point of incidence. Here the drops reflect in various azimuths, according to the momentary position of that part of the surface on to which they fall.

M. Katalinić.

Physics Institute,
University of Zagreb, Jugoslavia,
Mar. 20.

[1] L. D. Mahajan, Nature, **126**, 761; 1930.
[2] M. Katalinić, *Zeit. f. Physik*, **38**, 511; 1926.

University Entrance Scholarships for Science.

I have read with great interest the recent correspondence in the *Times* on science in scholarship examinations and the comments upon it in the leading article in Nature of Mar. 28. I should like to present a point of view rather different from any which have hitherto been put forward and to support it by a number of facts which, in my opinion, have not yet received the attention which they deserve. I believe that the science specialist at school does devote a reasonable amount of time to literary subjects and does leave school with a satisfactory interest in literary culture, whereas the humanist devotes little or no time to the study of science and leaves school with an attitude of condescension towards it, which savours of intellectual snobbery and does little credit to the type of education which he has adopted.

In support of this view, I propose to outline the typical preparatory and public school education of both an intending science scholar and a classical scholar. The latter usually commences Greek at his preparatory school, so he begins some measure of specialisation at the age of about eleven. He then spends the first two years of his public school career on a course of 'general education', which includes six periods a week of Greek and only three periods a week of science. Having taken the School Certificate, he then commences specialisation in earnest and the time which he now devotes to science is reduced to one or two periods a week for the rest of his time at school, or perhaps only for the first year of specialisation. I should add that, whereas the classic does only three periods a week of science in his course of general education, intending specialists in modern languages or history do some seven periods a week. The future science scholar, on the other hand, arrives at his public school having done little or no science and spends his first two years on precisely the same course of work as the intending modern language or history specialist. He is, quite rightly, not allowed to specialise at all until he has passed the School Certificate, and even then his course includes some eight periods a week of literary subjects. The same thing is also true of the poorer boys, who appear to be the chief concern of the headmaster of Charterhouse; these boys will be at the day schools, and it is laid down in the Board of Education Regulations for Advanced Courses in Science that from one-quarter to one-third of the time must be devoted to literary subjects. I think that the statistics which I have quoted are typical and they show quite clearly that it is the classical scholar who is the real culprit in this matter of premature and narrow specialisation.

If we now turn to the attitude shown by the specialist to subjects other than his own after he has left school, I feel that the facts again point the finger of accusation at the humanist rather than the scientist. In this respect I would venture to add my testimony to that of Prof. A. V. Hill in defending the interest taken by the professional scientist in art and literature, while the interest of the mathematician in music is proverbial. But the classic has little interest in, and perhaps even less knowledge of, scientific culture. In fact, so narrow is his interest in even Greek culture, that when the Oxford University Press wish to publish a book on the "Legacy of Greece", they invite scientists such as Dr. Singer to write those sections of the book dealing with the distinguished contributions of that civilisation to the various branches of science. The headmaster of Charterhouse states in his letter that science is destined to play an ever-increasing part in the affairs of the State, and in recent years leading articles in Nature have deplored again and again the reactionary attitude of the Civil Service to scientific research and its introduction in State departments and the Services. It is surely not without significance in this respect that the large majority of Civil servants have had a classical or humanist education.

In conclusion, I venture to hope that no more will be heard of the dangers of premature specialisation in science, which, I think I have shown, are grossly exaggerated, but that attention will be turned to the far more urgent problem of ensuring that all specialists in the humanities shall devote at least four periods a week to science. For, until this is done, I shall continue to maintain that it is they, and not the scientists, who are the real offenders in this matter of specialisation.

A. W. Barton.

Repton School,
Derby.

Conditions of Silver Chromate in Gelatine Hydrolysed and Electrodialysed to Different Extents.

In a series of papers, Dhar, Chatterji, and collaborators have shown that if a reaction between two salts giving rise to an insoluble product is allowed to take place in gels, the insoluble substance exists in colloidal condition in the gel and the formation of Liesegang rings is due to the coagulation of the colloid. It has been shown, however, by Williams and Mackenzie[1] and Bolam,[2] that the insoluble substance produced by the reaction between two salts exists in supersaturated condition in the gel, and their results support the theory of the formation of Liesegang rings proposed by Wi. Ostwald.[3] Experiments have been carried out by us to study the condition of silver chromate in gelatine hydrolysed (by heating) and electrodialysed to different extents, by determining the contact potential of pure silver in a mixture of $N/100$ silver nitrate, $N/100$ potassium chromate, and 3 per cent gelatine.

So long as the mixture remains yellow and there is no visible precipitation of silver chromate, the contact potential remains the same as that of silver in silver nitrate of the same concentration as in the mixture; but with the appearance of the precipitate, the contact potential gradually decreases and tends towards a limiting value. The general conclusions from the measurements of contact potential can be summarised as follows:

(1) More than 95 per cent of the silver chromate remains in the ionic condition in the gel. (2) The power of gelatine to inhibit the growth of crystallisation centres decreases with the progress of hydrolysis. (3) The inhibitive power of gelatine increases with the progress of electrodialysis. (4) The inhibitive power of gelatine is closely associated with its pH, and the smaller the pH of gelatine the greater is its inhibitive power. (5) The solubility of silver chromate in unhydrolysed gelatine is not increased by decreasing its pH. (6) The solubility of silver chromate in gelatine increases with an increase in the degree of its hydrolysis.

It is also found by varying the concentrations of the reactants (silver nitrate and potassium chromate) that the precipitation of silver chromate follows the usual