



Perfumery Techniques in Evolution—III

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I am well aware that our profession becomes more complicated every day and it is increasingly more difficult to keep it within certain purely artistic limits. Classifying and giving greater emphasis to our analytic powers results in a weakening of our creativity. Culture, taken almost solely as technique or study, as the Kingdom of Omnipotent Reason was sure to lead our profession and in fact the whole society to a wasteland close to desolation—a desolation of the soul, of the spirit, of mystery, of intuition and of myth. And have we not said that the characteristics of the creative perfumer were precisely these?

Voltaire, one of the fathers of Rationalism, thought that Reason was certainly a weak light, but it was the only thing that counted. But no work of art, no great perfume has been made with this as a premise. Aware of the reality of the time in which we live today, the perfumer as an artist is in a critical situation.

Scientifically and astronomically speaking, the sun is of extraordinary interest. However its warm, radiant and golden brilliance shining over a valley and over a sea fascinates the inhabitants of a humid and industrial Europe and brings them to the Mediterranean.

This is the root of the perfumer's problem. The problem of the good perfumer is not just a "nose" as often said. On the one hand, there is the world of the soul, spirit, mystery, intuition and myth; on the other hand, there is the world of business and

a society based more and more on an unbridled materialistic Rationalism which is supremely useful scientifically and economically, but which has resulted in stunting our collective personality.

We are all of this world, but what strange and unhealthy idea ever made us believe that in order to grow we had to cripple ourselves?

Moving on now to the main section of this paper I want to emphasize that my published works are part of a whole. Don't think that when I speak of woody notes and I don't mention Vertofix Coeur or Iso-E-Super or that when I speak of ambery notes and I don't mention Ambrox it is because I have forgotten, but because these products belong to parts one or two, already presented and published.*

Here I will cite a few chemicals of each of the different olfactory families.

Agresticals

The agresticals I am going to subdivide into herbaceous agrestical, lavender-camphoraceous, citronnellic, camomile-tea, herbal dry leaves and thuyonic.

*Perfumery: Evolution of Its Techniques—Part I, *Perfumer & Flavorist*, June/July 1985, 10(3), p. 1 and Perfumery Techniques in Evolution—II, *Perfumer & Flavorist*, August/September 1985, 10(4), p. 15.

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The herbaceous-lavender-camphoraceous includes a great number of new developments. I will describe only two.

2,5-Dimethyl hepten-5-ol-2 shouldn't be confused with *Dimetol*. It has an excellent fresh, floral, herbal, lavender fragrance with a very intense note of rosewood oil. Its effects in lavender mixtures are really good, as well as its blends with *cistus*, *Cetotabac* and *kephalis*.

cis-Verbenol has unequalled camphoraceous beauty and strength. It is found in certain essential oils and it is even finer than *Verbenone*. A crystallized substance with shades of incense that yields blends of great beauty in combination with *Bacdanol*, *Brahmanol*, *Sandalore*, *Indianol* and *Krisnanol*.

The subdivision of camomile-tea odors has as an extract *n-Butyl-2-Methylvalerate*, called *Methyl cammomille* with a very fine camomile fragrance, very volatile. It produces interesting effects with crude eucalyptus oil, the so-called *Ourtivert*, *Evernyl*, herbaceous essential oils like *hyssop*, *mint* and *camomile*.

Theaspirane. In this case we find ourselves before one of those singular chemicals which seldom emerge from research. We could consider it among the ten best chemicals on the market. It is present in natural tea and its fragrance is extraordinarily complex: herbaceous, green tea, wet and recently cut tobacco leaves, with metallic, woody, floral and spicy subnotes. It combines in some singular blends with vanilla notes, with *3-Megastigmatrienone*, *Oxo-Damascone*, *Beta-Damasconone* and *cetotabac*. Its radiant beauty of unequalled character places this chemical among such products as *Hedione*, *Exaltolide*, *Irones* and *Pentambrette*, without implying, of course, that I pretend to group all these aromatics in the same family.

Aldehydes

On occasion some aldehyde family products have been confused with citric products and have been thoroughly mentioned in my earlier works. Of these products we can mention the aliphatic aldehydes, the 2-alkenals and others like *trimethyldecadienal*, *2,6-dodecadienal*, *8-nonenal*, *cis-4-decenal* and *Maceal*. Let us consider some others.

