

bearing on the question of the comparative fertility of hybrids (see *Journ. Roy. Hort. Soc.*, vol. xxi., April 1898).

The voluminous records in Mr. Young's stud-book cover a period of about five years, and were specially selected by the writer on account of the reputation of the breeder as a careful observer and a precise recorder. Out of the 577 crosses made by Mr. Young among thirty distinct species and fifty-three distinct hybrids of the new genus *Paphiopedium*, no less than 78·3 per cent. proved fertile, *i.e.* produced good seeds.

Of these, the crosses between distinct species only, 95·2 per cent. were fertile, while of the crosses in which a hybrid was concerned in the parentage 71·8 per cent. proved fertile.

This seems to show that crosses between distinct species are almost if not quite as fertile as crosses between varieties of the same species (taking the latter at complete fertility, *i.e.* 100 per cent.); while crosses with hybrids, though fertile to a high degree, are yet rather less fertile than crosses between species. A further analysis of the figures shows that while hybrids crossed with pollen of pure species give 89·5 per cent. fertile, yet pure species crossed with pollen of hybrids give but 56·7 per cent. fertile. This points to the conclusion that the slight decline in the fertility of hybrids is due in a large measure to the loss of power in the pollen of hybrids.

Why the male element in hybrids should be so much less potent than the female element I cannot pretend to say, but I venture to think that the matter is worthy of consideration as a possible factor in the evolution of species.

#### *Evolution of Species by Natural Hybridisation.*

The experimental demonstration of natural hybrids shows clearly that intercrossing between different species is carried on in a state of nature, to a far greater extent than was formerly supposed; and the comparative fertility of these natural hybrids would be of vital importance to them in their struggle for life.

If, as seems highly probable from the above experiments with orchids, it is the pollen only of hybrids that is impaired, and the capacity of the hybrid to bear seed crossed with the pollen of pure species remains practically unimpaired, it is quite clear that the natural hybrid has a part to play in the evolution of new species.

As we have already seen, hybridisation tends to increase variation especially beyond the first generation, and, naturally, the more variable the offspring the better fitted would they be to adapt themselves to changed conditions of life.

If the circumstances changed rapidly and considerably, the variable offspring of the hybrids would stand a better chance in the struggle for life than the more uniform offspring of the parent species, which were themselves specially adapted to the old conditions. In this way, as conditions changed, new species would be evolved more fitted to the new conditions of life than the old species, which they would gradually replace, and I venture to suggest that natural hybridisation is the most rapid of nature's means towards that end.

C. C. HURST.

#### *THE MEETINGS OF THE BRITISH AND FRENCH ASSOCIATIONS IN 1899.*

THE meeting of the British Association next year, as we have already announced, will be held at Dover contemporaneously with the meeting of the Association Française at Boulogne, in order that the two bodies may interchange visits. It has been arranged that the visitors from France shall cross over to Dover on Saturday, September 16, and that the return visit of the

members of our Association shall take place on the following Thursday. The arrangements on both sides of the Channel, for the reception of the visitors, are not yet completed; but we understand that while the members of the British Association are at Boulogne, the interesting ceremony of inaugurating a statue of our poet Campbell will take place; and that, at Dover, Dr. Charles Richet, the distinguished professor of physiology in the University of Paris (Faculté de Médecine) has consented to deliver one of the evening discourses. Dr. Richet's interesting reply to the official request, which was sent to him through Dr. Michael Foster, the President-elect, is as follows:—

Cher maître et collègue,—Je suis trop honoré par la demande que vous me faites pour ne pas accepter immédiatement et sans réserves. Je ne sais pas encore le sujet que je prendrai; nous avons le temps d'en parler.

Si j'accepte ainsi avec joie, c'est que je considère comme vous les dissentiments qui ont séparé et qui séparent nos deux pays, faits pour s'entendre et pour s'aimer, comme absurdes et même criminels. Alors, dans la faible mesure de mes forces, je ferai tout ce qui est en mon pouvoir pour dissiper ces malentendus, et tâcher d'apaiser ces haines.

Paris, Décembre 9.

CHARLES RICHEL.

We trust that these visits will in no small degree contribute to bring about the result which Dr. Richet so earnestly expresses.

#### NOTES.

THE Prince of Wales presided at a meeting held at Marlborough House on Tuesday in furtherance of the objects of the recently-formed National Association for the Prevention of Consumption. Sir William Broadbent explained the nature and means of prevention of tuberculous disease, and stated that the objects of the Association were (1) to educate the public as to the means of preventing the spread of consumption from those already suffering from the disease; (2) to extinguish tuberculous in cattle; (3) to promote the erection of sanatoria for the open-air treatment of tuberculous disease. Lord Salisbury moved the following resolution approving of these objects:—“This meeting desires to express its approval of the effort which is being made by ‘The National Association for the Prevention of Consumption and other Forms of Tuberculosis’ to check the spread of the diseases due to tubercle, and to promote the recovery of those suffering from consumption and tuberculous disease generally. It also commends the method adopted by the Association of instructing public opinion and stimulating public interest rather than the advocacy of measures of compulsion.” The resolution was seconded by Sir Samuel Wilks, the President of the Royal College of Physicians, and carried unanimously. Sir William Broadbent announced that the London partners of Messrs. Werner and Beit have undertaken to erect and equip a sanatorium for tuberculous patients at an estimated expense of 20,000*l.*, the construction and management of which will be under the guidance of the Association. The organising committee have every reason to congratulate themselves on the interest which has been excited in all parts of the country. Branches are being formed in York, Norwich, Ipswich, Huddersfield, and other towns, and at York a considerable sum of money has already been raised for the erection of a sanatorium.

THE Paris correspondent of the *Times* announces that at the annual sitting of the Academy of Sciences on Monday the Lalande prize was awarded to Dr. S. C. Chandler, the Damoiseau prize to Mr. George Williams Hill, and the Houleuvique prize to Mr. Branly.

THE death is announced of Prof. H. W. Vogel, the distinguished professor of photography, photo-chemistry, and