retained. I am not in a position to say whether the Beverley Brook has been similarly captured and then set free again, but such a double change is not impossible.

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Science and the New Army.

THE two letters on this subject in NATURE of April 22 raise some points of considerable interest.

It seems clear that any attempt to train the main body of Army officers thoroughly in science and in scientific methods will be fruitless under present conditions, while it is even more certain that any attempt to train General Staff officers as scientific experts is extremely undesirable. It is, in fact, the duty of the General Staff to rely on its technical corps for advice, and it is unsound in principle and in practice for the General Staff to include within itself a separate body of experts.

On the other hand, the General Staff should possess a wholesome regard for the results which can be achieved by scientific methods, and this regard is all that is necessary to the General Staff, though the technical corps should be strengthened by the addition of scientific experts.

There appear to be three totally different Army requirements, namely:—

1. An organisation permitting the utilisation, so far as possible, of the services of scientific and technical men in time of war: (a) in the Army, through the Territorial Force and Officers Training Corps; and (b) outside the Army, as advisers in a civilian capacity.

2. An organisation which in peace time will keep the technical corps in close touch with the progress of science. This organisation would preferably be associated with the Research Department or Departments of the War Office.

3. Training of the general body of Army officers and the General Staff in scientific methods.

No attempt should be made to convert General Staff officers into scientific experts, for the reasons given above; in the nature of things, the General Staff officer *must not* be a specialist.

There seems to be every desire on the part of men of science to assist the War Office to the best of their ability; it rests with the War Office to prove that it has a sincere desire to avail itself of the opportunities offered.

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Waage's Phytochemical Synthesis of Phloroglucin from Glucose.

It is generally stated that phloroglucin is formed by floating leaves in sugar solutions when exposed to sunlight. This phytochemical conversion of an aliphatic chain into an aromatic ring-compound is based on observations published by Waage in 1890 (*Berichte der deutschen botanischen Gesellschaft*, vol. viii., p. 250), which have found their way into nearly every text-book on the subject (compare, for example, M. Wheldale Onslow, "Practical Plant Biochemistry," p. 7, which has just been published). The fascination of this simple experiment and its general importance to plant chemistry have made me repeat it every summer for the last fifteen years, but not in a single case, out of nearly eighty experiments, did I succeed in detecting even the slightest trace of phloroglucin. For the detection of phloroglucin I used the pine-wood test, as recommended by Waage, and also the bromine-water test after extraction with ether.

It seems to me, therefore, desirable that this very important experiment of Waage's should also be re-investigated by others interested in this question with the view of either definitely confirming or contradicting it.

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University of Bristol, May 8.