

## Letters to the Editor.

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### Colour of the Night Sky.

So far as I have been able to learn, little or nothing is known about the colour of the night sky. The light is too faint for ordinary visual discrimination of colour, which disappears with diminishing intensity of illumination much before the light itself ceases to be perceptible.

I have obtained evidence, both visual and photographic, that the clear sky at night is much yellower or less blue than the clear, or even the cloudy, sky at twilight.

The visual observations were made in the following way:—Two gelatine films were prepared, one dyed yellow with flavazine and the other with methylene-blue, the relative intensities being adjusted by trial to give the effects that will presently be described. The films were mounted edge to edge at the end of a pasteboard tube, which was pointed at the sky. During the daytime the yellow film was confidently pronounced by all observers to be the brightest, the difference being too marked to be embarrassed by colour difference. As twilight advanced the Purkinje phenomenon came into evidence, and the blue film became much the brighter. This remained the case when the light had waned so far that the colour sensation had disappeared. As the stars came out the predominance of the blue became less marked, and before the Milky Way was distinguished there was equality. Finally, when the Milky Way was conspicuous the yellow film was notably the brighter, whether the tube was pointed to the Milky Way or to other parts of the sky.

The changes described were very marked. Their general course was the same whether the sky was clear or cloudy at any particular stage. The first change, when blue becomes predominant, is due solely to physiological causes. But the second change, which makes the yellow predominant again, occurs below the "threshold" of colour-vision, and, according to received views, there should be no marked complication from physiological causes within this range. Accordingly we may conclude that the observation affords definite evidence that the night sky is yellower or less blue than the day sky.

This conclusion has been confirmed photographically. A yellow and a dense blue filter were selected, and an Ilford panchromatic plate was exposed to the sky under these. It was seen at a glance that the density under the blue filter was the greater for the twilight sky, while for the night sky this relation was reversed.

The results point to the conclusion that the light of the night sky, whatever the cause of it may be, is not due to the scattering of sunlight by rarefied gas situated beyond the earth's shadow. The comparative absence of polarisation, formerly found, points to the same conclusion.

RAYLEIGH.

Beaufront Castle, Hexham, August 20.

### University Grants.

THE article and letters in NATURE upon the subject of university finance are very timely. It is essential that the country should be alive to the perilous condition of the universities from a financial point of view.

The raising of fees that has just taken place can be only a partial remedy. Fee revenue before the war provided at the various universities at the most for 40 per cent. of the necessary expenditure, the average being about 33 per cent. The recent increase

in fees will barely re-establish the pre-war percentage.

I agree with the Principal of Birmingham University that the stipends of the non-professorial staffs must be increased; the urgency is not less great for the salaries of the professorial staffs. In London the utmost that has been done for the professorial staff is to increase the minimum full-time salary from 600*l.* to 800*l.*

Now the majority of the London professors receive the minimum. Considering the responsibilities of a university professor, what is 800*l.* a year for a man in that position under present conditions? Such a prospect will not induce young men of the right calibre to make university teaching their profession.

It is true that the Government has made non-recurring grants to pay off war losses, and for the time being doubled the grants. Having regard to the condition of the National Exchequer, the Government has perhaps done as much as could be expected for the current year. The all-important question for the universities is: What is the Government going to do next year?

It must be remembered that the maintenance grants are made for periods of five years, and are then revised. Revision was due in 1915, but was impossible during the war. The period 1910-15 had been one of unusual activity and development in all the universities. It was the general expectation in 1914 that the grant for the quinquennium 1910-15 would be doubled for the period 1915-20. By doubling the 1910-15 grant now the Government has done no more than redress the disadvantage due to the depreciation in the value of money.

Having that in mind, the deputation of Vice-Chancellors and Principals in 1919 impressed on the President of the Board of Education and the Chancellor of the Exchequer that the smallest grant that would meet the needs of the moment would be the 1910-15 grant quadrupled. That will do no more than enable the universities to carry on; it will not provide the capital necessary for new buildings, new plant, and equipment, nor will it enable justice to be done to the older men who bore the heat and burden of the day of pioneer work before the time of the establishment of superannuation funds.

There are many such men due to retire in the next few years; they are entitled to treatment at least as generous as that given to schoolmasters by the Fisher Act.

GREGORY FOSTER.

University of London, University College,  
August 23.

THE only elements of our society which seem to benefit from the great increase in the wealth of the world through science are those which it will be one of the hardest problems of reconstruction to divert into more productive and honourable means of livelihood. Those who sow the seed and reap the harvest alike, year by year, by their labours seem to be able only to increase their dependence upon private charity and public doles. Universities sow the seed, and their claims, like the claims of the farmer for seed for his future harvest, ought to be absolutely the first charge upon the yearly revenue. It is as idle to say the country cannot afford it as it would be for a farmer to grudge the seed for his next year's crop. It affords a plethora of most expensive evils and unnecessary luxuries. In the spirit of one of the early Methodist preachers, I feel, whenever I see a specially sumptuous motor-car, "There, but for the grace of Parliament, goes a professor of chemistry"; and even a humble two-seater might in happier circumstances have become a demonstrator!

Under the scheme of a professor of literature with fifteen years' experience of fostering scientific research