Artistry and Craft

Perfumery: Techniques In Evolution. Part V*

A meditation on the art, craft and latest science of fragrance creation

by Arcadi Boix Champs, Auram International Group, Co., Ltd.

Citrics

I have previously mentioned important lemony, grapefruit and mandarin products like Lemonile (Givaudan), ethyl citral, the forgotten Citronile, Citralva (IFF), undecen-2-nitrile, Thiocineol, Thioterpineol, Mandaril, the nootkatones and so many great products that allow the perfumer to have a rich choice when needing to impart a citrus effect.

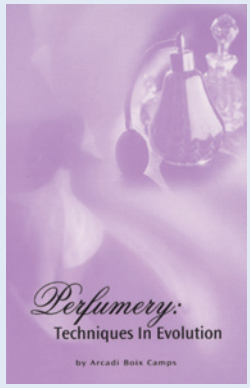
In fact, there is no chemical smelling of the "key" part of lemon other than citral. We have quite a lot of chemicals smelling of orange, mandarin, grapefruit and tangerine, but either the "key" sulphur-containing molecule in lemon oil, if it exists, has not been identified, or I simply do not know about it. Citral is a special case, and often when referring to lemon chemicals we actually refer to citral chemicals.

Azuril: Since the late 1940s, when George Igolen produced nitriles parallel to aliphatic aldehydes, the search for these chemicals started with a lot of interest. The better-known nitriles are Citralva and geranyl nitrile. However, Citralva, although indeed lemony, is by far more floral and more metallic than citral, while Azuril (Aroma and Fine Chemicals Ltd.) is more delicately citrus-like with a strong tonality of lemon. In addition, the latter material is very stable under mildly alkaline conditions, as in toilet soap. The material smells very cleanly of lemon, with shades of mandarin and orange. I like it as a creative and stable lemony chemical to replace the more powerful, but more oily-green and floral, geranyl nitrile.

Floridile — 9,10-undecadien nitrile: This is a real jewel again. If Azuril is more natural-lemon than Citralva, it is indeed less powerful, while Floridile (Givaudan) is the "product." Floridile is extremely clean and powerful — the best lemony chemical known to me. Its lemon character is not the material's only attribute. It is also diffusive, strong, fresh, and green-citrusy with effects of bergamot as well (here I refer to the citrusy part of bergamot, and

*Parts I-IV in Arcadi Boix Camps occasional series appeared in *Perfumer & Flavorist* in 1977, 1978, 1985 and 1999. The first two segments of Part V appeared in *Perfumer & Flavorist's* June and July/August 2004 issues.

Further Reading



This latest installment of Arcadi Boix Champs' perfumery series follows the publication of his collected articles (1978-1999) — *Perfumery: Techniques in Evolution*, presented by Allured Publishing. Never before has a perfumer of this calibre provided such a constructive and open analysis of new perfumery materials. *Perfumery: Techniques in Evolution* reveals a profound knowledge in the use of perfumery materials in both new and traditional formulas. Though not a book of perfume formulas, *Perfumery: Techniques in Evolution* is an excellent guide for perfumers, as well as those involved in research and development in adopting new perfumery materials in their daily creative work.

Arcadi Boix Camps provides a remarkable review of new perfumery chemicals that have been introduced to the industry in the past 20 years. A definite staple in any creative perfumer's reference library.

Hard cover, 125 pages, Published 2000,
ISBN: 0-931710-72-3

For more information, contact Allured Publishing's customer service; tel: 630-*653-2155, x590; e-mail: customerservice@allured.com; www.allured.com*

Not Banned

In the June issue of Perfumer & Flavorist, Hydroxyambran was mistakenly identified as a material "withdrawn" from the market by a regulatory body ("Perfumery: Techniques in Evolution. Part V," page 57). In fact, the material continues to be fully available. We regret the error.

not its linalool, linalyl acetate, fresh floral side). Floridile, just one product among hundreds of nitriles, is still quite new, but I believe it will soon set a new trend in perfumery — especially in fresh lemony functional items, but also for mixing with new floral chemicals such as the outstanding Super Muguet. Azuril is not as purely lemon as Floridile since it has many shades of mandarin, orange and tomquat (and even bigarade), but Floridile will surely be part of fragrances that, once created, everybody will try to match. The material's lovely cleanliness will have a larger impact than is apparent today — after all, this chemical is still in its very early stages. Again I must say to the chemists: thank you friends! We needed Floridile. Finally we have a very stable citral that is even more natural than citral. This is always something to celebrate.

Orangeox: This is another chemical that I cannot mention here but which will appear in Part VI — an extremely powerful sulphur-containing molecule that was found in a very strange tropical orange from the Far East. The company that discovered and patented this unnamed molecule is already using it internally at just 0.01 percent. This material blends extremely well with Floridile. I am very excited by both jewels of research, and my optimism — related to the successes in research that provide perfumers with so many great new ingredients — is total. For the time being I'll call this material Orangeox — in Part VI I'll mention its real name and structure. As I said, the chemical is quite new, so I will mention just a few of its outstanding effects, such as when it is simply mixed with limonene. Orangeox is like a magical touch that renders this massive ingredient as precious as any top quality citrus oil. When mixing it with cedrat coeur, lemon, orange, grapefruit, lime oil expressed, tangelo, bitter orange, bergamot, mandarin, tangerine, or clementine it imparts an unbelievably lively effect. Orangeox will be as important as Sulfox (8-p-mercapto menthan-3-one) and thioterpineol, both of which are used by many people. Both Floridile and Orangeox will also blend revolutionarily well with the strong tropical fruit chemicals such as oxane, 3-thiohexanol, 3-thiohexanyl acetate, Sulfocassione, *trans*-p-menthen-3-one-8 thioacetate, 3-acetylthiohexyl acetate, Tropathiane (Oxford Chemicals), 3-acetylthiohexyl acetate and the so-called Aruscol (another great jewel so far only used in flavors, though I do not know the reason).

4-Methyl-2-dodecen nitrile: This is not a well-known product, but is quite impressive. It is very strong and natural with shades of all citrus, especially mandarin, tangerine, clementine and orange, but also lemon. It works very well with functional products in which the lively citrus note is desired. It enhances all the aliphatic aldehydes, alkenals and alkadienals. It also fixes citrus notes and provides them with an extreme diffusion. I love its blends with methyl decanile and Floridile because the products are totally synergetic. In fine toiletries, I have tested it in aldehydic, citrus and difussive fragrances such as profiles like "DKNY" for women. I believe it could find a good place if more widely known and properly promoted and understood. Its blending with Hydrocitronitrile is also very interesting.

Orange pyridine — 5-hexyl-2-methylpyridine: This is a totally new chemical, so terribly strong that it must be sampled in extreme dilution. Still, it is simply outstanding. In the past, I had always thought that the important "key" chemicals in the citrics where sulphur-containing molecules (thio terpineol, Orangeox) or aldehydes (*trans*-2-dodecenal, *trans*-2-tridecenal, *trans*-2-*trans*-4-dodecadienal, *cis*-8-dodecenal, *trans*-2-tetradecenal) or ketones (nootkatone, dihydronootkatone), but I never thought of a pyridine in such a way. Well, I was totally wrong, and this just illustrates how rich and wise nature is. Orange pyridine, found in orange oil, is one of the top key ingredients that impart the overall olfactory sensation that we call orange. As with all the pyridines, it has a certain burnt-plastic note, but this is nothing compared to its citrusy smell, which is paramount. Actually, petitgrain and neroli oils contain pyrazines and important pyridines, too, but these pyrazines and pyridines are green and contribute to the tangy-green note of the oils. In contrast, orange pyridine is simply orange — one of the most orange chemicals I have smelled in my life. The material is very useful in improving the citrus note of any compound, and it works very well with n-nonanal, n-decanal and lauric aldehyde, the so-called sinensal 15/20 percent, and the so-called orange carbonyls. Orange pyridine also works extremely well with alkenals and some alkadienals, and creates very good accords with mandarin aldehyde, *trans*-2-tetradecenal (which fixes it), and especially Orangeox (which improves its top note). It has been used in many accords, though being a top secret and captive product almost nobody knows about it.

Grapefruit

In the past, I have described key products like nootkatone, Methyl Pamplemousse (Givaudan), Pamplovert, thioterpineol (my absolute favorite, and still missing from most laboratories), dihydronootkatone (another forgotten treasure), Floralate (IFF), Pamplenol and Pamplefleur (IFF), among others. I will now describe isobutylcyclamide.

Isobutylcyclamide: This material is extremely strong-citrus, with a metallic note reminiscent of grapefruit, and elements including styrallyl acetate, a rhubarb-like character with aspects of vetiveryl acetate, nootkatone and dihydronootkatone. It is very diffusive and quite long lasting. This is a key captive chemical that has been used already in great fragrances such as the new "Lacoste" for men. (Another fragrance copied by the same friend who claimed to have copied Sandalwood Givco [Givaudan] without knowing Javanol [Givaudan]). Isobutylcyclamide, unknown to almost everybody, harmonizes this great accord, which has been recently launched with good success in the market. Isobutylcyclamide works well with neobutenone, cyclogalbanate, allyl amyl glycolate, methyl 4-dodecen-2-yl nitrile and Cashmeran (IFF), imparting diffusion and a special lift to citrus oils mixed with neroli, black pepper, cardamom, cassia and clary sage. It would work very well with Labienoxime (Givaudan), Vertamide and Buccoxime (Symrise), in addition to all the nootkatone derivatives. Its accords with dihydromircenol and Coranol are impressive, too — isobutylcyclamide fixes and harmonizes these two brilliant chemicals. Isobutylcyclamide, still a bit too expensive, has started setting a trend and influencing modern perfumery, and I foresee a great future for this remarkably beautiful product.

