with, the suggested alternative, 'epigenetics', has disadvantages of another kind. It still reverberates with the overtones of a *cause célèbre*, a controversy in which, as it now appears, neither 'epigenesis' nor 'preformation' gained a decisive victory. For whereas identifiable organized units, whether organs or tissues, appear successively from an apparently undifferentiated mass, there is now no question but that the material determinants of these new structures are preformed in the chromosomes recognizable before the beginning of embryonic life. That this caution is not a matter of mere historical pedantry is evidenced by the fact that another worker of long experience in this field, M. Jean Rostand, has recently[2] referred to the "extravagances du préformationnisme" and the "naïvetés de l'épigenèse".

In another place[3] I made the suggestion that the whole field comprising the problems of the 'genesis' of organisms could appropriately be styled as 'biogenetics', with subdivisions, 'ontogenetics' (the development of individual organisms), 'phylogenetics' (theories of descent) and 'stoichiogenetics' (quantitative 'genetics' *sensu strictu*), thus bringing out the unitary character of the field. It seems highly regrettable that no one was looking when those responsible for launching the new discipline concerned with the sub-field of the relation between adult 'characters' and transmitted determinants arrogated to it the higher-level name of 'genetics'. Whence my suggestion that, despite the high authority of the sponsors of the term 'epigenetics', the latter should not be too hastily accepted.

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[1] Huxley, *Nature*, **177**, 807 (1956).
[2] Rostand, *J. World Hist.*, **2**, 134 (1954).
[3] Wightman, *J. World Hist.*, **2**, 734 (1955).

THE fact that the word 'epigenetics' is reminiscent of 'epigenesis' is to my mind one of the points in its favour. As Dr. Wightman points out, in the old controversy, now stilled, between the theories of epigenesis and preformationism, neither side emerged completely victorious. We all realize that, by the time development begins, the zygote contains certain 'preformed' characters, but that these must interact with one another, in processes of 'epigenesis', before the adult condition is attained. The study of the 'preformed' characters nowadays belongs to the discipline known as genetics ; the name 'epigenetics' is suggested for the study of those processes which constitute the epigenesis which is also involved in development. Admittedly the word 'genetics', which was coined by Bateson to cover "the physiology of descent", might have been used so as to embrace both aspects of development ; but in practice it has not been widely employed in that sense.

Incidentally, it was not entirely from diffidence, as Huxley suggested, that I named my book the "Principles of Embryology" ; I did so mainly because it devotes some space to the descriptive anatomical data relating to development, and is not confined wholly to that analysis of causal mechanisms for which the name 'epigenetics' is appropriate.

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Effect of Some White Pigments on the Actinic Degradation of Cotton

THE action of solar radiation in reducing the strength of cotton is well known. In our experience, 12-oz. grey cotton duck exposed to weather in a non-industrial atmosphere near Melbourne, Victoria, loses about 25 per cent of its strength in twelve months, due solely to the action of light. Although fungal growth is commonly observed on exposed cotton fabrics, the species isolated have always been non-cellulolytic ; fibres from exposed fabrics when examined microscopically by the modified congo red test[1] show actinic damage but no fungal damage.

The rotproofing treatments customarily applied in Australia to cotton duck intended for use in tentage are based on copper compounds all of which accelerate actinic action[2]. Fabrics treated with copper soaps and cuprammonium solutions may lose 70–80 per cent of their strength during twelve months exposure ; copper naphthenate and copper 8-quinolinolate are less severe in their effects, but fabrics treated with them lose 40–50 per cent of their strength in that time. To reduce the effects of the copper compounds, Australian rotproofed tentage fabrics are given a protective pigment coating. Iron and chromium pigments have generally been used ; but there is some demand for a white as well as a coloured finish. Zinc oxide has been tried ; but it is difficult to incorporate in the coating emulsions used and it gives a grey colour rather than white. Other white pigments are easily incorporated in synthetic resin emulsions, and limited trials were arranged to determine the effect of the pigments that could be used in this way, the pigments being used singly or in mixtures.

The pigments were incorporated in synthetic resin emulsions and the various emulsions applied to 12-oz. grey cotton duck. The treated fabrics were exposed for twelve months (June 1954–May 1955) at Reservoir, near Melbourne, in a non-industrial atmosphere.

Table 1

Pigment used in emulsion	Chemical analysis of unexposed fabrics				Loss of strength after 12 months exposure (per cent)
	$BaSO_4$ (per cent)	ZnS (per cent)	TiO_2 (per cent)	Other (per cent)	
Series I					
Lithopone (30 per cent)	2·4	1·1	—	—	29
Lithopone (60 per cent)	1·2	1·1	—	—	38
Anatase	—	—	2·8	—	93
Rutile *A*	—	—	3·6	—	2
Antimony oxide	—	—	—	Sb_2O_3 : 3·8	24
White lead	—	—	—	Pb : 2·8	26
Zinc sulphide	—	3·5	—	—	38
Series II					
Lithopone (60 per cent)	1·3	1·2	—	—	29
Lithopone and anatase	1·0	0·8	0·2	—	68
Lithopone and anatase	0·6	0·6	0·8	—	81
Anatase	—	—	3·3	—	87
Lithopone and rutile *A*	1·4	1·2	0·2	—	31
Lithopone and rutile *A*	0·8	0·6	0·8	—	15
Rutile *A*	—	—	3·2	—	5
Lithopone and rutile *B*	1·2	1·1	0·2	—	20
Lithopone and rutile *B*	0·7	0·7	0·8	—	14
Rutile *B*	—	—	3·4	—	4
Untreated	—	—	—	—	. 27