it, and it was introduced into public schools, and protected, and nursed, and encouraged by scholarships at the Universities, &c. On the whole it got quite as fair play and more favour than could have been expected. Now it is no longer nursed; it is left to find its level. It is protected by regulations against the extinctive power of headmasters, and that is all. Meantime, the methods of teaching it are improving; the supply of teachers is increasing; the number of scholarships at the Universities is quite adequate to the demand for them; and the examinations for them are very good. With these favourable circumstances, and a slowly maturing opinion in the minds of most people that education in science is valuable as a part of training, I think we can afford not to be very impatient at the Regulations of the Universities Board, or at the strict neutrality of headmasters when the interests of science are concerned.

JAMES M. WILSON

May I be allowed a few words with reference to some criticisms passed in last week's NATURE on the Regulations adopted by the "Oxford and Cambridge Schools Examination Board" in regard to science?

I fully concur with the writer (Mr. N. M. Watts) that these Regulations and the two papers printed point to a low standard of scientific knowledge in our great schools. It must be borne in mind, however, that the Board does not issue these Regulations as an ideal scheme of school work, but merely intend them to answer the existing state of the case. With the curriculum of any school they have nothing to do, their function being to appoint examiners to such schools as apply for them, leaving the schools free, within reasonable limits, to choose their subjects.

Now granting Mr. Watts' premises that certificates can be obtained *very cheaply* by taking up two sciences instead of Latin and Greek, this would give an impetus to the study of those subjects in schools, resulting in a large flock of scientific candidates.

Whether this has been the case, the following abstract from the examiner's report of last July shows:—

Subjects.	Number of Candidates offering the subject.	Number who satisfied Examiners.	Number who obtained distinction.
Latin	438	308	37
Greek	433	253	35
French	51	34	13
Mathematics ... (Elementary)	455	328	—
English	43	26	9
History	305	234	82
Nat. Philosophy (Mechanical)	21	10	3
Nat. Philosophy (Chemical) ...	28	16	3
Botany	6	4	—
Phys. Geography and Elem. Geology ...	15	7	—

These results show that the number of candidates offering any branch of science is comparatively very small, only seventy out of a total of 461, of whom only thirty-seven succeeded in satisfying the examiners out of a total of 232; and of these thirty-seven only six succeeded in gaining distinction. These figures show, I think, that in proportion to the time and attention given to science in the schools examined last July, the papers set were neither unreasonably easy nor difficult. I wish especially to point out that increasing the difficulty of obtaining certificates by help of science would tend as far as possible to exclude science from the school curriculum, while retaining a low standard encourages boys who have gained a certain crude scientific culture in the lower forms, not, as is so often the case, to let it drop entirely on reaching the sixth.

It does seem to me therefore wiser to commend the wisdom than to deplore the ignorance of the compilers of these Regulations, who aimed at testing the soundness of the small modicum of existing knowledge, rather than fixing a standard which would have practically acted as a prohibition of science.

In considering the amount of knowledge to be expected from boys of eighteen, we must remember the time usually devoted to science work. The following will, as far as my experience goes, be not an unfair statement of the case. A boy commences Latin and French at about eight years of age, at the same time imbibing the first ideas of Mathematics in Elementary Arithmetic; Greek (or German when it is substituted) at twelve or thirteen, and probably Euclid about the same age; Science seldom, if ever, before fourteen or fifteen. Thus the candidate offering himself for examination at eighteen has given ten years to Latin, six to Greek, and about three to Science, the number of hours in those three years given to Science being certainly less than that given to Greek. This programme would be true of certainly nine-tenths of our public school-boys who offer themselves for the examination, the remaining tenth consisting of boys who at seventeen show a distinct aptitude for Science or Mathematics, and who then drop a large proportion of their classical work and are enabled to devote one-half of their time, or thereabouts, to their special subjects. The complaint might with more reason be urged by the classical boys proper against these specialised boys, who are allowed to gain their certificates too easily. When the necessity arises, the standard will doubtless be raised, perhaps, by a division (similar to that made in the Mathematical Group) into Elementary and Advanced Science, with a provision that only one elementary science can be taken up.

Mr. Watts, in the article referred to, asks, rather contemptuously, whether "the knowledge of the composition of the air, the reasons for belief in the rotundity of the earth, the meaning of the words watershed, dip, &c., is the utmost that can be demanded of a boy of eighteen who has studied science instead of the older well-established subjects of classics and mathematics." I hope I have shown that the standard of the examination papers was not too low for the candidates who offered themselves. With reference to the desirability of the change in our whole system of education to which Mr. Watts refers, I may be allowed to say that there is by no means at present an agreement even amongst science teachers that such a change is desirable. I refrain from opening up this very wide subject, because I feel that the experiment has not yet had a fair trial.

Rugby LINNÆUS CUMMING

THE ORGANIC IMPURITIES OF DRINKING WATER

ON Thursday last Prof. Frankland delivered a discourse to the Fellows of the Chemical Society at Burlington House on the detection and analytical determination of the organic impurities in potable waters. He said that the more his inquiries into the influence of water upon the public health had extended themselves the more had he become convinced of the great importance of this application of chemical analysis to the community at large, contending that, in the interests of the public health, the bringing to perfection of this branch of analysis was worthy of the greatest efforts of chemists.

The two chief objects to be kept in view in the analysis of potable water are, firstly, the discovery of the evidence of *past* pollution by organic matter; and secondly, the