Citrus Florals

It is extremely difficult to classify a chemical as simply a "floral." Citronellol, Lilial (Givaudan), β-damascenone, Silvial (Givaudan), Super Muguet, β-phenylethyl alcohol, α-terpineol, l- and d-hydroxycitronnellal — all of these are considered floral. Here, we really need to rationalize; I would like to be more precise this time.

trans-2-Tetradecenal: If I-2-dodecenal, *trans* 2-tridecenal and *trans*-2,*trans*-4-dodecadienal are powerfully citrus/mandarin-like, *trans*-2-tetradecenal is powerfully orange, one of the best orange-smelling chemicals and by far more long lasting than those named above. *trans*-2-Tetradecenal is also flowery, especially smelling of flowers with strong citrus nuances — frangipani, magnolia and champaca. I remember when in the south of India, where frangipani and champaca (*Michelia champaca*) grow, how when the weather was pleasantly warm I smelled the fragrant auratic breathing of champaca. Champaca is an Asian tree of the magnolia family (Magnoliaceae), lustrous-leaved, pyramidal, and about 30 m tall. It bears fragrant, star-shaped yellow flowers that are the source of both champaca absolute and a yellow dye. Champaca is often grown as a boulevard tree in the tropics, and is also frequently planted on Hindu temple grounds because it is considered sacred to the god Vishnu. In India, this tree and the smell of its flowers are revered. The search for good, beguiling frangipani, champaca and magnolia scents is a challenge. In the course of my career I have developed compelling bases, especially Frangipani 4421-5/D, in which *trans*-2-tetradecenal is blended with epi methyl jasmonate, *cis*-jasmone, verbenone, farnesol, Oncidal (Symrise), farnesene and *cis*-jasmone lactone, along with breaking new chemicals such as 2,3-dihydrofarnesol (a key chemical too in natural lily of the valley [muguet] flower). I like combinations of *trans*-2-tetradecenal with dihydrofarnesal, the corresponding aldehyde and related sesquiterpene alcohol, which is almost unknown to most of the perfumers. *trans*-2-Tetradecenal is extremely long lasting — one of the most long lasting citrus chemicals; it is an indispensable ingredient to those favoring novelties, and a more natural touch in our fragrances. I very much like accords of this aldehyde with Mayol (Firmenich), Florol (Firmenich), Super Muguet and specially with a pure quality of bisobolene isolated from lemon oil. *trans*-2-Tetradecenal also interacts well with lime dienes (trimethylcyclohexadiene), expressed lime oil, thujopsene cedar oil, nor limbanol, Muscenone (Firmenich), Paradisone (Firmenich), green notes such as *cis*-3-hexenol, Liffarome (IFF) or Aladinate. It is indeed one of my favorite chemicals. It is not easy, if we exclude the nootkatones and α- and β-sinensal, to find such a long lasting citrus chemical, although, as I said, *trans*-2-tetradecenal is not just citrusy, but also soft floral.

Silvial — 2-methyl-3,(4)-(2-methylpropyl)-phenylpropanal: Although many consider Silvial (Givaudan) a pure muguet odorant, I disagree. It is by far less floral than Lilial and more citrusy. The material is like a mixture of Lilial, cyclamen aldehyde and *trans*-4-decenal. Silvial blends well with products like Super Muguet, Muguesia (IFF) and muguet alcohol, in addition to citrus products, particularly with the previously described *trans*-2-tetradecenal and related *trans*-4-decenal. Its accords with Dominal, Geraldehyde (IFF), Super Floral, Florhydral (Givaudan), methyl-4-dodecen-2-yl nitrile and Precarone are also great. I particularly like mixtures of Berryflor

(Givaudan), Florhydral, precarone (as found in Dossinia Givco [Givaudan]) and Silvial. The material also blends well with aldehyde C11 MOA and methyl decanile. In addition, Silvial imparts great nuances upon coniferous accords. Obviously the length of this work does not allow me to elaborate further and to mention more accords made with this beautiful chemical.

Hydrocitronitrile — 3-methyl-5-phenyl-2-pentan nitrile: This product is more floral and less citrusy than many nitriles. Although relatively mild, it is extremely long lasting. Its stability, even in difficult media like bleach, makes it very interesting. This chemical is much less powerful than Citronitrile (3-methyl-5-phenyl-2-penten nitrile), but is, as stated before, much more stable. I very much like its accords with Spirogalbanone (Givaudan) and Corps Racine VS (Symrise).

Rose Ketones

I will continue with several chemicals that I consider as radiant as always. Because of their complexity, I would now like to add several materials to the subgroup of floral-herbal-fruity — the so-called rose ketones.

In November 1978, during the fifth Convention of Perfumers (an event organized by the Spanish Society of Cosmetic Chemists), I mentioned for the first time the damascones and β-damascenone — at the time, totally captive products. β-Damascenone was called Dorisinone. All the damascones were at this time unknown and used only in bases like Cetylia (Firmenich), Damascenia (Firmenich) or Dorinia (Firmenich). Afterwards, a base called Rhodascone introduced γ-damascone to intrigued perfumers. In 1978 I wrote, "I am completely convinced that β-damascenone and the damascones will be amongst the greatest aromatic compounds of the 1980s, and its incorporation into great perfumes is assured." Well, I believe I was right and wrong — right because what I predicted absolutely happened, and wrong because the rose ketones' influence was not limited to the 1980s, but beyond into the 1990s and 2000s. They will remain indispensable for many years to come. Because at that time I touched only on the rose ketones, I did not describe these materials with all the care they deserve. I would like to include a complete description here.

β-Damascenone — 4-(2,6,6-trimethyl-1,3-cyclohexadienyl)-3,buten-4-one: I will just copy the description of β-damascenone I wrote in 1978. The material is perhaps the most revolutionary of this family of products. Present in the essential oils of Bulgarian rose oil as a minor component, its effects are of the greatest importance in determining the final odor of the natural product. Even in minimal doses, its effects are impressive. It imparts a freshness, naturalness, radiance, intensity, broadness, uniformity and character to any perfume. We could almost say that it imparts the very subjective feeling of a perfume wherever it is used. No need to add anything to my 1978 comments. As everybody knows, β-damascenone has been one of the capital ingredients influencing the evolution of perfumery since its effects became widely acknowledged. Although smelling of rose blooms (and being the rosiest of the entire family), it can hardly be classified only as a rose chemical. This chemical has 1001 shades, tonalities and nuances. It has an important tobacco and herbal, tea and mate-like note, too. As mentioned in *Tetrahedron*, "the history of the isolation and structure elucidation of β-damascenone from Bulgarian rose oil as told by Kastner is one of the most exciting chapters of the fragrance and flavor chemistry." Its isolation was in 1966. My description came in 1978. The original analytical results were published later, in 1987. So, I suppose I was really a pioneer: the first perfumer to describe this intriguing and amazing chemical. As I said before, β-damascenone is to me a tobacco chemical too, and therefore I introduced the material in my bases, including Cetotabac. I could write about thousands of accords involving this magical rose ketone, but this would go beyond the bounds of this work (which, after all, is not monographic). The bases Damascia, New Frutambria, and the Cetotabac series are personal examples of how β-damascenone behaves when mixed with incredibly new captive chemicals that improve either its rosy or herbal-tobacco character.

β-Damascone — 1-(2,2,6-trimethyl-2-cyclohexen-1-yl)-2-buten-1-one: As is well known, this is another great chemical in the series. β-Damascone is less herbal-tobacco than β-damascenone, and pure rosy, if a bit less natural than β-damascenone. The material is extremely delicate, soft, fruity, floral, rose-like, and combines very well with other soft ingredients such as geranyl crotonate, cinnamyl propionate and isobutyrate, and cinnamic alcohol, among others. Its harmony is delicious; it is like dreaming with all the senses. When smelling it properly diluted, it even affects the mood by via relaxation, activating the hormones that help us feel pleasure. Our examples of using β-damascone with other novel and unused chemicals are the bases Dulciflor 841/D and Vert de Magnolia 8758/D.

γ-Damascone — 1-(2,2-dimethyl-6-methylenecyclohexyl)-2-buten-1-one: This ketone was kept captive until 2002. It is very rosy and delicate, as are all these rose ketones. It is also fruity-plum-apple and possesses an interesting black pepper effect in its top note that is missing from the other isomers. According to my experi-

ence, γ-damascone is the rose ketone that best blends with sandalwood chemicals. Its accords with nirvanol, javanol, Firsantol (Firmenich), Sandalore (Givaudan), Dartanol, Ebanol (Givaudan), Sandela (Givaudan), Mysoral and Polysantol (Firmenich) are really great. It is fruitier than the other damascones, but less long lasting. As in the case of β-damascone, I love to blend it with cinnamyl propionate and cinnamic alcohol — a great chemical, provided its quality is appropriately high (see sidebar).

The major question with all rose ketones is this: why do these materials have such a relaxing effect on the body? How do they bring pleasure to our strained souls? I do not have any scientific proof of these materials' benefits, yet I (and many others) know them to be a reality. No doubt there are needs for stress remedies in our modern world: I believe our society promotes voluptuousness and consumption, the first of which brings apathy and indolence to our souls, while the second keeps us poor (that is to say, dependent). If only our culture and education ministers realized that the great secret of enlightenment and release from strain is to direct one's vanity towards prudent, judicious and sensible objectives such as sensory beauty.

α-Damascone. 1-(2,6,6-trimethyl-2-cyclohexen-1-yl)-2-buten-1-one: This is a very complex product. It smells floral, but less floral-rosy than β-damascone. It is also fruity, plum, apple and green, with a camphoraceous nuance. I like to mix this ketone with muguet and cyclamen chemicals such as Lilial, nerolidyl acetate, dimethyl benzyl carbinyl acetate, crotonate, isobutyrate and butyrate, myroxide, benzyl salycilate, Indoflor (Symrise), Rosacetat, Jacinthaflor (Symrise), cyclamen aldehyde, and myrac aldehyde, among others. Unfortunately, the dimensions of this publication will not allow me to describe all the uses I have found in my life while working with α-damascone. As in the case of hedione, what is important here is the commercial quality, which rests on two enantiomers — (R)-(+)-α-damascone, which is responsible for this related camphoraceous note, and the (S)-(-)-isomer, which is by far cleaner and around 100 times more intense than its enantiomer. This (S)-(-) isomer, found in tea, is one of the challenges now facing our chemists. It has been synthesized, and efforts are being devoted to produce it in an industrial scale. If success is achieved — and it will be, because those great chemists are extremely determined — a new era of creativity will come to us. Soon we will get the first perfume using this enantiomer separated and single. May I suggest the name of α-teascone for it? I am lucky because I have smelled this substance. The intensity of pleasure I felt as a result made me think of Plato. The material reminded me of what I've said elsewhere, in other writings: a "very small city, very, very small, isolated, very, very isolated and free from external influences." I would have loved to show Plato β-damascenone, β-damascone, α-damascone, α-feascone and γ-damascone at 1 percent solution in alcohol and wait for his reaction. I believe it could be a great, utopic experience. Imagine one of the greatest men in all of Western Civilization smelling some of the best olfactory chemicals, which surely would move, motivate, touch and thrill his senses.

δ-Damascone — 1-(2,6,6-trimethyl-3-cyclohexen-1-yl)-but-2-en-1-one: This material is also called Dihydrofloriffone TD. It is quite similar to α-damascone, but with a more striking metallic fruity nuance and less "cinnamic" impact. I say cinnamic

A Note on Material Quality

Many companies produce cinnamic alcohol, but personally I only accept the Givaudan and Symrise grades. Cinnamic alcohol, in spite of IFRA recommendations, is a chemical that I love. It is a material that I hate at the same time. The quality of the product in the market is a total disaster, overall, and again I must stress the fact that if we are not able to select the right grades of our ingredients, we will find ourselves hopeless while creating perfumes. Pure and well-distilled non-adulterated essential oils are paramount. The highest quality in ionones, methylionones, cinnamic alcohol, β-phenylethyl alcohol, Lilial, hedione, citronellol, Iso E Super (IFF), geraniol, and Vertofix Coeur (IFF), among others, are a must. Unfortunately, only few companies select the right grades — many others depend upon brokers that compete in the market by not adhering to incredibly strenuous standards and who, thus, will never produce profound fragrances.

