BEGINNER'S SERIES

Orchid Culture — 11 — Nomenclature, and Seedlings "Versus" Mericlones

STEPHEN R. BATCHELOR

BEGINNING and inveterate orchid growers alike are constantly being offered either seedlings or mericlones as possible additions to their collections. Both are available either in flasks, community pots, or individually in two- to three-inch, and larger, pots, but they are produced by fundamentally different propagation techniques. This difference has an important effect on the flowering outcome of each, something every potential buyer should be well aware of.

SEEDLINGS

Seedlings are a result of the sexual propagation of orchids. This process begins with the placement of pollinia on the stigmatic surface of a flower's column, an act called pollination. Assuming compatibility, pollen tubes will then grow down from the stigma, via the column, into the ovary. Here the fusing of genetic material from the male (pollen) and female (ovule) components will take place. Called fertilization, this event occurs some two to three months after pollination. Each of the countless seeds resulting will have its own particular set of genes. With germination, growth and flowering, these genes manifest themselves in a seedling's unique vegetative and floral characteristics.

Orchidists recognize as genetically distinct every orchid which results from seed, whether in nature or in the laboratory. When in cultivation, such sexually produced orchids are called cultivars. Exceptional cultivars, or those to be propagated into two or more plants, must be given a cultivar name. This is done to carry on the separate identity of each cultivar, a crucial distinction.

By way of illustration, consider this month's BULLETIN front cover subject, *Rhyncholaeliocattelya* Green Dragoon 'Lenette', AM/AOS Originally, an unspecified number of seedlings were produced when one particular cultivar of *Rhyncholaeliocattleya* Harriet Moseley *(Rlc.* Deesse X *Cattleya bicolor)* was bred with one particular cultivar of the species *Cattleya bicolor.* With the flowering of the first of these seedlings, the cross was registered with the hybrid registration authority, The Royal Horticultural Society of London, England, under the name

Rhyncholaeliocattleya Green Dragoon. This name was first published in *The Orchid Review of June* 1978, with the parentage *(Rlc.* Harriet Moseley X *C. bicolor),* and the registrant as Carter and Holmes Orchids. This was later reprinted under "New Orchid Hybrids" in the August 1978 BULLETIN, and will appear in the 1976-1980 *Addendum* to the *Sander's List of Orchid Hybrids,* now available.

Following proper registration, all the seedlings resulting from the original cross of *(Rlc.* Harriet Moseley X *C. bicolor)* could then be tagged *Rhyncholaeliocattleya* Green Dragoon. Of this population of *Rlc.* Green Dragoon seedlings, certain cultivars distinguished themselves, most notably the cultivar which was exhibited by Lenette Greenhouses at the A.O.S. Regional Monthly Judging in Atlanta, Georgia on January 14, 1978, the description of which appears in the AWARDS QUARTERLY, Volume 10, Number 4. In order to officially receive its Award of Merit, this cultivar had to have a cultivar name. The name 'Lenette', AM/AOS distinguishes this particular cultivar from all other seedlings of *Rhyncholaeliocattleya* Green Dragoon.

Several important rules of nomenclature can be noted from the preceding discussion. All identified orchids have at least two names. Whether for species or hybrids the first name is the genus and should always be capitalized and italicized in print (or underlined when handwritten) — *e.g., Rhyncholaeliocattleya* (Rhyncholaeliocattleya) Harriet Moseley. For the second name, the printed form differs as to whether a species or a hybrid is involved. In the case of species, the second name should likewise be italicized or underlined, but should not be capitalized — *e.g., Cattleya bicolor.* With hybrids, the second name is the registered hybrid name discussed earlier, and is never italicized, but always capitalized — *e.g., Rhyncholaeliocattleya* Green Dragoon. If a cultivar name is warranted, it follows the hybrid or species name. It is always in single quotes, capitalized, and in Roman print (not italicized or underlined). If the cultivar has received an award, that award abbreviation should come last of all, separated from the cultivar name with a comma — *e.g., Brassocattleya* Green Dragoon 'Lenette', AM/AOS. Whereas species, hybrid and cultivar names should not be abbreviated, standard abbreviations of the genera are acceptable — *e.g., Rlc.* Green Dragoon 'Lenette', AM/AOS. These can be found, along with further rules of nomenclature, in the *Handbook on Orchid Nomenclature and Registration,* Second Edition, or in the *Sander's List of Orchid Hybrids* published by The Royal Horticultural Society *(see* BIBLIOGRAPHY).

