

The result of the progeny that consisted of plants—all as tall as, or taller, than the tall parents—were no dwarf plants, nor any intermediates between the dwarf types.

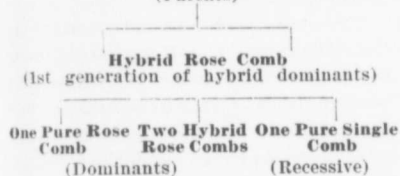
seeds of this hybrid. These resulted in a of plants which con- ll plants and dwarf re no intermediates. ions of this experi- produced a similar t the tall plants out- plants in the ratio

pure breed" of poul-  
combs with a pure  
combs, we find that  
n of the cross con-  
bearing rose combs.  
of hybrid rose-  
together, will give  
tion of birds of two  
he comb characters,  
l singles in the same  
three to one.

these results some-  
When we cross two  
as regards a certain  
—in the case of the  
lwarfness, or in the  
se-ness of comb and  
ne of the pair of  
in the hybrid off-  
alled the dominant  
be other which tem-  
is called the **reces-**  
the second stage of  
ien the hybrids are  
forms appear in the  
1, the **dominants** be-  
e numerous as the  
testing of the indi-  
id generation shows  
(the dwarf peas and  
n our experiments)  
e as regards those  
o that, of the dom-

inants, although these are indistinguishable in appearance, one-third are pure and will breed true, whilst the remaining two-thirds are hybrids, and will not breed true, but will behave in precisely the same way as their hybrid parents. The Mendelian scheme of inheritance may be comprehended at a glance from the following:

Pure Rose Comb.....Pure Single Comb  
(Parents)



From results such as these, Mendel provided an interpretation in which he conceived of the germ cells as being each the bearers of factors capable of giving rise to particular characters in the adults. One germ cell, however, could contain only one of an alternative pair of factors. Thus, in the case of the pea, the cell could contain one of the two factors for tallness and dwarfness, but not both. The union of two cells, each containing the factor for tallness, resulted in an individual developing the tall character. The union of two cells each containing the factor for dwarfness resulted in the dwarf individual. But the union of two cells, the one bearing the dominant factor and the other the recessive, resulted in an individual exhibiting the dominant character. In the case of individuals, which are said to "breed true," the sex-cells produced by those individuals are all of the same kind as regards the characters for which they "breed true." But if two forms are crossed, which differ in a certain character, every hybrid resulting from such a union produces sex-cells of two sorts, and in equal numbers—the one containing the dominant factor, and the other the recessive factor. This, the essential law of Mendel, is called the law of

**segregation.** Our hybrid individual, whether male or female, thus produces two kinds of sex-cells—and our hybrid rose-comb fowl produces sex-cells of two kinds in equal numbers—one kind containing the factor for roseness and the other the factor for singleness. We can easily see, then, from the following scheme, that the sex-cells unite and form individuals showing the dominant and recessive characters in the proportions already mentioned:

$$D \times D = DD \text{ (Pure dominant)}$$
$$D \times R = DR \quad (\text{Hybrid dominant})$$
$$R \times D = DR \quad (\text{Hybrid dominant})$$
$$R \times R = RR \text{ (Pure recessive)}$$

(D represents the dominant factor and  
R the recessive)

Thus it is seen that the unions of four germ-cells of two sorts in equal numbers with another four germ-cells of the two sorts result in four individuals which give us the Mendelian ratio of three dominants to one recessive.

(To be Continued)

DEATHS OF DAVID CHALMERS  
AND S. T. PETTIT

Just as we go to press news comes to hand of the death of two of Canada's best-known bee-keepers—David Chalmers and S. T. Pettit. David Chalmers, whose periodical "Observations" have enriched the columns of the C.B.J. on many occasions, was still in the active pursuit of his calling at the time of his death. It was but a short time since that we sat conversing with him at the conference of Foul Brood inspectors at Guelph, discussing the foul brood situation in Ontario, and little did we then imagine that he was to be taken from us so soon.

Both Mr. Chalmers and Mr. S. T. Pettit have done much for apiculture, and in their deaths this country loses two very fine bee-keepers. Next month we hope to publish extended sketches of their lives.