One important broker uses technical castor oil to adulterate all its chemicals and essential oils! Can a perfumer imagine a worse disaster? One of the top perfume companies in Spain used to buy sandalwood oil Mysore mixed with 25 percent technical castor oil. The responsible party found that this was an acceptable solution until, presumably, they discovered (we hope) the fiasco.

because many shades of cinnamic alcohol are found in the diverse damascones. I believe δ-damascone smells closer to (R)-(+)-α-damascone than the described α-teascone. I like this chemical, although it is less linear and less clean than the other isomers. However, it is quite useful because of its striking fruity impact in functional perfumery.

Isodamascone — 1-(2,4,4-trimethylcyclohex-1-(2)-enyl-1)-2-buten-1-one: Presented by Dragoco in 1971, this material was the first of the related ketones to be commercialized. Its smell is good — a mixture of α- and β-damascones that results from the fact that its commercial quality is a mixture of α- and β-isodamascones. However, now the quality has changed; the material mainly contains α-isodamascone, which makes it more exciting than before. Isodamascone has a certain waxy, slight tonality similar to damascones and n-decanol, although this is not noticeable when not comparing it with the damascones. To me, the material is a very nice chemical, as all the damascones are. I like to compare isodamscone with γ-damascone (more peppery and fruity), β-damascone (more rosy and less fruity, but more subtle) and β-damascenone (more delicate, and most of all more rosy and herbal-tobacco-like). Its uses are similar to those of the related damascones.

Lily of the Valley

I will mention now some florals — lily of the valley — that represent outstanding innovations.

Super Muguet (6-ethyl-3-methyloct-6-en-1-ol): This chemical was discovered by my friend Philip Kraft. It proves that chemistry is a wise and astonishing science. We have long associated lily of the valley chemicals with aldehydes and rose chemicals with alcohols. It was once even assumed that only aldehydes could smell of muguet, despite that the natural flower is widely based on alcohols like *trans,trans*-farnesol, the unknown (and "key") 2,3-dihydrofarnesol, and nerolidol, among others. And still the synthetic reconstitutions were always based on aldehydes. I remember that once Roudnitzka told me that one of his favorite chemicals was hydroxycitronnellal ex citronella oil — he made his fantastic muguet perfume "Diorossimo" based on it. I believe this component has been changed to synthetic hydroxycitronnellal in the scent's present editions.

Lilial, Syringa Aldehyde (Givaudan), Cortexal, Lyral (IFF), etc. are considered muguet chemicals, but, as is well known, aldehydes are less stable than alcohols. This fact necessitated research targeted towards finding muguet odorants other than aldehydes. Thus came Majantol (Symrise), Mayol (Firmenich) (the closest material to hydroxycitronnellal), Florol (more magnolia that muguet), muguet alcohol, muguet alcohol acetate, Muguesia (IFF) and Meoparf. Soon we started seeing mixtures of these alcohols with the muguet aldehydes, as in "Good Life," "Dazzling Gold," "J'adore," "Fragile," and "XS for her," among others.

Meoparf (mixture of 6-ethyl-3-methyloct-6-en-1-ol and 6-ethyl-3-methylocte-5-en-1-ol): This is an outstanding chemical, a mixture of lily of the valley and rosy notes. When, for several reasons, it was not recognized for its fantastic auratic smell, Meoparf was abandoned. Chemists worked to find another synthesis that would allow perfumers not to lose this outstanding chemical, and finally came up with one of the isomers, which possessed a better isomerically enriched quality, which was more intense, more muguet (Meoparf was more rosy), more crisp and cheaper. This material was Super Muguet.

Super Muguet: This is the most amazing of these alcohols. It is unbelievably floral-muguet and has an outstanding diffusion that radically differs from products such as Majantol, muguet alcohol, Muguesia or Mayol. Used as captive for the past three years, Super Muguet will absolutely mark the evolution of perfumery, and will be one of the jewels that make this evolution possible. The chemical can be identified in formulas by its radiance, its beauty, its totally natural floral aura, its outstanding diffusion and intensity.

Super Muguet is so intense that it could be used as a keynote in many functional products as well. I am expecting any moment a big powder detergent or a top fabric softener in which Super Muguet will be used. It could be easily found, in the future, replacing hydroxycitronnellal, giving a new twist to so many fragrances and many bases that use the aldehyde as an indispensable lily of the valley note. However, the price must come down in order for its success to be assured. This material is extremely nice to mix with other softer lily of the valley/soft rose chemicals such as dimethylbenzylcarbinyl butyrate, Muguesia, dimethylphenylethyl carbinol (muguet carbinol), n-propyl benzyl carbinol, and Muguetanol, among others. It imparts impressive notes when mixed with Coranol, an accord that will move the senses because both products are vibrant. And, as I wrote before while describing other chemicals, both miraculously activate all the natural mechanisms that bring pleasure to our lives. A fantastic accord is Coranol, Super Muguet, Orangeox, thio terpineol, sinensal, Silvial, *trans*-2-tetradecenal and orange pyridine — this is the heart of the captive base Muguelone. I expect great success for this outstanding chemical, one of the top Burmese rubies described in this work.

2,3-Dihydrofarnesol: As is known, the key chemicals that compose the natural flower of lily of the valley (muguet) are not aldehydes but alcohols. The best naturally occurring product is 2,3-dihydrofarnesol. In the living headspace of the flower of muguet, this chemical is indeed the most important chemical. It is an extremely nice and unknown material. Its character is soft, long lasting, subtle, deeply bright floral, and tender as the smell of a garden of delicate flowers on a slightly windy day. I believe this material will ascend within our industry as strongly as similar products, particularly aldehydes [Adoxal (Givaudan), Oncidal (Symrise), dihydrofarnesal, etc.]. 2,3-Dihydrofarnesol blends extremely well with dehydronerolidol, oxo-nerolidol, *trans,trans*-farnesol, Profarnesol (Symrise) (the corresponding alcohol to Oncidal), nerolidol, Florol and Majantol, in addition to soft jasmine chemicals such as hedione, Paradisone, epi-methyl jasmonate and oils such as cabreuva, ambrette seed oil, angelica root oil, the unknown nerolina from Australia, araucaria from New Caledonia (an unusual essential oil based on eudesmols like amyris, but smelling of a velvet fruity note that is simply outstanding — it possesses wonderful softness and fantastic potential for new effects), white musks such as Habanolide (Firmenich), Exaltolide (Firmenich), Scentolide (*cis*-iso-ambrettolide), hexadecenolide Globanone 100 percent (Symrise), ambrettone isomuscone and ambrettolide, and the best floral musks, especially glycols de rose. 2,3-Dihydrofarnesol works magnificently with α-irone, pentambrette, aerangis lactone and, especially, myrrhone, which produces indescribable accords. I have also tried a fantastic accord of 2,3-dihydrofarnesol with natural bisabolene ex lemon and bisabolol, natural farnesene (a product containing around 70 percent β-farnesene and 20 percent δ-cadinene, which twists 2,3-dihydrofarnesol towards gardenia) and the previously mentioned cadimenene. 2,3-Dihydrofarnesol will emerge sooner or later. I have plenty of captive bases, particularly the Vermuguene series, based on the living headspace of the flower of muguet.

3,6-Dimethyl-1,6-octadienol: It is well known that nerol, a very rose alcohol, is *cis*-3,7-dimethyl-1,6-octadienol. This constitutional isomer, radiant of novelty, smells wholly of lily of the valley. (The mysteries of chemistry!) Due to its youth, the material will be described in the next installment of my writings. This is another instance of what happened with coumarone and nerolione. I believe it is these chemistry mysteries that give meaning to life, that they make being human exciting. Indeed, soul, spirit, intuition, astonishment, emotions and myths are the most important parts of our subdued lives. Like Paul Gaugin used to say, "Hommes bien intentionnées."

"Forgive those poor artists that are still children. Please be merciful with them and comprehend their spirit by loving the flowers and the most heady scents…" It is a touching, hopeful and sad phrase at the same time.

Dihydrofarnesal: This is 2,3-dihydrofarnesol's corresponding aldehyde. It is more intense, and blends extremely well with the alcohol. It is a great chemical, not only in imparting muguet accords, but again, as in the case of *trans*-2-tetradecenal, in contributing to subtle flowers such as frangipani, magnolia and champaca. By itself, it smells closer; to these "sacred" and revered flowers than muguet. It also works very well in all kinds of transparent accords similar to those mentioned while describing 2,3-dihydrofarnesol. Sometimes I mention very new chemicals not yet used, believing that they will affect perfumery. I do this because the essence of these writings is what has made, makes and, according to my individual intuition, will make possible the evolution of perfumery. I did this in the case of the damascones and β-damascenone. I did this while describing calone in 1978, at the time a totally unused chemical.

Muguesia — 3-methyl-4-phenyl-2-butanol: This material has long been used in a captive capacity, and now has been released. Muguesia is not as revolutionary as Super Muguet, which is very bright flowery. Muguesia's scent leans more toward muguet alcohol (described in the third part of these writings), Muguetanol,

Centifol (dimethyl phenylethyl carbinol) and methylethyl phenylethyl carbinol. Muguesia blends well with soft muguet chemicals, especially Majantol, but also with the forgotten cyclomethylene citronellol and 3-(4-methylcyclohex-3-enyl-1)-butanol. (Both are quite synergetic, and if the mixture is blended with Lilial, Lyral, an aliphatic aldehyde [especially the C13 (n-Tridecanal)], magnolan, bourgeonal and cyclamen aldehyde (one of the best chemicals ever synthesized), we can achieve fantastic results.) Again I mention araucaria for blending and harmonizing these accords, which also blend well with cabreuva, pei mou, copaiba and cangerana. Accords of Muguesia with Centifol ether and coumarone are also great. Softness and vibrancy are a must in perfumery. Muguesia is softness, while Super Muguet is vibrant. Muguesia also blends well with cinnamates such as benzyl, methyl, ethyl and cyclohexyl, tolu derivatives, and is enhanced by the mixture of ambrocenide and amber ketal.

Rose Chemicals

In the past, I said that Phenoxanol (IFF) was going to change the perfumery. Well, again I was absolutely right. Phenoxanol and its diffusion are a hallmark in our formulas today. However, I have also previously mentioned products like Peonile (Givaudan), Florol (another jewel that, just like hedione and helvetolide [and some other chemicals], is close to the heart of what we see today as a fragrance). I would like to add several others to this growing list.

β-***Phenylethyl anthranylate:*** This is an old product, though not widely used. In my opinion, perfumers should consider it more seriously because it smells very close to many shades found in rose absolute. β-Phenylethyl anthranylate works fantastically well with β-damascenone, and both are extremely natural rose-smelling ingredients. β-Phenylethyl anthranylate also blends well with geranyl crotonate (a more geranium chemical), Peomosa (IFF), cortexal (p-ethylphanylacetaldehyde), syringa aldehyde (p-methylphenylacetaldehyde) and Geranodyle (Givaudan). The material blends well with the extremely fine qualities of citronellol (another key product that many do not select properly since its technical qualities have very disturbing sides — Citronellol 96 [Millennium]) and Citronnellol Extra (Givaudan) (a synthetic, more expensive material neglected by many that know nothing about the sensitivity of perfumery and thus are swayed by price considerations; Citronellol Extra it is almost perfect, and even more beautiful than citonnellol ex citriodora, and almost as beautiful as laevo citronnellol). β-Phenylethyl anthranylate imparts extremely

important character to roses, by far more natural that those achieved with Rosacetat. It works very well with the most floral musks, Velvione (Givaudan), Globanone 100 percent and isomuscone, and naturally with floral woody chemicals such as vetyveryl acetate and vetiverol. I consider it an important chemical and I am sure, sooner or later, it will become widely used.