PROPAGATION BY SEED

Because of the complexity of their genetic makeup, propagation of orchids by seed is an exercise in uncertainty. Any time pollinia are put to stigma, some variation in the progeny's flowers usually results. This variation of progeny from any one cross can be seen repeatedly in the BULLETIN, particularly in articles on orchid

hybridizing.

Increasing this variation among orchids produced from seed is the fact that cultivar names are not recorded in hybrid registrations, despite the understanding that each cultivar used in hybridizing is genetically distinct. This means, for example, that any subsequent crosses of *Rlc.* Harriet Moseley and *Cattleya bicolor,* even though they might involve radically different cultivars such as those of C. *bicolor* pictured here, will still be called *Rhyncholaeliocattleya* Green Dragoon. No doubt, even if these two illustrated cultivars of *C. bicolor* were crossed with the same cultivar of *Rlc.* Harriet Moseley used in the original cross, the variation among the seedlings resulting would be far greater than the variation within the original cross.

The overriding point to be made regarding propagation by seed is that there are no guarantees, no certainties until the actual and consistent flowering of each individual seedling resulting from a seed pod. Successful crosses can be made and made again, whether with the original parents or with two other, possibly very different clones. They will be all called by the original, registered hybrid name. Again, because of the complexity of orchid genetics, variation with a seedling population is the rule, not the exception. No one, however knowledgeable, can know precisely the results of any cross until after the fact. This can be quite exciting for those who enjoy the unexpected, while frequently disappointing for those who do not.

If you intend to hybridize orchids, go about it methodically. No orchid hybridizer has ever been consistently successful without superior "genetic material" — plants which have proven their desirable, transmittable characteristics year after year. Superior plants do not in any way guarantee superior progeny; they just increase the probability of at least a few pleasing results. The first step, then, is to amass breeding stock. This is an ongoing process which can take many years and many dollars. The next step is to

develop the facilities needed to "grow out" the seedlings to flowering size — in other words, can you afford the bench space? Flasking services are available if you do not have the facilities or expertise to sow seed on sterile nutrient agar. But if, once the flasks are returned hopefully bristling with seedlings, you do not have the necessary space, as well as the time, for the community pots and individual pots to follow, what is the point? You could sell or give away some of the seedlings, but in so doing, there could go one of the proportionally few improved progeny to result!

Included in the bibliography accompanying this article are several excellent sources of further information on the propagation of orchids from seed. If you would like a step by step visual explanation of the pollinating procedure, see Charles Marden Fitch's article on pollinating *Cattleya-type* flowers. Rebecca Tyson Northen provides a comprehensive, yet detailed accounting of the entire process from seed to flowering seedling in her well-known *Home Orchid Growing,* Third Edition. More of the philosophy behind sensible hybridizing can be found in the article "*Stanfieldara* Sarah's Psyche — Playing in Your Own Gene Pool", by H. Phillips Jesup, also listed in the BIBLIOGRAPHY.

MERICLONES

In stark contrast to the variation and the "element of unknown" to be expected when seedlings are produced or purchased, mericlones offer the buyer the duplication of a known, flowering entity. Mericlones are a product of meristem tissue culture, a process whereby a portion of undifferentiated but explosive tissue is excised from a plant and "teased" by a fairly elaborate chemical and mechanical procedure into producing potentially thousands of plants, all identical to the original, if the process has been done carefully and correctly. Developed in the early sixties, meristemming has made available to all growers, however limited their means, many awarded or superior cultivars of orchids. (For sources of additional information on the meristemming process, *see* BIBLIOGRAPHY).

