In the case of pectin-sugar gels, the method of preparation is generally such that the temperature of the mix is dropping while setting takes place, so that the dependence of setting rate on temperature is complicated. It is well-known, however, that jellies can be prepared by mixing a pectin-sugar solution not sufficiently acid for gel formation, with an acid solution; the mixture can then be maintained at a constant temperature during the setting period. Sucharipa[2] states that with mixtures of this type, setting is more rapid as the temperature is lowered: on the other hand, in a recipe booklet[3] for the use of these mixtures, it is stated that setting may be slower in cold weather.

It has been found in a series of experiments on jellies prepared from apple pectin, and containing 50 per cent sugar, that, over at least a limited temperature range, setting is much more rapid at the higher temperatures. The same effect was found, though to a less marked extent, with jellies containing 60 per cent sugar.

Two samples of apple pectin were used: *Pectin A*. Alcohol precipitated from commercial apple pectin. 80 per cent of total carboxyl groups esterified. Equivalent wt. = 1,110. *Pectin B*. Prepared by treating commercial apple pectin with sodium hydroxide in the cold, then acidifying and precipitating with alcohol. 67 per cent of total carboxyl groups esterified. Equivalent wt. = 630.

Jellies were acidified with citric acid or citric acid-potassium citrate mixtures: in all cases citrate was 0·8 per cent (as citric acid) in final mixture. *p*H measurements made on 50 per cent solution of jelly.

The following are some typical results:

No.	Pectin (% as calcium pectate)	Per cent solids (refractometer)	*p*H	Time for first signs of setting			
				6° C.	13° C.	30° C.	50° C.
1	A, 0·35	52	2·80	15 days	Between 9 and 24 hours	100 min.	60 min.
2	,,	52	3·05	Not set 22 days	Not set 22 days	33 hr.	48 hr.
3	,,	62	3·38	3 days	55 min.	30 min.	20 min.
4	,,	62	3·70	Not set 12 days	5 days	3 days	4 days
5	B, 0·36	52	2·44	6 hr.	50 min.	70 min.	4 days
6	,,	52	2·80	Not set 10 days	Between 6 and 20 hr. (at 20°C.)	Between 6 and 20 hr.	Not set 10 days
7	,,	62	3·20	Several hours	7 min.	2 min.	7 min.

In all cases, mixtures which had failed to set at one temperature, set when the temperature was altered to that found to give most rapid setting. In all cases except series (6), the sugar-pectin solution was kept for several hours before mixing at the final temperature: the series (6) jellies were prepared by boiling, and then transferring portions of the mixture to tubes for storage at the temperatures given.

Of particular interest is the marked difference in the effect of temperature on mixtures made with the two pectin samples. This is in agreement with the more recent work on the effect of methoxyl content of pectin on jelly setting[4] and particularly with American work[5] on the relation between combining weight of the pectin and setting time (in a mixture which is cooling).

It is hoped to continue these experiments over a wider range of conditions: at present, it appears that the time for setting to commence is a minimum at a tmeperature dependent on the composition of the mixture, involving at least the composition of the pectin, the total solids present, and the *p*H.

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H. P. Bulmer and Co., Ltd.,
Hereford.
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[1] Lawrence, *Ann. Rep. Chem. Soc.*, **37**, 118 (1940).
[2] Sucharipa, "Die Pektinstoffe", p. 304 (1937).
[3] Issued by "Pomosin".
[4] Hinton, "Fruit Pectin", 61–68 (H.M.S.O.).
[5] Olsen, Stuewer, Fehlberg and Beach, *Ind. Eng. Chem.*, **31**, 1015 (1939).

Nomenclature of Fowl Genetics

THE nomenclature of fowl genetics has become somewhat confused in recent years. So many characters have been investigated that the difficulty of designating symbols for the corresponding genes has increased considerably. There have been much overlapping and repetition, and the same symbol now frequently represents two, or even three genes. To experimental poultry breeders, and to students attempting to keep in touch with the latest developments, this position gives rise to much confusion.

The accompanying table gives a few symbols chosen at random, which have been used to represent more than one gene, and will serve to illustrate the difficulties:

Gene	Character	Quoted by[1]
F	Feathering	Munroe (1938)
F	Frizzled plumage	Jull (1940)
H	Hatchability	Hays (1924)
H	Henny feathering	Punnett (1937)
A	Broodiness (1)	Goodale *et al.* (1920)
A	Egg size (1)	Hays (1929)
A	Pigment	Numerous
C	Chromogen	Quin (1936)
C	Broodiness (2)	Goodale *et al.* (1920)
C	Egg Size (2)	Hays (1929)
P	Mesodermal Pigment	Bateson and Punnett (1911)
P	Pea comb	Numerous
P	Production persistency	Hays (1927).

I am drawing up a complete summary of known nomenclature; but it is evident from the accompanying list that the system is in need of standardization. The use of symbols such as P^1, P^2, P^3, etc., is to be recommended, as it avoids the confusion which arises from the practice of some authors of using small letters appended to the symbol. Thus, the gene for light iris is given as *Br*, which is ambiguous, for it could equally well be interpreted as a combination of a dominant gene *B*, and a recessive *r*. This introduces unnecessary difficulties, especially if a long genotype is being dealt with; for example, *AABbFFBBCcLlRRPPccGGHHMmNNEeEEBrbrPp SSWwDD* would allow of numerous interpretations, instead of being at once a self-evident description of the bird's genotype.

The present system leaves much to be desired, and any hope of reaching an understanding of fowl genetics will only be possible when some definite standard of nomenclature is introduced.

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[1] For references see Jull, M. A., "Poultry Breeding" (1940).