Rosoxime — (1R,4S)-3-p-menthanone oxime: This is another unknown and impressive captive chemical. It is earthy, green, rosy, geranium, musk and floral, smelling of a certain part of the greenness found in fig leaves. In the past, I often worked with Bromarose (1,3-dibromo-2-methoxy-4-methyl-5-dinitrobenzene) until environmental and other problems forced the end of this chemical's production. Its replacement was very difficult — it was used in great perfumes such as "Tea Rose" by Perfumer's Workshop, one of the greatest US successes. In short, it was a must. Well, again chemistry produced a miracle. Rosoxime has no structural resemblance with Bromarose, yet it smells about the same. I love the possibilities of Rosoxime with o-methoxy benzyl ethyl ether, (another component of "Tea Rose"), but it also produces beautiful accords with rose oxide high *cis*, furane de rose, neroloxyde and dihydroneroloxide, Stemone (Givaudan), Octalinol (which makes a revolutionary synergism between its typical cassis bud note and the metallic rose vibrations of Roseoxime), etaspirene, Labienoxime, Sulfocassione, the impressive naturally occurring Cassisthiol and many others. Rosoxime blends extremely well with our base Vert de Roses and Musk Fuitée. It also blends very well with powdery rose notes, creating a beautiful accord with both Muscenone δ, Exaltenone, isomuscone and Globanone 100 percent. In addition, Rosoxime blends very well with Florol and structures like Rosyrane and Doremox (a powerful rosy note with nuances of parsley and pear). Rosoxime is very stable: it will surely find increasing use.

Geranyl crotonate: This is another rose and geranium soft chemical. It is subtle and pleasant and smells between rose and geranium, although it is more intensely close to the floral-greenness of geranium leaves. The material works very well with Florol and ethyl linalool, creating a very elegant and fresh rose petal note. Geranyl crotonate makes good accords with benzyl and phenylethyl cinnamates and is extraordinary with ambrocenide, Timberol (Symrise) and amber ketal. It also blends well with Tetrascone, creating a very natural rose-floral-tobacco note that is quite interesting.

Geranodyle (Givaudan) — 1-hydroxy-2-(1-hydroxyethyl)-5-methylcyclohexane: This is a very new note between geranium and rose. It possesses shades of old baccartol, though is stronger and natural. It combines very well with the damascones, damascenone, cinnamic alcohol and cinnamyl esters, in addition to mint derivatives like the captive Isomint. Naturally, it blends well with geranium formates (geranyl and citronellyl), tolu and Peru derivatives, and musks. Accords of Geranodyle with dimethyloctanyl formate are also very good, as are accords of geranodyle with Roman chamomile and other wild chamomiles.

Rosilial (Rhodia) — citronnellyl lactate: This is another soft, rose/geranium note full of rich tonalities. It works in synergy with geranyl crotonate, imparting a nice citrus shade (very elegant and natural) to the mixture. Rosilial creates beautiful accords with Globanone 100 percent because this musk, whose price can be afforded by functional perfumers, is amongst the most floral of musks. The blending of Rosilial, geranyl crotonate, Globanone 100 percent, Exaltolide, ambrettolide, Habanolide, isomuscone, Moxalone (Givaudan), and green floral chemicals such as *cis*-3-hexenyl salicylate or benzyl salicylate is very natural and innovative — the result of Rosilial's new (and quite characteristic) rose note. Roslilal also works very well with lily of the valley chemicals, Florol, and cyclohexyl salicylate, which is the most stable of the salicylates in fuctional perfumery.

Rosalyptus (Rhodia) — N-N-diethyl-2-ethylhexanamide: This material initially smells pleasantly of rose absolute, and then of eucalyptus on dry down. What is impressive here is that eucalyptus is normally a very ethereal top note, while in Rosalyptus this specific tonality of eucalyptus comes when the product is quite evaporated.

Jasmine

Paradisone — (+)-cis-(1R,2S) methyl dihydrojasmonate: This is one of the greatest chemicals I have ever smelled. As many people may know, hedione is racemic. It is mainly a combination of (+)-*trans*-(1R,2R), (-)-*trans*-(1S,2S), (+)-*cis*-(1R,2S) and (-)-*cis*-(1S,2R).

The chiral iromers (-)-*cis*-(1S,2R) and (-)-*trans*-(1S,2S) are very weak, while (+)-*trans*-(1R,2R) is stronger — its scent has a heavy, narcotic, jasminic floral and even cheese-like earthy note that is difficult to describe. However, it is much weaker and very different when compared to the "key" chiral isomer — (+)-*cis*-(1R,2S). The latter is precisely the main chiral isomer of Paradisone. Paradisone is the subjective mystery of hedione; its contents in Firmenich's hedione are around 5 percent. The other isomers distort the great auratic and diffusive effect of hedione, being (as said before) heavier and with a certain "mushroom" tonality.

It is very funny, but I firmly believe that most perfumers know nothing about hedione, the major ingredient in modern

perfumery since 1966 when Edmond Roudnitska used it in "Eau Sauvage." At the time, hedione was largely unknown and simply named N378B. When, in 1968, I was with Roure Bertrand Dupond in Grasse, a period in which I combined perfumery with my chemistry studies at the University of Nice, I remember many perfumers trying to copy "Eau Sauvage" and talking about the "magic" of the original product, which they could not match. Well, everybody now knows that this magic was hedione. Now, and I beg the pardon of those that won't appreciate my opinion (which is, after all, the point of these writings), I have my own personal hedione — Firmenich's. It is, after all, the company that invented it. Firmenich's hedione flows, flies, diffuses with charm and grace through the air because it does not contain many impurities that can tend to make the product heavier and "mushroomy." Impurities destroy the charm of the chemical. The Firmenich material is distilled well, probably in the intermediate step. Other productions of hedione that I have used lack at least 50 percent of this subtleness and delicate diffusion, in addition to being bogged down with impurities. Warning: if we do not smell properly and only check a GLC/MS analysis of a material, we will mistakenly believe that 90 percent *trans* + 10 percent *cis* methyl dihydrojasmonate makes a proper copy of hedione. How far from reality! Many people coldly inject cheap hedione versions into GLC/MS without smelling the material, and are thus imbued with a false sense of comfort. "Well, I save 3 euros per kilo," these practitioners say, "what greatness." To me, these mistaken colleagues are what I call (in French) "des imbéciles heureux," or as Georges Brassens used to sing with great sensitivity and wisdom, "quand on est con, on est con…" Perfumery is a complicated profession, and without a proper observation and deep and serious professional evaluation of the materials used, nothing of import can be achieved.

How many times did I discuss this matter with Edmond Roudnitska? Without knowing it, we were simply trying to find the "heart" of the material, desperately looking to unveil the secret of hedione, which was hidden like the old Egyptians mummies. Roudnitska was simply looking for the lovely Paradisone — this was his obsession. He wanted a product that seemed out of reach without knowing the great secret lay within the mysterious isomeric mixture of hedione. I know because we discussed this many times. Roudnitska wanted to give a deeper reminiscence of lemon peel that was floral and hesperidic to "Eau Sauvage" and, later, to "Diorella" and his many other fragrances. These aspects, of course, are dominant in Paradisone. But hedione and Paradisone are different; still, they can find different usage.

Perfumery is empiric, and in this material society in which we live we do not have time to observe — we must decide quickly, work quickly, and we must buy inexpensive (if not cheap) materials. The results are predictable. For example, the qualities of cheap methyl dihydrojasmonates lack all the charm of hedione lost.

Paradisone, which mainly consists of around 85 percent (+)-*cis*-(1R,2S), 9 percent (-)-*cis*-(1S,2R), 5.1 percent (+)-*trans*-(1R,2R) and 0.9 percent (-)-*trans*-(1S,2S). Paradisone is an explosion of smell. About 94 percent epimerized, it is by far better than Hedione HC (Firmenich), a product that although good, is less pleasurable than the simpler hedione and, naturally, Paradisone. Paradisone is not per se more stable than Hedione HC; however, it smells much stronger because after decomposition Hedione HC reverts back to hedione, while Paradisone reverts back to the thermodynamic mixture of 90 percent (+)-*trans*-(1R,2R) and 10 percent (+)-*cis*-(1R,2S). The (+)-*trans*-(1R,2R) is the stronger smelling *trans*, so it is not diluted by the odorless (-)-*trans*-(1S,2S) and (-)-*cis*-(1S,2R) isomers — at least under normal decomposition conditions. That is why, in comparison with Hedione HC, it seems stronger, even after decomposition, despite that it is chemically not more stable. (This instability is the result of the fact that the material is an isomer, so it has physical properties similar to Paradisone.) Paradisone is one of the most unbelievable molecules I have smelled in my life. It is a pure storm of delicacy and diffusion — the most radiant product I have smelled, even more so than the radiant helvetolide.

Here we are facing a chemical that is affecting the evolution of perfumery in ways that will be felt in coming years — or perhaps even decades. One smelling strip in a 70 m^2 room diffuses the space with angelic impressions of millions of flowers. Again, as a perfumer, I must publicly say thank you to the chemists because this material's synthesis was not easy at all. On the contrary, it appears that helvetolide's creation was yet another in a long line of chemistry's miracles, a list that includes racemic, laevo and dextro ambrox.

I now dream of the day we will have both Paradisone and what I call α-teascone, the latter of which, as mentioned before, is the chiral great isomer of α-damascone, naturally found in tea — a material that is around 100 times stronger than normal α-damascone. Paradisone is a perfume by itself. Paradisone is soul, myth, charm, emotions, freedom, tenderness, wisdom, eternity and beauty. The material makes us feel the essence of perfume and the sides of our lives that are not rational. The need to feel happiness, spiritual plenty,

pleasure and subjective feelings are the essence of perfumery. These desires elevate perfumery to the level of art. Paradisone gives us access to this.

Green-Violet

This is not to be confused with wood-violet. As I said before, violet flower oil, if made, would be the most expensive perfumery material on the market. In addition, the violet leaves are by far less floral than green. This family has several outstanding chemicals.

