

Rose Breeding

By E. A. White

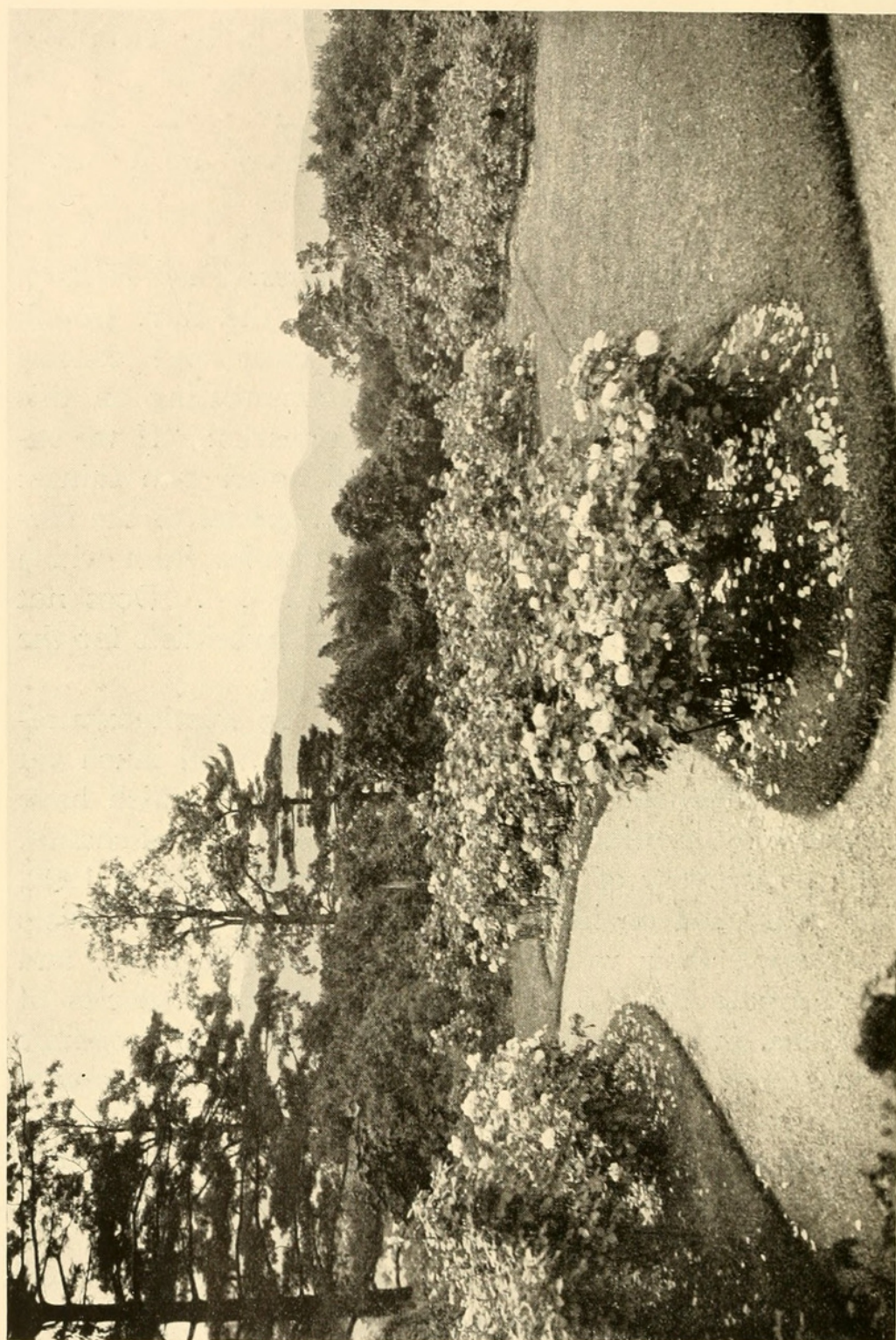


IN HIS excellent book on *Roses: Their History, Development, and Cultivation*, the Rev. Joseph H. Pemberton gives a clear and concise analysis of species. In commenting on this table, Mr. Pemberton remarks: "If we examine the table we shall notice two things: (1) the distance removed from the original species of the Hybrid Teas, and (2) that there are many species from which little, if any, advance has been made . . . Does not this fact indicate the wide field still open to hybridists for the production of new roses?"

