

progressive attenuation, and is not marked on any published map.

In this case the streams are nearly at right angles to each other when discharged; another instance, however, seems to be furnished in a neighbouring loch, Grön Lake, in which they are collateral. Kreiting's map (1868) represents the loch as bifurcating at its north-east end, each of the inlets giving rise to a stream; they seem about two miles apart, are marked by lines of about equal thickness, and flow nearly parallel to the Trondjhem fjord near Mosvigen.

I believe that instances of a like nature with these are by no means rare in Norway. I know at least one lake near Trondjhem, which at a former period seems to have had a double outfall, and many others in which, were the existing outlet dammed by a moraine twenty to fifty feet high, the water would find one or several openings elsewhere.

I have indeed noted several instances of lakes with two outfalls upon Prof. Munch's large map of Norway (1845), but failing to discover any confirmation in other maps, and finding it in other respects unreliable upon matters of such detail, I can assign no value to them.

It would be a fact of curious significance, as bearing upon Prof. Ramsay's theory of the glacial origin of lakes, if most authenticated instances of lakes with several outfalls could be referred to districts which have been traversed by a continuous sheet of glacier ice. When glaciers were confined within valley boundaries, as in Britain, their force was of necessity concentrated along lines, but upon level tracts or plateaux they were free to scoop wherever circumstances favoured erosion. Should it prove that Norway, North America, and Lapland give us the majority of lakes with several outfalls, no other theory can explain the fact.

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#### Trees "Pierced" by other Trees

COLONEL GREENWOOD'S answer (*NATURE*, vol. ix. p. 463) to Mr. J. J. Murphy encourages me to mention a botanical phenomenon which I witnessed in 1865, but have scarcely ever mentioned before for fear of being disbelieved. I was standing on the bank of the little river Evenlode, in Oxfordshire, looking at an old pollard willow trunk about six feet high, when I observed in the decayed wood of the tree an upright sort of staff resembling a dark-coloured old school ruler, and of about that size. I knocked away some of the touchwood above and below, and found my ruler lengthened each way. At the point where it would naturally issue at the top, I found a small twig of undoubted ash, of which the leaves were fully expanded, sprouting up among the branches of willow. Upon clearing away a little more rotten wood I laid bare another ruler, which, like the first, appeared to lengthen upward to the top of the trunk and downward to the ground, but there was no second twig of ash above. The "rulers" were rough where they were totally enclosed by the willow, and had put forth little threadlike rootlets. But the part which I found exposed to the air was smoother and looked like a true branch, but was darker than the usual colour of ash. I afterwards drew the proprietor's attention to the tree, but he could not suggest any explanation. I daresay it is there and in the same condition to this day; if anyone wished it, I could easily describe where it might be found. One explanation I have had offered is, that an ash-seed had fallen down a deep crack in the willow. But there was no sign of such a crack—no crack-like cavity—one of the "rulers" being totally and closely enveloped with the rotten wood, and the other very nearly so. Whether it would have been possible for an ash-seed to germinate in a crack which must have been at least four feet deep and probably much deeper, and was open at the top only and was certainly no larger than the shoot which it formed, is a question I must leave to botanists. Another explanation was, that as ash-roots travel for a considerable distance underground, it was possible that two such roots, finding suitable pabulum in the rotten trunk of the willow, had turned upwards. But this also I must leave to men of science, and notably to Col. Greenwood.

T. S.

#### PROF. TAIT ON "CRAM"

ON Wednesday, the 22nd inst., at the ceremony of capping the Graduates in Arts of Edinburgh University, Prof. Tait gave an address in which he touched

on various subjects of Academical interest. On the subject of "Cram" he spoke as follows:—

"It is a mere common-place to say that examination, or, as I have elsewhere called it, artificial selection is, as too often conducted, about the most imperfect of human institutions; and that in too many cases it is not only misleading, but directly destructive, especially when proper precautions are not taken to annihilate absolutely the chances of a candidate who is merely crammed, not in any sense educated. Not long ago I saw an advertisement to the effect:—'History in an hour, by a Cambridge Coach.' How much must this author have thought of the ability of the examiners before whom his readers were to appear? There is one, but so far as I can see, only one, way of entirely extirpating cram as a system, it may be costly—well, let the candidates bear the expense, if the country (which will be ultimately the gainer) should refuse. Take your candidates, when fully primed for examination, and send them off to sea—without books, without even pen and ink; attend assiduously to their physical health, but let their minds lie fallow. Continue this treatment for a few months, and then turn them suddenly into the Examination Hall. Even six months would not be wasted in such a process if it really enabled us to cure the grand inherent defect of all modern examinations. It is amusing to think what an outcry would be everywhere raised if there were a possibility of such a scheme being actually tried—say in Civil Service Examinations. But the certainty of such an outcry, under the conditions supposed, is of itself a complete proof of the utter abomination of the cramming system. I shall probably be told, by upholders of the present methods, that I know nothing about them, that I am prejudiced, bigoted, and what not. That, of course, is the natural cry of those whose 'craft is in danger'—and it is preserved for all time in the historic words, 'Thou wert altogether born in sin, and dost thou teach us?' I venture now to state, without the least fear of contradiction, a proposition which (whether new or not) I consider to be of inestimable value to the country at large:—Wherever the examiners are not in great part the teachers also, there will cram to a great extent supersede education. I need make no comment on this, beyond calling your particular attention to the definite article which twice occurs in the sentence, and which gives it its peculiar value.

"I said, in my former address [eight years ago], that 'coaching' seems quite natural to all who are engaged in it, and, in particular, that it did so to myself more than twenty years ago. This shows that it is possible that something akin to the results of the profound speculations of Riemann, Helmholtz, and others, may hold in the moral if not in the physical universe. It is probably new to most of my audience to hear that very great authorities are as yet in doubt whether the properties of space itself are the same in different localities; whether, in short, in our rapid flight through space, we may not be insensibly getting into a region, our existence in which will involve a gradual change of form, in order that our physical substance may continue to fit the varying circumstances of our position. Assume that something like this holds in the world of mind, and you see at once how the same man may, while residing in Edinburgh, honestly denounce certain methods as wholly pernicious which a few years' residence in Cambridge may invest in his eyes with a perfection more than human. I do not say that this is an explanation; but the analogy is at least worthy of remark; and I leave further discussion of it to my old friend Mr. Todhunter, who, living in the middle of that singular region, tells me he thoroughly agrees with me in my main arguments against examinations, and then soundly rates me for my mode of propounding them."

After advocating the restoration of the B.A. degree to Edinburgh University, Prof. Tait spoke in forcible terms