compensate for the larger evaporating surface in the latter. If this situation arises the evaporation from the short pastures would be greater than that from long pasture. The effect would be accentuated by low wind velocities, reducing the effectiveness of the large area of the leaves in the long pasture.

Other features, such as whether or not the structure of the vegetation tends to trap air, will also be of importance.

Current measurements at a chain of twenty-five microclimate stations at sites from 35° S. to 45° S. and also from recordings of the diurnal flux of temperature under different covers of vegetation should allow a more detailed consideration of these issues.

K. J. Mitchell

Grasslands Division,
Department of Scientific and Industrial Research,
New Zealand.

R. L. Closs

Dominion Physical Laboratory,
Department of Scientific and Industrial Research,
New Zealand.

Feb. 18.

[1] Penman, H. L., *Proc. Roy. Soc.*, A, **193**, 120 (1948).
[2] Bouyoucos, G. D., and Mick, A. H., Mich. Agric. Exp. Sta. Tech. Bull. 172 (1940).
[3] Rider, N. E., Meteor. Res. Pub. 972 (1956).

Subjective Probability, Gambling and Intelligence

In a communication under the above title, Cohen and Hansel[1] point out that if a prize is certain and large enough, in relation to the individual's scale of values, it will be preferred to an uncertain prize however much larger, whereas if the certain prize is negligible the uncertain but worthwhile prize will be preferred. They postulate that at intermediate values of the certain prize, the preference for it will be weighed against the subjective probability of winning the large uncertain prize and that this subjective probability will vary from person to person and be affected by age. Hence they suppose that their results show a decrease with age in the individual's subjective estimate of probability. Surely, a hypothesis at least equally plausible would be that the individual's assessment of the value of the small certain prize, and of the smaller but less uncertain of the two uncertain prizes, increases with age. At 15 years of age, when nearly half the children prefer the certain prize and only 14 per cent the largest and most uncertain prize, the imagined appetite for sweets is perhaps less wholesale than at 9 years, when most of the children prefer the latter. The experiment described fails to distinguish between the two hypotheses, which may of course both be true.

O. V. S. Heath

Department of Horticulture,
University of Reading. April 23.

[1] Cohen, J., and Hansel, C. E. M., *Nature*, **181**, 1160 (1958).

We do not make a general statement to the effect that subjective probabilities in all situations diminish with increase in age, but merely refer to the subjective probability of winning the uncertain prizes in our particular experiments. Secondly, we do not speak of subjective estimates of probability but of 'subjective probability'. That is, our subjects do not make any estimates of probabilities. Indeed, these are explicitly stated to them. What they do is make a choice or express a preference; and this choice or preference is perhaps influenced by their subjective assessment of the value of the prize—the point which Prof. Heath emphasizes—as well as by how likely they think they are of getting it. We have no indication that our subjects distinguish between these two components in making their choice. We referred in particular to the second component but do not wish to deny the possible significance of the first. Indeed, we explicitly stated in the last sentence of our communication that the subjective probability on which the preference is based is affected by the *value* of the prizes offered. On the other hand, if the explanation rested only on the supposed reduction with age in the "imagined appetite for sweets", we should also have to conclude that this appetite increases with intelligence.

John Cohen
C. E. M. Hansel

Department of Psychology,
University of Manchester.

The Macleod Equation

There is a widespread impression that Macleod was the first to discover the relation:

$$\gamma = C(D-d)^4$$

where γ is the surface tension, D the density of the liquid, d the density of the saturated vapour and C a constant independent of temperature for non-associated liquids. The equation, which Macleod[1] put forward on empirical grounds in 1923, was referred to as the Macleod relation in a paper published by Sugden[2] in 1924, and this designation has since been consistently adopted in the European and American literature.

It has now come to my notice that the equation had been formulated empirically in 1922 by Batschinsky[3], who examined its applicability to all systems for which surface tension and density data were available. His demonstration of the validity of the equation for non-associated systems was far more thorough and comprehensive than that of Macleod, and, naturally enough, the equation is referred to as the Batschinsky relation in the Russian literature.

So far back as 1911, however, Kleeman[4] had derived the equation from his theory of intermolecular forces, and had shown that it applied to typical organic liquids. Although the equation has since been deduced by combining the power laws representing the temperature variation or orthobaric density difference and surface tension[2], and has been related to modern theories of the liquid state by Fowler[5] and Lennard-Jones and Corner[6], the credit for its original discovery undoubtedly belongs to Kleeman. Its re-designation as the Kleeman–Batschinsky–Macleod equation appears therefore to be desirable.

S. T. Bowden

University College,
Cardiff. April 20.

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[2] Sugden, S., *J. Chem. Soc.*, **125**, 32 (1924).
[3] Batschinsky, A., *Izv. fiz. Inst. Biol. Fiz.*, **2**, 60 (1922).
[4] Kleeman, R. D., *Phil. Mag.*, **21**, 99 (1911).
[5] Fowler, R. H., *Proc. Roy. Soc.*, A, **159**, 229 (1937).
[6] Lennard-Jones, J. E., and Corner, J., *Trans. Farad. Soc.*, **36**, 1156 (1940).