Until with comparatively recent years, little was known regarding the laws governing heredity in plants, and much yet remains to be learned. In the past, the results which have been attained by hybridists have been largely those of chance. With the re-discovery of the so-called Mendel's laws in 1900, new light was shed on heredity. Since that time hybridists have conducted their work on a more scientific basis, and wonderful results have been attained with some species of plants. Corn, wheat, tomatoes, and other so-called economic crops have been largely experimented with, and the results to the economic world have been beneficial in the extreme.

Less systematic breeding has, however, been done with ornamental plants, with which, therefore, there seems a vast field for investigation and experimentation.

There never was a greater need for breeding work with roses than at the present time. People are demanding novelties in all lines of florists' flowers, but especially is there a demand for unusual varieties of roses. This is especially true regarding those varieties grown under glass, or the "forcing" varieties.



ROSES IN GARDEN OF
MRS. WINTHROP SARGENT
BEACON, N. Y.

In this field, the Bride and Bridesmaid held for many years a dominant place; but with the coming of Killarney in its many colors, the older varieties were no longer grown. There is probably no more popular rose today than Ophelia; yet other varieties are close competitors, and newer types are placed on the market each year. The present popularity of the small cluster roses, like Cecile Brunner, George Elgar and Baby Tausendschön, shows a changed public opinion and the Teas and Hybrid Teas no longer hold non-competitive places in commercial growing.

Many men have realized the need of systematic breeding in the rose family, but few had the perseverance and determination necessary to get results. A few men, however, have given us some desirable varieties of roses, and to these men present-day rosarians owe much. There is a demand for species of roses adapted to American conditions, and these must necessarily be American bred. The soil and climatic conditions in European countries are quite different from those in America, wherefore many of the species originated in Europe are unsuited for use in this country. We need strains of American roses which correspond to the type of the American carnation.

More breeding work has been done in America on varieties of hardy roses than on the types grown under glass. *Rosa Wichuraiana* and *Rosa rugosa* have, within recent years, furnished a starting point for breeding experiments which have been a pronounced success. There is still a demand for improved varieties in these groups, but there is even a greater demand for improvement in those varieties which are "forced" under glass.

Breeders of roses certainly have many difficulties to solve. The family is a large one, and contains many species. Among these species there already exists a large number of hybrids, and the blood is so mixed that it is difficult to begin with pure blood of any particular species.

The science of genetics is based on heredity, and while environment and training influence the development of an individual, heritage or "blood" is largely responsible for the traits

