

SELECTING ORNAMENTALS FOR FRAGRANCE

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INTRODUCTION

At first sight our sense of smell appears to be overlooked when we choose plants as consumers. Garden centres can be visual delights and garish extravaganzas of green and red, but they may not be consciously designed for fragrance. Presumably, in our choice of plants to propagate and grow we tend to reflect the perceived demands of the marketplace. We place overwhelming emphasis on appearance or other selection criteria before fragrance, which may come as a bonus except in the most emphatically scented plants.

We are drawn as bees are by a pleasant fragrance, “home-in” on the supposed source by eye, and verify that we have made the right contact by sniffing at close quarters. I will briefly review our understanding of the subject and speculate on the implications for:

1. breeding and selection programmes in which fragrance may be an important evaluation criterion;
2. how consumers select plants; we “use” scented plants to sell themselves but perhaps we do not “design” with odour to control its impact; and
3. how fragrance may be used to affect buyer preference or buyer behaviour in general in retail situations.

FRAGRANCE IS NEGLECTED

The sense of smell is “not an intellectual faculty: odours can set free the emotions, diffused into a vaguely pleasurable state” (2). Even though our sense of smell is less well developed than that of animals, it exerts a powerful control, reminding us of events or whole scenes from the past. It is our memory sense that can recall experiences pleasurable and frightful. It can bring to our attention our immediate surroundings alerting us to desirable or otherwise odiferous substances, and it can affect us below the plane of consciousness. It has been noted that “a sweet scent can stir the instinct of courtship without evoking the idea of the natural end object of the instinct” (2).

The sense of smell is not an intellectual faculty, therefore it has not been amenable to discussion. Most of us have no vocabulary to hold conversations about fragrance. Neither does odour suggest simple physical models of how it works unlike our senses of sight and hearing with their optical lenses and vibrating drums. Coupling this with

connotations of animal baseness it is not surprising that odour has been neglected.

CLASSIFICATION OF FRAGRANCES

Many attempts have been made to classify flower and other fragrances but this is very difficult with so many fragrances not fitting neatly into a single group, even within a single genus (1). However, although classifications are arbitrary, uncertain and fragile, we still need to make them and give categories within them titles into which plant fragrances can be fitted.

The perfumer, Rimmel, needed 18 classes of flower fragrance but even then some plant fragrances did not fit. Von Marilaun recognised 10 Groups, some of which were fairly well defined. For example, the Indoloid Group, characterised by a fetid odour reminiscent of fish or decayed meat, contained members in the genera *Arum*, *Aristolochia*, and *Amorphophallus*; plants in the Aminoid Group, which has an ammonia-like, stale odour, include *Pyracantha* and *Crataegus*. However the Heavy (or Sweet) Group (tuberose-type fragrance) has plants showing affinities with the Aromatic Group (Dianthus-type fragrance), and so on (3).

One of the most clearly set out classifications of odours is that of Wells and Billot (3) which recognises 9 groupings, such as, Floral, Woody, and Rustic, each of which is divided into sub-groups that can still be discerned by trained noses. The Floral Series sub-groups have flower names, such as, Rosaceous, Jasmine-like, and Violet-like.

The reasons for the problems of classification that have plagued people for centuries were revealed when chemical technology first separated and identified the principal odiferous substances, e.g., indole, putrescine, and trimethylamine in some of the foul scents; eugenol, linalone, geraniol, citral, and esters in the more pleasant, fruity, and aromatic ones.

We still fall back on terms like sweet, cloying, spicy, fruity, and earthy to label fragrances, having noses and minds that have not conjured up a simple way of saying what would amount to many complicated cocktails of chemical constituents. Wells and Billot (3) give some beautiful descriptions of odours. For example, ‘ordinary, everyday lilac (*Syringa vulgaris*) has an odour characterised by hydroxycitronellal and a rose odour against a rather heliotropin-like background, with a slight suggestion of hawthorn (anisaldehyde)’. We can assay chemical constituents but we cannot measure an odour.

FRAGRANCE QUALITIES

Armed with the odiferous constituents of flower fragrances, perfumery chemists have found it surprisingly difficult to produce

synthetically what a flower produces so effortlessly. Perfumes may commonly be composed mainly of artificially produced substances that are identical to those occurring within the plant but it is necessary to add natural (impure) fragrance to achieve a pleasant perfume, either with or without genuine floral effect. Natural fragrances are complex and their effect may depend on factors beyond the odiferous constituents.

Perfumers talk of fragrances having a certain tone, a genuine character which may be pointed, acute, and sharp, e.g. lemon oil, mild or medium, and geraniol, warm, low, or heavy. They have intensity and volume, the latter ranging from full-bodied to thin and poor. Their lift describes how far the odours carry, the most far-ranging having inodorous carriers with high oil solubility. Francis Bacon noted the difference between close-up and far-ranging fragrances and listed double violet, wallflower, clove pink, and honeysuckle in the latter category.

Aroids, like the stink cabbage and voodoo lily, broadcast their stench by the trick of elevating the temperature of their flowers by as much as 22°C to increase evaporation of the malodorous compounds.

FRAGRANCE AND INDUSTRY

While perfume manufacture for personal use is a vast industry founded on analytical and synthetic chemistry and alchemy, fragrances and perfumes are all-pervading in the home and at work.

In the agricultural sector, perfumes are used to reduce the perception of offensive odors, whether by distraction or masking is unclear, e.g. close to piggeries and fertiliser plants. Horticultural products for home gardens can also have odour maskers suggestive of new-mown hay or fougere (earthy moss). Essential oils from *Backhousia*, *Melaleuca*, and other plants are used as activators of *Pyrethrum* insecticides.

There was a report last year of a Japanese construction company that has been conducting serious experiments in the area of “environmental fragrancing”. They use fragrance to alter the mood of customers and to improve worker efficiency. Lavender and rosemary are soothing scents: jasmine and lemon scents drastically reduced keyboard errors. Further investigation revealed that the scents were used subtly to avoid nose fatigue or numbness to smells: microprocessor control varied the atmospheric concentrations so that people were effectively “fragranced”.

CONCLUSIONS

When selecting a plant on the basis of fragrance, either as a consumer or as a professional selector, by far the best judge of quality will remain the nose, not the chemical laboratory. Happily, noses can be trained, so that if you were breeding and selecting for more or differently-scented lines your skill might improve with experience. Conversely, of course, if selections were being made to identify which lines produced the highest yield of natural compounds, e.g., an essential oil for industrial extraction, chemical analysis would be essential.

Secondly, there is scope for designing for the nose. Perhaps we should be more mindful of how we site different plants in the garden, but more importantly, in retail locations. These may need to have changes of scent "displays" or it may be more useful to build a sense of place around a particular odour so that people are welcomed by its familiarity when they return. However, this may not be a flower fragrance.

Lastly, we may have information soon on mood modification by fragrance that could be a means for increasing sales of plants. Visual impact must be the dominant sensory factor, but if a nursery smells of "a woodland on a warm day" either by using plants or by opening a bottle rather than a bag of fertiliser, people may show that they prefer it that way. It is unlikely that fragrances will be developed for plant sales outlets when there is so much scope for using plants for sight and smell to better effect, but the possibility is there.

LITERATURE CITED

- 1 Genders, R 1977 *Scented Flora of the World* Robert Hale, London
- 2 Redgrove, R S 1928 *Scent and All About It* Heinemann, London
- 3 Wells, F V and M Billot 1981 *Perfumery Technology* Ellis Horwood, Chichester, England