Parmanyl (Symrise) — 3-(cis-3-hexenyloxy)-propane nitrile: This is indeed an outstanding chemical. While the flower of violet may be synthesized with α and β-ionones, dihydro-α and β-ionones, and synthetic products like the methylionones, dimethylionones, etc., the keys to violet leaves are *trans*-2-*cis*-6-nonadienal and *trans*-2-*cis*-6-nonadienol. These latter two chemicals are excellent but very expensive. Parmanyl is a new nitrile, an extremely stable material that smells very close to violet leaf absolute. Again, as in so many cases, such as Bromarose, Rosoxime, linalyl acetate, sclareolate, citral and citronone, Paramyl is a relatively unknown new jewel that is awaiting final patents and tests, and which will be widely described in a future edition of my writings. As in many cases, Parmanyl, being a pure nitrile, smells miraculous. The material is by far more natural than much more expensive violet nitrile and iris nitrile. It is a very young green note that has already been used in a very important fabric softener in which it imparts a noticeable violet note. However, its use is not limited to fabric softeners, instead finding application in many functional products such as hand liquid soaps, liquid and powder detergents, shampoos, natural products like candles, cosmetics, toilet soaps, air fresheners. Parmanyl is a great chemical that imparts its unusually clear and vibrantly young green violet note to many compounds. Needless to say that it blends fantastically well with methylionones, damascones, ionones, dihydroionones, jasmine products like epi methyl jasmonate, α-ionol and α-ionyl acetate, *cis*-jasmone, irones, myrrhone, and *cis*-3-*cis*-6-nonadienol (watermelon alcohol — not to be confused with the violet leaf alcohol and aldehydes mentioned previously, with which Parmanyl also blends well). Parmanyl makes distinctly green accords with *cis*-3-hexenyl acetate, *cis*-3-hexenol and Pearlate (Bedoukian) (an unusual new green-fruity note).

Violettyne MIP (Firmenich) — 1,3-undecadien-5-yne: This is one of the strongest violet leaf materials I know. This chemical is never used pure, but instead at around 10 percent solution in MIP, thus its name. The material has a similar tonality to Parmanyl, though less metallic and more oily-herbal, green bean-like. Violettyne MIP is a very elegant note that imparts its charm to accords in which it is used. These charms are quite similar to those described with Parmanyl. Violettyne MIP works very well with petitgrain bigarade oil and ginger from China, the latter of which creates great spicy accords. I also Violettyne MIP when mixed with Taragol and Toscanol (Givaudan) (1-cyclopropyl-methyl-4-methoxybenzene — a totally unknown anise-liquorice and sassafras oil chemical). Violettyne MIP is less long lasting than Parmanyl; the chemicals are quite synergistic with each other, producing and enhanced green-violet leaf note when mixed. Violettyne MIP, like several other key materials, is shaping the progress of perfumery — modifications of violet fragrances like "Fahrenheit" are wonderful when smelled deeply. Violettyne MIP also blends well with "ozone" chemicals. One such great accord is made with Parmanyl, Violettyne MIP, calone and Fleuranil (IFF). When blended with helvetolide and the white macro cyclic musks, a modern violet fragrance results — something simply unthinkable a few years back.

Violiff (IFF) — 4-cycloocten-1-yl methyl-4-carbonate: While Parmanyl and Violettyne are totally new violet chemicals, Violiff, a key captive chemical for many years, is a modifier for more classical green violet odorants such as methyl octine carbonate, methyl heptine carbonate and methyl decine carbonate. Violiff is more long lasting than Violettyne MIP and Parmanyl, but not as elegant as those described before. The material has shades of fatty aldehydes such as 2,4-decadienal and 2,4-undecadienal that (according to me) kill the cleanliness found in the two previously described odorants. Violiff is a part of the international base Violone, although it is not the only captive there. The material is good with floral woody and woody chemicals and blends well with metallic, fruity pineapple-like and galbanum products such as Dynascone (Firmenich), Neobutenone, Spirogalbanone (Givaudan), Pharaone (Givaudan), and Galbaniff, among others. I also like the effects of Violiff with Sulfox or the minty-bucchu note imparted by 8-menthatiol acetate. In addition, its effects with Sulfocassione, Cassiffix (IFF) and Prismantol are quite nice. (The latter material blends very well with ginger notes, as does Violiff.)

3-(5-Methyl-2-furyl)-butanal: This is not a well-known aromatic chemical that, for reasons I cannot comprehend, is mostly used in flavors. The material is extremely strong and thus must be smelled at high dilution, under which conditions it smells of a combination of green violet and frankincense, tonalities also found in the marvellous Cetonal (Givaudan). Methyl furyl butanal works well with violet nitrile

and iris nitrile. I cannot say this strongly enough: it must be used with *extreme* care, at very small traces.

Cetonal — 2-methyl-4-(2,6,6. trimethylcyclohexen-2-yl)-butanal: If Violiff and methyl furyl butanal are violently green violet, cetonal is delicately and velvety floral green. Cetonal has as methyl furyl butanal shades of frankincense. It is the heart of my base Incentsia in which I use some of the chemicals mentioned before, including galbanum and unusual juniper berry odorants that will be described in Part VI, in addition to dihydro-β-ionone, boronal, boronia absolute and other strange and rare new ingredients. Cetonal is extremely soft, and its accords with Cashmeran, dihydro-α-ionone and other amber odorants are paramount. Cetonal is fantastic in an accord with nor limbanol, ambrocenide, Ysamber K (Symrise), ambrinoloxide and Somalian frankincense oil (which is different than the Omani frankincense, yet still imparts interesting effects). I could spend hours mentioning the accords achieved with cetonal, but this would go beyond the bounds of this already long work. Suffice it to say that the material is impressive and one of my favorites.

α-Ionol: This is a great and ignored chemical. It is not far from cetonal, characteristically, but is weaker and less frankincense-like. α-Ionol is by far more green-violet than α-ionone, which is more floral-woody-fruity. α-Ionol has a very interesting tobacco tonality as well. Because there are so many, it is quite difficult to say what the best woody-floral and green-floral-violet chemicals are. To me they all possess advantages: top grades of diverse methylionone isomers, α-ionone, β-ionone (which is more orris-like), dihydro α-ionone (which is strongly amber with 1,000 different nuances), dihydro-β-ionone (more violet and less ambery), and dimethylionone, a great chemical. I believe that as in the case of musks, the best material is in fact the synergistic combination of several of them. Unfortunately, α-ionol is not widely used. This is a mistake because from within its charming molecule flows a torrent of floral character.

α-Ionyl acetate: This is less green than its corresponding alcohol, and is on the borderline between green-violet florals and woody-florals, though it is more elegant. Mixtures of α-ionyl acetate, methylionones (especially the greater of them), cetone α, Raldeine AGV (Givaudan), Xandralia and Iralia, dimethylionone, methyl-α-ionone glycidate, vetyveryl acetate, Vertofix Coeur and a touch of allyl ionone are simply great. They diffuse class and beauty. Even α-ionyl acetate and vetyveryl acetate alone together form a great accord of unsurpassed elegance. We have discovered dihydro-β-ionone and rediscovered β-ionone. A great tread forward will be to increasingly use this charming chemical, which is one of the greatest green-woody-floral materials I have smelled. Its mixture with ambergris chemicals like boronal, ambrinol and ambrinol oxide, ambrox or laevo-Cetalox (Firmenich), and the unknown and extremely interesting dihydro-γ-ionone is really exceptional. The woody-floral diffusion is tender and soft, and when the product is finally incorporated in a great perfume, the material will finally get its due.

Floral Fruity — Pineapple, Pear

Anapear — methyl octa-4,7-dienoate: This is a very noble and delicate material. It is fruity and green, with shades of pineapple and pear, which is why it is called Anapear. The material is very refined, and is more green and less pineapple-like and lactonic than ethyl octa-4,7-dienoate, methyl *cis*-4-octenoate or ethyl *cis*-4-octenoate (all very good chemicals as well). Anapear is more green and less apple than ethyl 2-methyl-3,4-pentadienoate, methyl 2-methylpentanoate, ethyl 2-methyl-3-pentenoate (Fruitaleur), methyl 2-methyl-pentanoate (Manzanate) and Prassinate (which is more liquor-like), but at the same time it is more pineapple when compared to those materials.

Anapear has been used in many perfumes because it creates a beautiful harmony when mixed with ethyl *trans*-2-*cis*-4-decadienoate — the so-called pear ester. It rounds off the top note, and even in trace amounts its effects are remarkable.

The first time we saw the accord Anapear-pear ester was in "Emporio Armani pour elle," and lately in "Higher" from Dior in which these two materials combine in a very creative accord with Peranat (Kao), a trace of melonal, and a fresh citrus (methyl pamplemousse) woody, marine (calone), musky (Velvione, ethylenebrassilate, Habanolide, ambrettolide), geranium, nutmeg, Cashmeran, etc. Anapear it is starting to find wider use, and in the future will affect many top notes with its diffusive and elegant green fruity note, which is full of harmony by itself.

I would also like to mention ethyl octa-4,7-dienoate, methyl *cis*-4-octenoate and ethyl *cis*-4-octenoate, all of which are extremely natural pineapple chemicals. By themselves they smell of the most intimate part of pineapple. They are fruity and lactonic at the same time, unlike Anapear, which is fruity and green. I would like to see these chemicals used in perfumery, although now they are mainly flavor ingredients. However, a trend in fruity scents is proving increasingly more and more fashionable, which will bring these great products to the palettes of many perfumers.

The products mentioned before in comparison with Anapear and other fruity odorants — ethyl 2-methyl-2,4-pentadienoate, methyl 2-methylpentanoate, ethyl

2-methylpentanoate (Manzanate) or ethyl 2-methyl-3-pentenoate (Fruitaleur) — are more apple-like, though very diffusive. The more widely used of the group is Manzanate, which may result from its heavy promotion.

Fruitaleur — ethyl 2-methyl-3-pentenoate: This material smells of cherries, apple and grape, and is extremely powerful. I like to use it in tropical fruit accords along with 3-thiohexanol, Passifloran, oxane, 3-thiohexylacetate and even a totally different molecule, Centifol ether. Fruitaleur is important in increasing the diffusion of the top note when large amounts of dihydromircenol, tetrahydro linalool and Mefloral (meta-lilial, not to be confused with lilial, which is the ortho isomer) are present. Fruitaleur blends well with lactones and ethyl crotonate, which is synergetic to it.

Peranat (2-methylpentyl 2-methylpentanoate): This material is green, herbal and especially fruity — a great note that combines very well with green materials such as Liffarome, *cis*-3-hexenyl acetate, Aladinate, *cis*-3-hexenyl *cis*-3-hexenoate, *cis*-3-hexenyl 2-methyl-2-pentenoate, hexyl 2-methyl-3-pentenoate, Triplal (IFF), and leguminal, in addition to violet-green-fresh odorants, especially the outstanding Parmanyl and Violettyne MIP. Peranat is less sharp than many of the products described in this chapter, and can be used in higher proportions since it has an herbal note that is more easily blended than fruity-dominated notes, which tend to be quite aggressive (and thus should be dosed very carefully). I very much like an accord of Peranat, Anapear, Aladinate, Nectaryl (Givaudan), methyl tuberate and furaneol that diffuses extremely well, creating a beautiful synergy. Peranat and Anapear impart here a pear-pineapple green note, while Aladinate produces a green-strawberry/apple note — both are softened by the great natural fruity-caramelized pineapple-strawberry note of Furaneol. In addition, they are all enhanced by two of my favorite chemicals, already described: Nectaryl and methyl tuberate. Peranat also blends extremely well with methylpentyrate and allylphenoxyacetate, especially when blending them with coumarin and coumarin derivatives (ethyl laitone, coumarone, Florex, Coumolide, tricyclone or octahydrocoumarine). Beautiful accords of chamomile can be achieved with these ingredients and a bit of creative skill.