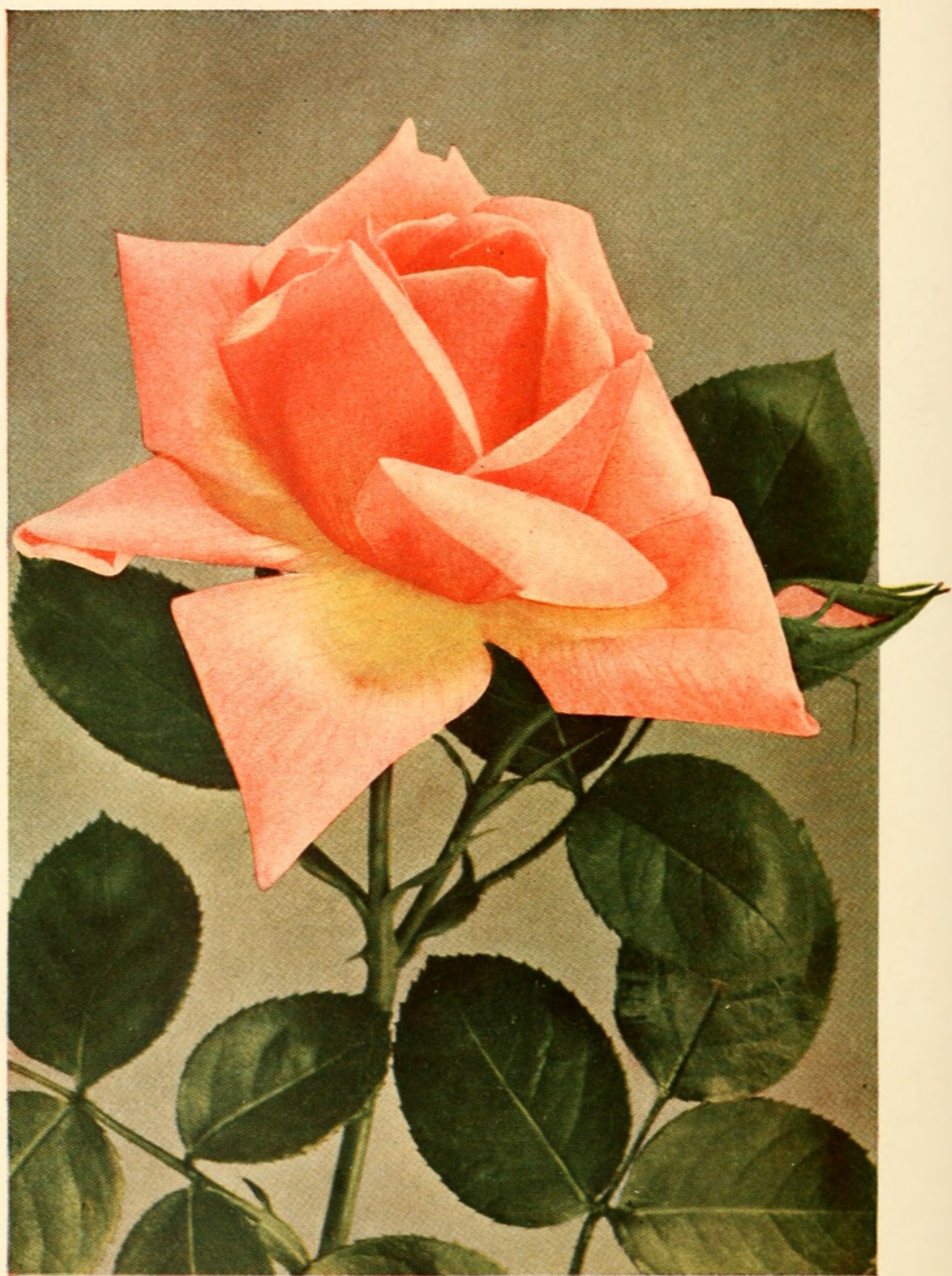
of character most prominent. Early studies of plant-breeding were based largely on a study of individual plants. It has been within recent years that interest has arisen in unit characters in individual plants and animals; but with the realization that these characters do occur in all individuals to a greater or less degree, and that they are transmitted to offspring in a rather definite ratio, there has arisen a clearer conception of methods for reproducing desirable characters in the offspring.

It has been stated that in breeding roses there is much complexity. There are many unit-characters which must be transmitted to the offspring, and therefore simplicity of action is impossible. Among these unit-characters are color, fragrance, size of flower, substance of petals, strength of stem, resistance to disease, character of foliage, and hardness. To combine all these desirable qualities in one individual requires most careful selection of parents and painstaking breeding, which must necessarily extend over a considerable period of years. The color factor alone is exceedingly complex, as is shown in a most carefully prepared paper on "*Heredity of Color in Phlox Drummondii*", by Dr. A. W. Gilbert, Department of Plant Breeding, at Cornell University, and published in the *Journal of Agricultural Research*, July 15, 1915. The general principles which govern heredity of color in phlox govern color in roses, although their application is much more complex in the latter case.

The rose is, therefore, not an easy plant to breed and get marked improved results. The period of "watching and waiting" is a long one. In other words, it is not a plant of "frequent generations" as are many other species of ornamental plants. After the parents have been crossed, it takes a long time for the seedpods to mature, and after the seeds have ripened they are difficult to germinate. It requires the most careful treatment to get even a fair percentage of germination. The blooming period of the offspring does not follow quickly, and the hybridist has to wait a long period for results. Even when the work has been carried out along modern scientific lines and careful attention has been paid to all principles of genetics, the results are often discouraging.

However, our American men of science are awakening to the possibilities which lie in the rose family, and the future of this plant is promising. Plant-breeders have found corn and wheat wonderfully plastic under scientific development, and the belief is strong that the rose may, in the near future, be developed into types far superior to those of today.





(Courtesy American Rose Annual)

FRED H. HOWARD'S NEW AMERICAN
ROSE LOS ANGELES



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