

as far back as the 1912 edition of Dr. J. W. Mellor's "Modern Inorganic Chemistry".

Apropos of abridgments, it does not appear to be generally known that the conversion factor from Calories per cub. m. to B.Th.U. per cub. ft., namely, 0.11236, can be represented by $1/9 + 1/800$ to an accuracy of better than one part in 100 thousand.

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Science Subjects at External Arts Examinations

It will be generally agreed that workers in the field of pure science should be recruited so far as possible from the educated population as a whole and not from particular social or economic classes within this whole: where the range of intellects is wider, the resultant products are likely to be more varied and richer. Equally it is agreed that the primary aim of science is the advancement of pure knowledge as a whole, not merely of highly developed branches demanding equipment, the expense of which will tend increasingly to place originally disinterested workers in the power of less disinterested 'patrons'.

If we admit this, shall we not be the more insistent in requiring that regulations for examinations be drawn up so far as possible upon lines tending to offer wide scope to individual talent, and not upon lines which only too often seem to have *elimination*—stressing the negative sense of the word—as their principle? Referring specifically to conditions in the University of London, the arbitrary and highly

undesirable selection of workers which the expense of a science degree at present often renders unavoidable might be compensated for in some measure by a far-reaching extension and broadening of the regulations for external degrees in *Arts*, and should include a relaxing of certain present restrictions as regards special fees or a transferring of these to other subjects, a knowledge of which is not so much sought after or so socially urgent.

I make the following preliminary suggestions:

(1) Sociology should be included as a subject for the B.A. General Examination. (2) Anthropology should be forthwith freed from its special fee of an *additional* five guineas. (3) Honours candidates who are prohibited by expense from taking subjects where a practical examination is necessary, should be allowed to take sociology without having to show a knowledge of Kant's "Critics". (4) Students of languages (who often show as marked an aptitude for science as they do little capacity for literary appreciation) should be offered more attractive and varied syllabuses: optional papers on the geography, history, ethnology, sociology of the country, etc.; on the lines of the present Slavonic syllabuses. (5) Some attempt should be made to separate such parts of a science as are capable of purely theoretical and critical treatment and to form these into material for the creation of additional science subjects, which may be taken by those unable to take the practical work at ordinary science examinations. It seems, in this latter case at any rate, time that such a promising division of labour were given further consideration.

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Points from Foregoing Letters

LORD RAYLEIGH finds that igneous rocks in general contain about 3×10^{-2} c.c. of nitrogen per gram, mostly held in chemical combination. The ratio argon/nitrogen is much less in the earth's crust than in the atmosphere. The total nitrogen content of the rocks is many times greater than that of the atmosphere.

Prof. K. Przibram states that the different colorations of fluorites are due to the varying intensities of the absorption maxima of the bivalent rare earth ions and of the reduced calcium, and explains various colour and luminescence effects by electron transfer from the bivalent rare earth ions to the calcium and back.

Prof. E. F. Burton reports the results of experiments on the velocity of sound in the two forms of liquid helium, helium I and helium II. A graph is submitted giving the variation of this velocity with temperature; the slopes of the curves are different in the two liquids and there is an indication of a slight discontinuity at the λ -point. The value at the λ -point is 221 metres per second.

An absorption curve for Group A neutrons in silver with thin detectors (0.01 gm./cm.²) and with thin absorbing foils (down to 0.006 gm./cm.²) has been obtained by Dr. H. Paxton. The absorption coefficient of 60 cm.²/gm. determined from the beginning of this curve is supposed to set a lower limit for the value which would be measured with negligibly thin absorbers and detectors.

A graph showing the yield of positrons from radio-phosphorus of mass 30 (obtained by the action of polonium α -rays upon aluminium), as a function of the average range of the exciting α -particles, is given by A. Szalay.

By using a Cartesian diver method for detecting minute pressure variations, so that a change of one millionth of a c.c. of gas can be observed, Dr. J. Needham, E. J. Boell and Veronica Rogers are investigating the chemical changes in different parts of the developing amphibian embryo (gastrula).

Prof. B. C. Guha and P. N. Sen-Gupta bring further evidence in support of the view that cabbage, and also certain animal tissues, contain ascorbic acid in combined form (ascorbigen) and in addition a non-specific reducing substance in combined form. The authors outline a method for the estimation of the 'total' ascorbic acid.

D. G. Dervichian and M. Joly point out that while the flow of surface monolayers is proportional directly to the difference in pressure and inversely to the length of the channel, the dependence of the flow upon the width of the slit is complicated owing to the entrainment of water. The rate of flow gives useful information concerning change of state in monolayers.

A. Sokolow derives a connexion between electromagnetic and neutrino fields for the three-dimensional case in relativistically invariant form by assuming that the rest-mass of the neutrino is zero.