

The frequency distribution of the coefficients of inbreeding are discussed with special reference to the fact that the greatest distribution of coefficients occurs when the graph of the average percentage of inbreeding for the breed rises most rapidly.

The most popular systems of matings practised in the Clydesdale breed are discussed. Matings of the cousinship degree of consanguinity are fairly common, while half-brother half-sister matings and the mating of sire to grand daughter are only practised with the animals of very best breeding. Noteworthy examples of "nicking" are also enumerated.

The homozygosity of the Clydesdale breed relative to the condition existing in the foundation stock, has been increased by 6.2 per cent due to inbreeding alone. Line-breeding being practised almost exclusively to member of one line of descent viz. that from Darnley, together with careful selection, appears to explain the remarkable homozygosity of the breed at the present day.

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FACTORS AFFECTING EVAPORATION OF WATER FROM SOIL.

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*Summary of the article. **

Some of the factors affecting the rate of loss of water from a drying system are shortly reviewed. These factors fall into two groups: (1) the drying system itself, and (2) the environmental conditions. The Second group may include (a) diffusion of water vapour through the air, (b) bulk air movements due to (i) temperature gradients between different parts of the drying vessel, (ii) temperature lowering of the drying mass itself due to evaporation, (iii) lower density of moist air, (iv) inevitable disturbance introduced by experimental conditions such as weighing or movement of apparatus (v) the geometry of the system. It is shown that of the external factors the most important are (2-a), (2-b) (i) and (2-b) (ii); (2-b) (iv) may produce irregularities in the rate curves of air-dry granular materials; (2-b) (iii) and (2-b) (v) appear to have little or no effect.

The internal factors, i.e., the character of the drying system itself, appear to be of far greater importance than the environmental conditions in determining the type of drying curve. The generalisation is reached that the drying of any capillary system can be expressed by linear and discontinuous rate curves provided that the movement of moisture or of vapour through the drying mass is regular and uniform. When movement of moisture or vapour through the system is extremely slow and irregular, owing to low porosity, as is the case with wet clay soils, doughs, etc., rate curves of various shapes may result and replication becomes impossible. There is evidence to show that the curvature exhibited by some of the earlier curves of the writer, and of Keen, and the latter curves of Keen, Crowther, and Coutts was due to such irregular moisture movements.

It is further shown that when different dry weights are employed in replicate experiments certain linear portions of the individual rate curves on extrapolation converge to a common point on the horizontal (w) axis. The intercepts thus cut off may possibly be of more than passing interest; e.g. further investigation should show where such intercepts can be employed as coefficients of granularity, whether they are affected by the colloidal contents of the system, or whether they can be used as, more or less, empirical constants in characterising a soil.

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HEREDITARY OBESITY.

[Obesity in humans is a matter of extreme discomfort and hence of commiseration. The following note of observation on mice appearing in *Nature* will be of interest—Editor.]

It is well known that in mice, yellow is epistatic to other coat colours and that homozygous yellow mice do not occur owing to the lethal effect of the yellow gene in the homozygous condition. Dr. Danforth has recently shown (Jour. of Heredity, Vol. 18 No. 4) that healthy yellow mice always become abnormally fat on an ordinary diet, this tendency being even more marked in the females than in the males. Thus yellow females are often twice, and sometimes thrice, as heavy as others. The fat is partly subcutaneous and partly attached to the viscera. The evidence indicates that the obesity is produced by the same gene which produces the yellow coat pigmentation and not by a separate factor, since no cross-overs appear. On a restricted diet