Prassinate: This is a very particular fruity, winy chemical that is quite strong and diffusive. It smells very naturally of apple, grape and other fruits, in addition to licorice. I like accords of it with mettambrate, Rhumacetal, succan absolute, fruity esters and Nerolione (Symrise). Prassinate is also good with lactonic ingredients such as Nectaryl, decenylcyclopentanone, wine lactone (a great new naturally occurring product that will be described in the next installment of these writings), Anapear and ethyl octa-4,7-dienoate (the ethyl ester related to Anapear). I like Prassinate because it is a very interesting, elegant multi fruit/licorice note.

In Part IV of my writings I mentioned several great floral fruity chemicals smelling of melon and watermelon, including methoxymelonal, *cis*-6-nonenal, *cis*-6-nonenol, *cis*-6-nonenyl acetate, calone, Helional (IFF), floralozone and the great *cis*-3-*cis*-6-nonadienol (which possesses an incredible juicy-fruity watermelon natural tonality).

I also mentioned the cassis and bucchu family with "key" products like neocaspirene that was used for the first time in dewberry base. It is finding increasing use for the singular, indescribable note it imparts. The material is still absent from most laboratories, though it has been used lately in fragrances like "Kenzo le monde est beau" in which the material makes a great accord with theaspirane, a jewel that long ago I predicted was going to be used. It also turns up in the formulas of "Fiorucci" and "Angel Innocent."

I have previously described other products in this family, including isospirene (a key ingredient of the famous cassis base) and etaspirene (to me superior to all its isomers — isospirene, neocaspirene and etaspirene are constitutional isomers). One scents employing some of these materials is "Courreges 2020," an extremely creative perfume that is quite novel and radical enough to be nearly indescribable. In this fragrance we see etaspirene forming a cassis accord with fruity, herbal and green ingredients, including methyl cyclogeranate, ethyl caprilate, Verdox (IFF) (ortotertbutylcyclohexyl acetate), prenyl acetate, *trans*-2-hexenyl acetate and *cis*-3-hexenol, all harmonized by a combination of helvetolide and Firsantol. A second remarkable example of what etaspirene can do can be seen in "Pleasures" by Estée Lauder. I love this fragrance (although it can be easily improved with Paradisone), just as I love "Kenzo Le monde est beau."

Octalinol: this is another key chemical. It smells of cassis and has been used in important fragrances, including "Oxygene" for men and "Pamplelune *Aqua allegoria*," whose freshness and citrus radiations, emanations and exhalations are like a blessing from nature.

Labienoxime is an incredibly strong chemical that, to me, is even more interesting than the more famous neocaspirene. Labienoxime is more metallic and less fruity than neocaspirene — the former is stronger than the latter, yet its unique note gives accords of an incredible beauty and harmony, especially when skilfully dosed with thioterpineol, 8-menthatiol acetate and Sulfox (p-mercaptomenthanone). Both Labienoxime and thioterpineol are unique

jewels, as is Buccoxime (Symrise). A fantastic accord is the one mixing Labienxoime, Buccoxime and isobutylcyclamide with methyl pamplemousse. This is by far better than methyl pamplemousse alone. Labienoxime and Buccoxime typically blend fantastically with grapefruit odorants such as methyl pamplemousse, Decatone (Givaudan), dimethyloctenone, Floralate, thio terpineol, thiogeraniol, Vertacetal coeur (Symrise), Rhuboflor, α-vetyvone, dihydronootkatone, isobutylcyclamide and nootkatone, in addition to tropical fruit chemicals such as Tropathiane (4S *cis* and 4S *trans* 2-methyl-4-propyl-1,3-oxathiane), oxane and the great Passifloran (one of the best tropical fruit ingredients ever synthesized). A base that gives me much pleasure (it is my own creation) is a cassis-grapefruit accord called Buccovert Forte, which benefits from the outstanding harmony of these materials.

Cassis

Cassisthiol: This is an unknown product and one of the most powerful I have ever smelled. The material is naturally found in cassis bud absolute, the most important part in the top note (at least as important as sulfox). Cassisthiol is quite volatile — an impact chemical — and should be used at high dilution. As mentioned before, I made a base called Vert de Roses that is incorporated in one of the top fabric softener fragrances in the world. However, this base is composed of many captive chemicals. It is very important when trying to improve the top notes of natural, fruity and herbal shampoo fragrances, and the clean, floral notes of musks such as Nirvanolide (Givaudan), Muscenone, Globanone, Velvione, ambrettolide and especially Moxalone. Vert de Roses, when blended with Berryflor, frambinone crist., Nirvanolide and Moxalone, creates a new accord that I hope will one day win many functional briefings.

Sulfocassione: This material is also a part of Vert de Roses. It is extremely powerful and forms an unusual synergy with Cassisthiol. Both are much better together than separate, as is the case with many macrocyclic musks. Mixtures of Habanolide, Globanone and isomuscone are better and stronger than any of these chemicals smelled alone. This also happens with mixtures of ethylene brassilate, Habanolide, Muscenone δ and ambrettolide, and between Cassisthiol and Sulfocassione — two impact chemicals that form a storm of impact when combined. It is again to point out several materials that will shaped the future of perfumery: etaspirene, isospirene, Labienoxime, octalinol and neocaspirene — all of which make possible some of the most lovely fragrances ever created. I foresee the same success for the previously mentioned Orangeox, which will be described and identified in coming writings.

Fruity — Metallic, Galbanum

Although I have mentioned some of this family's jewels in the past, I have never dedicated a description to several of its members. Galbanum is one of the most complex essential oils in the world. It has sharp metallic green shades imparted by some pyrazines such as sec butyl-2-methoxy pyrazine, 3-isobutyl-2-methoxy pyrazine, 3-isopropyl-2-methoxy pyrazine, and green resinous notes imparted by various undecatriene isomers, the most important being 3-*trans*-5-*cis*-undeca-1,3,5-triene. However, there are some shades that are green, metallic and fruity and I would like to go a bit deeper into these materials. Three of the best known are allyl amyl glycolate, cyclogalbanate and Dynascone. When trying to synthesize α-Damascone, it was noticed that a strong galbanum-pineapple note was confronting the fruity beauty of the pure material, and after long work, two impurities, α- and β-Dynascone, were found and synthesized since they were of olfactory interest. Dynascone was thus born, but this was only the beginning. What is not so well known is that another, better chemical was discovered: neobutenone.

Neobutenone [mainly α-1-(5,5-dimethyl-1-cyclohexenyl)-4-penten-1-one]: Neobutenone is to Dynascone what Paradisone is to hedione. It is somewhat well known that Dynascone consists of two isomers, α- and β-Dynascone. α-Dynascone is bright, delicate, elegant, fruity, galbanum-like, extremely powerful, and has an immense capacity to diffuse and harmonize a fragrance. At the same time, β-Dynascone is weaker, more amber and by far less clean than its isomer. Dynascone consists of around 70 percent of the α isomer and 30 percent of the somewhat dirty, less fruity and more herbal β, which distorts the cleanliness and extreme elegance of the rich isomer. Neobutenone consists of between 88 to 90 percent of the α isomer and only 10 to 12 percent of the β isomer. When compared, neobutenone and Dynascone are like night and day. In my opinion, neobutenone is aristocracy while Dynascone is bourgeoisie. Neobutenone it is bright, clean, radiant, and diffusive and does not have any of the herbal sides that distort its purity. It is a jewel of harmony, when properly diluted. It is a perfume in itself, yet it is wonderful when mixed with perfumery's best odorants, such as Paradisone, myrrhone, nor limbanol, ambrocenide, amberketal, javanol, Belambre (Givaudan), Ysamber K, Cashmeran, ambroxide or laevo-Cetalox, dextro Cetalox (Firmenich), α and β irones, the best methylionones and

dihydro-β-ionone, Muscenone, Nirvanolide, Moxalone, ambrettolide, Velvione, Exaltone (Firmenich), Exaltenone (Firmenich), Exaltolide, and Habanolide, among others. Perfumers who may not know of neobutenone must have a lot of patience, using only Dynascone. Unfortunate for them. Just recently I modified a "Bvlgari Omnia" accord with neobutenone. It was absolutely heaven. The strong, diffusive musk accord that marks this fragrance (with at least 13 percent helvetolide) diffused even better with a mere trace of neobutenone. An accord of neobutenone, nor limbanol, Ysamber K and ambrocenide is also amazing. The radiance that neobutenone imparts to those lovely woody and woody amber odorants is in stunning contrast to the sometimes gray world in which we live. When smelling the accord at a very strong solution, it reminds me of the "pink cloud" in which Plato liked to find peace at the end of its life. When confronted with materials such as neobutenone, one must ask: is there any connection between perfumery and philosophy? Naturally, yes. I would like to insert the verse of an anonymous Central Asian writer from the Middle Ages who lived in then blossoming Samarkand (in modern day Uzbekistan), called the exotic paradise of the Old Persian Empire. This wise anonymous man's poem of the rose went:

Every bush of roses, a feast for the eyes
Grows from ashes of beauty
Every glade of grass we trod on,
Grows from hearts filled with emotions
only yesterday…

The wisdom missing from our technophilic and frigid age was well understood by this anonymous poet, citizen of the legendary Samakand, a monumental city that was quite isolated and characterized by a high conservative thinking in which only emotions were felt beneath the starry nights of Central Asia. I recall the world's great poetic and artistic works when smelling jewels like neobutenone, Paradisone, nor limbanol, myrrhone, ambrocenide, amberketal, irones, Ysamber K, Muscenone, Exaltone, Nirvanolide, Moxalone, Super Muguet, Pharaone, Belambre, the damascones, and β-damascenone, among others. Why? Because beauty, wisdom, freedom, as sensitivity are all intertwined. We live surrounded by the most important cardinal mysteries of life, those that distinguish cultured, sensitive and tender people from the indifferent. Perfumery, when properly understood, is for those who believe that a different world it is possible. Unfortunately, this different world it is more distant than the beauty already achieved with perfumery, our lovely profession.

Pharaone — 2-cyclohexyl-1,6-heptadien-3-one: This is an incredible and beautiful chemical. If neobutenone is more fruity pineapple, Pharaone is simultaneously citrus-grapefruit and galbanum-like. While Pharoaone differs from neobutenone, it does possess about the same strength and retention time in GLC/MS (Carbowax). Pharaone, though, is fresher, and although very new I see a fantastic future for the material, especially for eaux fraîches and fresh products. The material would serve to make such products more diffusive, while marking them with its galbanum citrus note, infusing applications with an indescribable charm. Accords of Pharaone and Labienoxime are great, as are Pharaone's effects with Orangeox and Haitian bitter orange oil (one of the most beautiful citrus essential oils in the world — in fact, Edmond Roudnitska's favorite citrus essential oil). However, I do not see Pharaone restricted to just these applications. Accords of Pharaone with cedrat coeur, expressed lime oil, grapefruit oil and various grapefruit chemicals are so novel that one can foresee a compelling age coming for this sensational chemical. When mixed with spirogalbanone, its fixation improves greatly, and its effects mark the fragrance from the top note to the last remaining dry down. Pharaone diffuses sensationally with hedione and Paradisone and produces good accords to with helvetolide and all the floral musks. I recently modified of a rather new musk fragrance, "Bvlgari Omnia," which contains large amounts of helvetolide, Habanolide, hedione, Muscenone, ethylene brassilate and Galaxolide (IFF); the addition of Pharaone and neobutenone changed the product, raising its intensity and boosting the excellent white musk heart of the fragrance, making it more lively, bright, young and diffusive. Pharaone will certainly be a key chemical affecting the beautiful evolution of perfumery. I am very impressed with this chemical, in case you could not tell. The first thing I did when smelling it was to use it in a "Light Blue" accord, and in a "Truth for men" accord. Both fragrances, which were already fantastic, were improved.