To carry through with the previous example of this month's front cover subject, if you were to see offered and to purchase a mericlone of *Rlc.* Green Dragoon 'Lenette', AM/AOS in a 2-3" pot, you could expect with some assurance that within three years or so that plant would produce a flower nearly identical to the one pictured on the front cover. The reason for some variation from the original, despite the same genetic makeup, is due to culture. Flower size and quality also varies with the condition of the plant. Naturally, healthy orchids are able to produce better, larger flowers! On the other hand, if you were to purchase a plant listed as *"Rlc.* Green Dragoon *(Bc.* Harriet Moseley X *C. bicolor)* . . . Seedling, 3" pot" you would have to assume that it is an unflowered cultivar resulting from another two unidentified cultivars of the hybrid and species contained within the parentheses. When the seedling eventually flowers, it could possibly look very much like the cultivar pictured on this month's front cover, or it might look quite different. The only assurance you

have is that it will look in some way similar — but not the same. To emphasize the importance of cultivar names, imagine if a large number of mericlones of the cultivar *Rlc.* Green Dragoon 'Lenette', AM/AOS were simply offered as *"Rlc.* Green Dragoon", and purchases were made from around the country. None of the buyers would realize that this, their purchase, was an awarded cultivar (much less a mericlone). They could, without knowing, go ahead and exhibit this same cultivar at an A.O.S. judging, receive an award, and give it yet another cultivar name — with serious ramifications for both the awards system and for all orchid growers. Next consider the actual instance of the commonly available mericlones of *Vuylstekeara* Cambria 'Plush', FCC/AOS. This cultivar was first mericloned and offered without having received an A.O.S. award. Three of these mericlones, purchased by three separate individuals, went on to receive A.O.S. awards: one an H.C.C., one an A.M. and one an F.C.C. Yet because mericlones are genetically identical, every mericlone of *Vuyl.* Cambria 'Plush' now rightfully carries the coveted FCC/AOS. Without the cultivar name 'Plush', how would the original owners of these mericlones of *Vuylstekeara* Cambria have known that their plants had received an F.C.C.? Cultivar names on all propagated orchids are essential!

CONCLUSIONS

Mericlones are propagated asexually from an established, flowering entity, while seedlings result from a sexual process characterized by an unpredictable mixing of traits. Whether the hobbyist chooses the known in the form of an already-awarded cultivar which has been mericloned, or the unknown in the form of an unflowered seedling, is perhaps a personal matter. Even so, a collection devoted exclusively to mericlones could be said to lack individuality and excitement. At the same time, a collection excluding all mericlones might be accused of lacking quality. Why not the best of both worlds — a diverse collection encompassing both mericlones and seedlings of species and hybrids? — *84 Sherman Street, Cambridge, Massachusetts 02140.*

BIBLIOGRAPHY

American Orchid Society, Inc. 1969. *Meristem Tissue Culture,* a selection of articles from the American Orchid Society Bulletin.

Bertsch, Walter. **Use and Misuse of Variety and Cultivar Names in Orchids.** *Amer. Orchid Soc. Bull.* 50(7): 811-823.

Fitch, Charles Marden. 1980. **Pollinating Cattleya Flowers.** *Amer. Orchid Soc. Bull.* 49(12): 1349-1354.

International Orchid Commission. 1976. *Handbook on Orchid Nomenclature and Registration,* Second Edition.

Jesup. H. Phillips. 1980. ***Stanfieldara* Sarah's Psyche — Playing in Your Own Gene Pool.** *Amer. Orchid Soc. Bull.* 49(11): 1217-1224.

Northen, Rebecca Tyson. 1970. ***Home Orchid Growing***. Third

Edition. Van Nostrand Reinhold Company. New York, pages 95-124.

The Royal Horticultural Society, London:

Sander's Complete List of Orchid Hybrids (registrations to 1946)

Sander's One-table List of Orchid Hybrids, (1946 - 1960) Volumes 1 & 2

Sander's List of Orchid Hybrids, Addendum 1961 -1970.

Sander's List of Orchid Hybrids, Addendum 1971 - 1975.

Sander's List of Orchid Hybrids Addendum 1976 - 1980).