

The concluding portion of the address is a powerful plea for the adequate endowment of research of all kinds. As Prof. Appell showed, it is in research laboratories that advances in industrial processes are really made, and it is a wise economy to encourage the foundation of such institutions. The discourse should have an immediate beneficial effect on the further supply of higher scientific education in France, and it is probable that the lessons drawn by Prof. Appell from Charlottenburg and from similar American technical institutes will serve to demonstrate to French statesmen the importance of the subject with which the address deals with such ability.

### SOFT CHEESE-MAKING IN THE HOME COUNTIES.

IN the rapid increase of grass land during the last thirty years, farming in the Home Counties has seen a remarkable change. The exhaustion of land by the too frequent growth of cereals during the period of high prices, and the fall in the price of corn since, made corn, as the main product of farming, unprofitable to cultivate in part of this district. The land has been laid, or in too many cases has been allowed to lay itself, down to grass, and, instead of corn, milk has now become the principal agricultural product. This change is most noticeable within a circle having London for its centre and a radius of thirty or forty miles, for milk is both bulky and perishable, and railway charges and time in transit both desiderate its production near the great centre of consumption.

It must not be supposed that the greater part of this area is particularly well suited for grazing purposes. On the contrary, unlike the west country, or the polders of Holland, where second year's grass has all the appearance of an old pasture, it takes twenty years to produce a good pasture on the London-clay or Boulder-clay soils. It was one of the most mischievous effects of the high price of corn in the middle of the last century that the good old pastures, which formed perhaps one-third of most of the farms, were broken up. Besides, even when a good pasture has been produced, the climate is not humid enough in summer to produce an abundant growth; it is rare to get more than one cut of meadow-hay in a season, and the aftermath generally provides indifferent grazing. Per acre, the returns in milk are therefore not great. No doubt the output might be greatly increased by introducing the Danish system of dairy-farming, *i.e.* growing a succession of green tillage crops for feeding the cows instead of pasturing them, but the scarcity of cheap labour, which is the most serious drawback to intensive farming in the neighbourhood of London, prohibits the practice of this system.

The time of year when the milk production is greatest is the month of May. From observations made in Essex last year it was found that the yield of milk in May was about 20 per cent. greater than in the winter, while during the summer it fell off to an equal extent as the quality of the grazing deteriorated. The consumption of milk in London, on the other hand, fluctuates but little, and farmers must therefore limit their sale to their minimum output, and are unable to take advantage of the flush of milk in the spring to increase their returns.

It is clear that dairy-farmers require some outlet for this surplus milk. To give it to the calves and pigs is to utilise it for a purpose for which foods purchased at half the price per food unit would serve equally well. Taking everything into consideration, the use to which it could most profitably be put is in the making of soft cheese, for which there is a ready demand whenever placed on the London market. Soft cheese-making requires none of the expensive appliances and little of the storage that are necessary for hard cheese-making, and there is nothing to hinder its being carried out on any farm. But it needs knowledge and skill, and this is a subject of agricultural instruction, therefore, which the education committees in the Home Counties could most usefully provide.

Very opportunely, a little handbook on soft cheese-making has recently appeared,<sup>1</sup> for the preparation of which the

<sup>1</sup> "The Practice of Soft Cheese-making." By C. W. Walker-Tisdale, F.I.C., and T. R. Robinson, F.S.I. Pp. 51. (London: Office of the Dairy World and British Dairy Farmer, 1903.) Price 1s.

authors, in virtue of their experience at Reading and Wye, are particularly qualified. First and foremost they lay stress on the need for cleanliness in the handling of milk, for, as they point out, taints are far more noticeable, because further developed, in soft cheese than in the milk from which it is made. But even in the production of milk for sale, reform in the matter of cleanliness is badly needed. Nowhere probably in the whole of Europe are cows kept in a filthier condition than in parts of England and Wales, and it is not unknown to find in milk a sediment of hair, dust and dung, which points to dirty cattle. In Holland and Hungary the cows are regularly groomed, and this is not only done to prevent contamination of the milk, but also because the cows, being made more comfortable, do better and give more milk. Besides dirtiness of the cows, contamination of milk is due to a variety of causes—dust blowing in an ill-kept, windy byre, neglect of the milkers to wash their hands before milking or to put on a clean over-jacket, the use of impure water for washing pails and churns, &c., and it must be remembered that not only is such contamination an injury to the public, but it is sometimes the cause of loss to the farmers themselves when milk is returned to them as unsaleable. Short courses of instruction in the handling of milk for farmers and farm hands are badly needed. It may be doubted whether, without systematic science training, all the sources of bacterial contamination of milk can ever be guarded against, and it is to be urged that the county education committees should also provide for instruction in dairy bacteriology for those who, though a limited few, will, when distributed through the farming community, gradually spread the knowledge of the possible sources of bacterial contamination.

Once the principles of cleanliness have been mastered, the making of soft cheese is merely a matter of practice and attention to the details which are admirably set out in this little handbook. Of the sorts of cheese for making which directions are given, Bondon, Coulommier and Cambridge may be specially recommended, because they are milk cheeses and will consume the whole of the surplus milk on a farm, and because they need no ripening, and therefore require no storage accommodation. For the first-named especially there is known to be a good demand in London. They can all be made at any farm where a room capable of being kept at a uniform temperature is available, by the purchase of 5*l.* worth of appliances.

This is only one of the directions in which education committees in the Home Counties can directly aid the new style of farming, and in the neglect of which they will lose a splendid opportunity for usefulness. Greater productiveness of the land by more rational manuring, more economical feeding of dairy cattle, and improvement in the milk-producing qualities of dairy herds, are also needed to make the industry fairly profitable. In the writer's experience the majority of farmers feel their difficulties far too acutely to reject any means of improvement which are provided in a form of which they can make practical use.

T. S. D.

### INHERITANCE OF PSYCHICAL AND PHYSICAL CHARACTERS IN MAN.<sup>1</sup>

IN his Huxley lecture, Prof. Karl Pearson gives the result of a prolonged investigation into the inheritance of the mental and moral characters in man (see *NATURE*, vol. lxxviii. p. 607, October 22, 1903). His main conclusion is a remarkable one; it is that "the physical and psychical characters in man are inherited within broad lines in the same manner, and with the same intensity. . . . We inherit our parents' tempers, our parents' conscientiousness, shyness and ability, even as we inherit their stature, forearm and span."

Great as are the obstacles in the way of a precise determination of the power of heredity in the physical sphere, those in the psychical are far greater. This arises partly from the difficulty of obtaining trustworthy evidence in the

<sup>1</sup> "On the Inheritance of the Mental and Moral Characters in Man, and its Comparison with the Inheritance of the Physical Characters." The Huxley Lecture for 1903. By Prof. Karl Pearson, F.R.S. Pp. 179-237. (Published by the Anthropological Institute of Great Britain and Ireland, 3 Hanover Square, London, W.)