Galbaniff — 1-(3,3-dimethylcyclohexyl-1)-4-penten-1-one (dihydro dynascone): As I have said before, all of these molecules have an extreme diffusion in common (a 1 percent solution smelling strip perfumes a 20 m^2 room), and a fresh, green, galbanum-like, fruity scent. Yet there are distinctions. Neobutenone is radiant and fruitier than Pharaone, which is more citrus-grapefruit-like, while Galbaniff (dihydro dynascone), the key chemical of galbanol oliffac, is greener, rosier, β-damascone-like and less fruity α-damascone-like than neobutenone. Please do not misunderstand me: I do not claim that Galbaniff is like β-damascone and that neobutenone

is like α-damascone. Those materials are extremely diffusive green-galbanum-like chemicals. All these chemicals work very well with so many fragrances, but combine particularly well with woody, floral, citrus and exotic fruit notes. As I said, I would use Pharaone mixed with citrus and fresh fragrances, neobutenone with florals, and Galbaniff (which I like less than neobutenone and Pharaone) with many compounds. Which one is the absolute best? That is an impossible question. For me, however, a fan of fresh, white musk and citrus fragrances, I would rate Pharaone as the best, just as I might like Rubens while others prefer Van Dyck. What is certain is that the market is pluralistic, and my appreciation is purely individual — I must, as a perfumer, judge what I smell, though there are times I must solicit the opinions of my colleagues in cases in which I do not olfactively register well (civettone, karanal, etc.). When I was with Firmenich as a perfumer, we perfumers met every day from 9:00 AM to 10:00 AM, including with the great Philippe Sauvegrain, Michel Lambert, Roger Pellegrino, Paul Leger, Arturo Jordi Pey, Francis Fabron and others. During these sessions we would endlessly discuss ideas, accords, sensations, feelings, all the while joking with irony and speaking of the ideas and the impositions of the marketing department that at that time. I have always remembered this period as a very great one and I have never forgotten all these colleagues, men that gave everything for the profession, devoting all their best efforts for a company they all loved. To this day I maintain a nice friendship with several of those colleagues.

Spirogalbanone (Givaudan) — 1-spiro-[4.5]-dec-7-en-7-yl-4-penten-1-one: I would like to finish this extraordinary family with this chemical, which is outstanding. Its smell is green-fruity-pineapple, galbanum-like and extremely diffusive. The question is: if we have Pharaone, Dynascone, neobutenone, Galbaniff, allyl amyl glycolate and cyclogalbanate, why do we need more — why do we need Spirogalbanone? Does it make sense? Is it not a complication to have too many ingredients? The answer is: absolutely not. It is not a complication to have a plethora of ingredients. Yes, we need Spirogalbanone. Dynascone, Pharaone, neobutenone and Galbaniff have more or less the same boiling point eluting in a capilar Carbowax column at around the same retention time as β-phenylethyl alcohol, more or less. Spirogalbanone, on the other hand, has a retention time close to Lyral, so while having all the freshness found in the other chemicals, it is by far much more long lasting — this is a supreme characteristic, a radical difference. A 1-percent solution of this material remains on a smelling strip for about two weeks, while the other three chemicals last only two or three days under identical circumstances. Spirogalbanone is thus one of the most important members of this family. In addition, it imparts an important synergistic effect with the rest of the family's chemicals fixing their effects just like Amberketal fixes all the compounds. Spirogalbanone, by the way, is very clean and extremely diffusive. Accords of Pharaone and neobutenone with Spirogalbanone are perceived around 66 percent stronger than those chemicals tested alone. The effects of the mixtures remain much longer than the effects of the individual chemicals when used alone — this was the perception of 97 percent of the people I surveyed. After few days, a 1-percent smelling strip of Spirogalbanone recalls the smell of galbanum absolute or galbanum resinoid, though it is cleaner, and more diffusive and long lasting.

I do not have the time to extend into exhaustive descriptions of accords made with these chemicals, but I am sure good perfumers (there are not so many in the world) will be able to launch off from my starting point. These perfumers will understand that with raw material jewels it is easy to create final formulation jewels. Again, we must thank the chemists. I consulted with Dragoco from 1982 to 1986. In 1982 I was asked to work with two great chemists, Hans Warnecke and Ernst Brunke, in order to merge our chemistry and my perfumery points of view/approach to discoveries. The idea was to bridge R&D and perfumer. Who could be sure at its inception what the program would yield? Well, my memories of those two great colleagues and the time we spent together are among the greatest. Warnecke was always ironic while Brunke was very serious. While respecting them and feeling their reciprocated respect, both gentlement got along very well with me. We worked hard, we talked, we developed goals and acted, we achieved these goals and repeated the process all over again. It was a great experience in lovely Holzminden. We colleagues developed a close friendship and discovered many chemicals that afterwards became big successes, laying the foundations for new and even bigger discoveries. Unfortunately, we were not working in a vacuum. We were not alone. A great deal of our creative work was diluted within the frame of regulatory bureaucracies connected with well known "great" institutions that have, frankly, eroded and obscured the energies and feelings of those of us that appreciate the importance and wonder of research — we who are curious to discover what is beyond what we know today. In the end, it was easier to depart from the consultancy than to bear the meddlers. Sadly, my friend Brunke died very young while on holiday, cycling in the US. Warnecke, a man of great culture possessing a sensitivity to irony's

value in this world, is still working, surely feeling (as we felt together) the peaceful joys of lovely and placid Holzminden.

Green

There are many green notes, but we do not see much creativity in this category since its tonalities are imparted in most fragrances by a handful of products including Triplal, *cis*-3-hexenol, *cis*-3-hexenyl acetate, Liffarome, and to a certain extent *cis*-3-hexenyl propionate, butyrate and isobutyrate. Despite this traditional narrowness, there are many interesting new and old/unused chemicals that I would like to mention.

***cis*-3-Hexenyl *cis*-3-hexenoate:** While related chemicals — Triplal, *cis*-3-hexenol, *cis*-3-hexenyl acetate, *cis*-3-hexenyl propionate, *cis*-3-hexenyl isobutyrate, Liffarome and *cis*-3-hexenyl butyrate — smell mainly of grass, I find another kind of greenness on the green-floral spectrum. *cis*-3-Hexenyl *cis*-3-hexenoate is a member of this subgroup. The material smells powerfully of gardenia petals, but not just gardenia — most flowers' petals, in fact, have a green tonality, even spicy flowers like carnation. When I deeply smell *cis*-3-hexenyl *cis*-3-hexenoate in an attempt to perceive its wonderful note, I detect a general floral tonality that could belong to any number of flowers. The material is green, floral and very delicate, and works very well with top quality sesquiterpenes like bisabolene and farnesene. *cis*-3-Hexenyl *cis*-3-hexenoate combines very well with sandalwood chemicals such as Javanol, Firsantol and Nirvanol; floral-green *cis*-3-hexenyl benzoate and *cis*-3-hexenyl salycilate, jasmine hedione and Paradisone; and macrocyclic floral musks such as Velvione, habanolide, Globanone and ambrettolide, though especially well with helvetolide. *cis*-3-Hexenyl *cis*-3-hexenoate's accords with carnation materials such as isoeugenol, eugenol, Dianthox (Symrise), Carnothene (Symrise) and Centifol ether are also very impressive. This green note is one of the noblest I know. I love to work with gardenia accords that possess the best gardenias in the world, for example our Gardenia Blanche, a scientific reconstitution of the flower that took more than four years of research to be made. What significantly impressive in *cis*-3-hexenyl *cis*-3-hexenoate is its tremendously natural, vegetal petal-like tonality, which is easily conveyed to the soul of fragrances.

***cis*-3-Hexenyl tiglate and hexyl tiglate:** If *cis*-3-hexenyl *cis*-3-hexenoate is floral green with shades of many flowers, the tiglates are clearly gardenia — almost exclusively gardenia. Gardenia is a beauti-

ful white flower with evergreen leaves and large berrylike fruits. I have many of them in my garden, and they are some of the best smelling flowers in the world (however, this impression is diffuse: there is no one gardenia, but rather more than 200 species).

When smelling gardenias, I always recall my four years in the Pacific Islands where I visited New Caledonia, Fiji, Samoa, American Samoa-Pago Pago, Cook Islands, French Polynesia, Tahiti, Bora Bora, the exotically beautiful Marquise islands where I stayed quite a long time in the most beautiful land in the world, lovely Hiva Oa, and naturally Hawaii, where I used to spend all my summers as a child. Culturally, these islands are relatively homogeneous, with the exception of Pukapuka, which was settled by western, rather than eastern, Polynesia. And all these islands love their flowers; there is no Polynesia without flowers and flowers and flowers; they play an active role in cultural life, particularly in song and dance festivals for which the islands are renowned. A small library and museum in Avarua provide the most beautiful collection of exotic flowers I have seen in the world.

Traditional ceremonies have always featured the hallmark of flowers, such as in Hiva Oa's major 10-day national holiday. (A Tiare ["Gardenia"] Festival, a float parade, and a series of song and dance competitions fill the region's annual calendar of festivities.) I do not doubt that my perfumer vocation started in my child summers in Kauai, Hawaii, the greenest, most beautiful and floral of the Hawaiian Islands. When smelling *cis*-3-hexenyl and hexyl tiglates I smell Polynesia. I smell my childhood and great shades imparting the most beautiful fragrances. *cis*-3-Hexenyl and hexyl tiglates blend well with ylang ylang, tuberose absolute, dimethyl benzyl carbinyl acetate, phenylethyl phenylacetate, methyl anthranylate (from my perspective, Givaudan quality only), lilial, nigelle absolute, 2,3-dihydrofarnesol, lyral, *cis*-3-hexenyl salycilate, Super Muguet, benzyl cinnamate, sandalwood chemicals (*cis*-3-hexenyl *cis*-3-hexenoate, Dartanol, Sandalore (Givaudan), ginger lily flower [an unknown jewel], hedione and Paradisone). Can you, the reader, smell the fantastic perfume I am describing? I have created it with success many times. These floral green chemicals are entirely different from green grass chemicals and allow nearly endless flower variations.

***cis*-3-Hexenyl angelate:** This floral-green chemical is more vibrant, greener and less pastel than the tiglate. Again, this is one of the "Polynesian" chemicals that resurrect for me the years lived there. The material blends well with tolu derivatives, nerolidol and dehydronerolidol (an unknown and extremely interesting chemical). I use it in many of my bases combined with 2,3-dihydrofarnesol, ethyl phenoxyacetate and *trans*,*trans*-farnesol, ethyl p-methylphenoxyacetate, *trans*-2-tetradecenal, Haitian bitter orange oil champa attar (a co-distillation of champaca flowers and sandalwood oil that we produce in India) and amyris oil. All these possible accords are supreme. Combinations of these esters with Florol are great. These descriptions are what I call my Polynesian perfumes — fragrances that have a supreme harmony and velvety aura that stir emotive subjective feelings.

Aladinate — 3-methyl-2-hexenyl acetate: This is a totally unknown, elegant, quite specific and powerful green note. It is not as floral as the *cis*-3-hexenyl esters described above, and not as grassy as the traditional *cis*-3-hexenyl esters. Still, this chemical's fantastic harmony touches one's subjective world. Aladinate is very new, a recent fruit of research efforts. It will play an important role in the future of perfumery, setting a new trend in its evolution. Aladinate combines excellently with Liffarome and Lilyvert, and its great diffusiveness makes it essential when creating green fruity notes that are so fashionable today. The material works very well with cyclopidene and its related acid cyclopentacide, in addition to powerful citrus notes such as methyl 4-dodecen-2-nitrile and the so-called methyl decanile (one of the most elegant nitriles I have smelled).

***Pearlate — cis*-3-octenyl propionate:** This material is greener and less fruity than Aladinate. Pearlate is one of the green notes that I felt was improved when combined with Paradisone. (Pearlate is not as diffusive as Aladinate.) Paradisone does not require the addition of diffusive products — its diffusivity is already spectacular. Pearlate, Liffarome, *cis*-3-hexenyl tiglate, Paradisone, *cis*-6-nonenyl acetate, methoxymelonal helvetolide and calone create one of the most beautiful accords I have created. The accord is what I call "Green Paradise," and it brings back for me one of the most beautiful spots I have seen, the exotic and remote beach in an almost inaccessible part of Samoa. This exotic beach touched me; I was happily lost in Samoa. The recollection of its intriguing smell and colors is still a source of inspiration that I try to recreate with the new chemicals I have described in my writings.

***cis*-3-Hexenyl methyl-2-pentenoate:** This material is less powerful than Aladinate and greener than *cis*-3-hexenyl tiglate — another of my favorite "South Pacific" chemicals that reminds me of the flowers I have known there — periwinkle (*Vinca*), oleander (*Nerium*), yellow oleander (*Thevetia*), plumeria (the national flower of Hawaii), natal plum (*Carissa*) and crepe jasmine (*Tabernaemontana coronaria*). Several

species of the genera *Trachelospermum*, star jasmine (T-jasminoides), mandevilla and Allamanda are attractive woody vines. Dogbane (*Apocynum*) and Amsonia are widely grown as ornamentals. Many of them are Polynesian succulents with alternate leaves and strangely shaped trunks. The impala lily (*Adenium multiflorum*), which possesses star-shaped flowers and large underground tubers, is one of the most beautiful, though it must be said that beauty must be appreciated wisely — deadly arrow poisons are another feature of many plants in the dogbane family. (Although dangerous, some of the poisonous alkaloids of these species are used as drugs and medicines by local people.) Beauty, charm, delicious and beguiling auratic memories, life, joys and poisons: these are the metaphors of our dangerous indulgences of the world of the soul.

Methyl 3-nonenoate: This is an isomer of neo folione, and to me at least as interesting as it. The material is more vague than the well-known methyl 2-nonenoate, which is less green, and more violet and ylang ylang. Methyl 3-nonenoate is a wonderful chemical that is difficult to tame and control, and yet it is perfect for formulating intriguing and beguiling South Pacific fragrances.

I would like to finish my description of these chemicals by saying that if we are not more creative it is because either we are not enough daring or we are simply content to copy others' scents. Our friends the chemists work hard, yet the regulatory/governmental bureaucrats of this world also work hard to limit the bounds of chemical inventiveness. We as an industry have simply been too shy and obliging to denounce what smothers our creative souls, both in the environment of our profession and in society at large. However, in spite of all these obstacles I have become less pessimistic than in 1999. In the last several years we have seen exceptional perfumes and great ingredient discoveries. In a catastrophic world of desolation and injustice, our profession — the eternal art of perfumery — blossoms. I would posit that it may be the most successful art of our present days. In my opinion, our society has declined in the arena of the arts. We no longer make the great porcelains that the artists of Meissen, Sevres or Limoges once created because the rational materialistic lifestyle that has flourished since the close of the 18th century does not leave one for time to "waste" creating and enjoying such a beautiful objects. We do not paint as the painters of the end of 19th century painted. We do not have the time to decorate the façades of houses of our cities anymore — this is another one of the greatest and inhuman calamities of our century. Everything is iron, steel, coldness, ice and functionalism, but still, as a rebellion against the state of the arts, we do create great perfumes, and our customers buy them trying to find better and better ones almost as a collective obsession. This is clear air on the horizon: we need something else, higher, more cultured and more sensitive than what is now a reality, and evolution towards a better world is coming closer and closer. The world is changing and if we know how to do it — without fanaticism and without violence, the greater sins of 20th century and early 21st century — we will succeed.

Eternity: Ideas and Evolution

Perfumery is eternity. This is the feeling I've always had when smelling all kinds of flowers, woods, roots, herbs, seeds, spices, gums, leaves, sands and air. Perfumery helped me to understand the eternal mysteries of life, and as a fine art it helped me to express my feelings through olfactory beauty. I found myself working not to make money, but to discover the truth and nature of my existence. Actually, I was not working at all — I was enjoying every moment spent in my small laboratory in Cabrils. Soon, I realized the truth: this was art and a way to understand the cardinal mysteries that have astonished all the great philosophers since the dawn of Western civilization.

Nothing great is and nothing great can be definitely in the past forever. Eternal things and ideas are never irrevocable. Their being, similar to the wind, is in perpetual movement. Time does not spoil them if they are majestic, grand, lofty and sublime and all the fine arts are indeed majestic, grand, lofty and sublime. On the contrary, time, confirms them. The elapsing years, instead of provoking oblivion and deficiencies in its being, exalt and reveal the hidden faces of their essence. Time is past, present and future at every instant. Time escapes the measures that want to hold it. It is a gift, it is a present of eternity and to use the great conclusion by Plato, "it is the moving image of eternity." It is the unreachable glare and the unattainable image that flees away from the world of archetypes.

If you have read my past installments, many of my affirmations were speculations full of pessimism. I said that "our culture, which seems to worship little more than science and technology in the 'Kingdom of Omnipotent Reason,' sometimes seems to be leading our profession, if not the society as a whole, into a wasteland close to desolation — a desolation of the soul, of the spirit, of mystery and of myth."

However, we beings are deeply convinced that happiness and spiritual plenty exist. We also strongly believe in the existence of a different truth that surpasses all "rational" intelligence. We want something else, something different, and because of that, because we are not ruled only by reason, we buy hundreds of millions of bottles of perfume every year.

This cooperation between creative and cultured chemists and perfumers is what makes perfumery eternal.

Pessimism that holds absurdity (we know it) is equivalent to evil, misfortune and disaster. However, I would counter the negative reality and feelings — this "pessimus logos" of our period — with a quote that is far softer, brighter and more tender, which I discovered by coincidence during one of my frequent night time readings that. This durably marked and stressed my conscience: "Darkness is invisible to light and it becomes more invisible when light is strong!"

To me this light was and is perfumery. I chose to be a perfumer while very young because the many odors of the world pleased my soul. To me, all the odors I discover, smell, try to understand and mix are like the constant effusion of a bright light, which glorifies, elevates, raises and stimulates my senses and spirit. This light is, to me, like the symbol of the peaceful invincibility of my spiritual convictions.

Perfumery is evolving. In the five years that have elapsed since the publication of the fourth part of my work in 1999, we have seen great creations. We have seen a fantastic work of cooperation between chemists and perfumers, only hindered by the bureaucracy of "political" institutions that "brightly" warn us against many things. However, let me return to optimism by saying that this fantastic cooperation between chemists and perfumers has allowed us to make tangible so many beautiful fragrance creations. This cooperation between creative and cultured chemists and perfumers, with its prodigious and wondrous serenity, wisdom and the human aim to progress, is what makes perfumery eternal.

These great fragrances, fruit of this creative cooperation between chemists, perfumers and, let me also say, evaluators, are like a subtle, delicate and fresh shadow in a burning environment that makes if possible for our soul to live in splendor without pretending that we reached an end of the path. This kind of oasis and its soft shadow bordered by an unfriendly environment is blessed by the breeze that conveys the auratic breathing of the beguiling scents of jasmine sampac, champa, kewra, gul hina, rose, lily of the valley, violet, gardenia, magnolia, orris, freesia and frangipani.

Perplex, the spirit, assists to the wedding at the open sky between heart and eternity because it is convinced that the real face of the world it is not this happy luminosity but a series of dark masques that bring to mind rational thinking and resonant unhappiness. The most irreproachable of these masks is the one that keeps us far away from our celestial origin — our real being. It is a bit like the mask that inspired Milan Kundera when, sad and a bit despaired, he wrote the novel called "The Unbearable Lightness of Being," in which he explained his own participation in the brief but heady liberalization of Czechoslovakia in 1967-68. After the Soviet occupation of the country he refused to admit his political errors and consequently was attacked by the authorities, who banned all his works, fired him from his teaching positions and later stripped him of his citizenship.

The progress of perfumery, and I have changed my mind, is a reality in spite of many blunders that still exist around our professional environment. All the chemists I have met, and many of the top perfumers, work with an enthusiasm that can be summarized in the memorable phrase of the author of "La Cité de Dieu" that brightly says, "my soul burns because I wish to sense and I wish to know."

Carlyle use to say that, "the universal history is a writing that we need to decipher and to transcribe continuously." The same is true for the history of perfumery. We, chemists and perfumers, work to re-illuminate the passion that before, during the bight time of Hellenism wrought by so many wise men, took Western civilization to the summits of glory. This is the secret of our collective success when realizing that we have created such an olfactory beauty that people look into our creations with ardor, intrigue, passion and joy.

I do not know why I have always felt so encouraged when visiting the many ruins of the Hellenist cities through the eastern part of the Roman Empire. I do not know why, when returning from my exotic trips through Effessus, Perge, lovely Aphrodisias, Pergamom, Cnidus, Jerash, Afamea, Byblos, Petra and Balbek, I have been so creative. Maybe those admirable ruins of the past refer to a brighter time when spiritual emotions, culture, serenity, tenderness and freedom where abundant. And maybe I found there, as I find when smelling the scents of the world, invincible and passionate eternity. Since I discovered all these jewels in the Orient, I would like to homage those lands, cradle of our most mysterious ingredients (silver frankincense, myrrh, opoponax and agarwood), with what Rudyard Kipling once wrote:

"Si tu as entendu l'appel de la vérité et de l'éternité en Orient, tu n'entendras plus rien d'autre"

Address correspondence to Arcadi Boix Camps, Auram International Group Co. Ltd., Villa Ithaca, Pau Casals, 21, 08348-Cabrils, Spain; e-mail: aboix@auram.org n