β-Coronal is a product of the utmost importance, and despite this, is forgotten by most of the laboratories. It has a very strong aldehyde note with coiraceous and metallic overtones. It has important uses in combinations with *γ-Valerolactone*, *Methyl Nicotinate*, *Ethyl levulinate* and *Mate absolute*.

5,9-Dimethyl-4,9-Decadienal, called *Dominal*, has a very strong odor which should be listed in the citric aldehyde group, but in strong solutions it can have a floral, magnolia-lily of the valley note. It is reminiscent of *Trimenal* although perhaps it has a less green and a more floral note.

The family of tobacco scented products, which I had earlier mentioned includes such products as *3,3,5-trimethyl cyclohexanone* (*Isophorone*), *β-Damascone*, and *2,2,6-trimethyl cyclohex-5-en-1,4-dione* (*Cetotabac*), has many important new developments. Now I am going to mention others.

3-Megastigmatrienone, a product of supreme importance both in the future of perfumery and flavoring and in the chemical composition of the tobacco leaf, has the strong and brilliant, indescribable, fruity odor of tobacco. Its use can bring us into a new era in perfumery. I wouldn't hesitate to place this aromatic among the elite of chemical products such as *Hedione*, the *Irones*, the *Damascones*, *Theaspirane* or macrocyclic musks.

It gives some truly sensational blends when combined with woody-scented notes like *limbanol* and with fruity-radiant notes like *β-Damasconone* and *α* and *β-Damascone* and with chemicals like *Theaspirane*, *Ambrox*, *Rose Oxide* and *Rose Furan*.

It is so sensational that it is well worth the effort to develop the imagination and to accept fully its enormous possibilities. It is incredible that dealing as we are with synthetic products, they should smell exactly like chemicals of natural origin. Excellent bases have been made with *3-Megastigmatrienone* like tobacco leaf, *Darjeeling* or *Cetotabac* series.

Sensational blends are obtained by mixing this product with *Oxo-Damascone* or *Oxo-Edulan*.

Oxo Theaspirane has an odor similar to that of *Isophoryl Acetate*, but less dry, more of a moist-woody odor of camphor and *cinol* smelling a lot like tobacco.

Woody Chemicals

To consider the family of the woody chemicals, its subdivisions and some welcome developments that it brings to us, I would like to emphasize that the developments of this olfactory family like *Cedramber*, *Cedroxyde*, *Madrox*, *Vertofix Coeur*, *Iso-E-Super*, *Timberol* or *Trimofix* have profoundly affected modern perfumery, that is to say, perfumery that has been marketed since 1970.

The following:

Oxyoctaline Formate, is one of the jewels that research in this field has recently given to us. Its

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fragrance is extraordinary and in its evaporation, it has unequalled shades of beauty. The richness of this chemical will be sure to place it on a very high level in the future, and I am sure that it will be used more and more each day.

Amboryl Acetate, a very economical product, is chemically speaking isolongifolanyl acetate. It may or may not be "Bouqueted." It possesses a clear note of amber-ketal but somewhat weak and diluted. It doesn't have as much class as such aromatic chemicals as Vertofix Coeur, Iso-E-Super, Cedramber or Timberol but its low price makes it interesting for functional uses.

Limbanol, an extremely powerful woody chemical, is synthesized and used as such and also is found as an impurity in Timberol. Although a new and relatively unknown chemical, it will influence perfumery in the next decade. Very few times, with rare exceptions, have I smelled something as enigmatic, profound and potent.

Physeol, a very pungent chemical, is not very longlasting and somewhat in the direction of Cedramber but more deeply woody, Cedarwood-like and less "velvet" and ambery. I like Physeol very much. It is one of my preferred woody chemicals.

Sandalwood chemicals. The classical exponents, Sandela, Brahmanol, Bacdanol and Sandalore which prevail upon modern perfumery have these two innovations, Indianol and Krishnanol.

Indianol is an extraordinary chemical which completes the series of sandalwood products. It has a much more floral fragrance than Bacdanol or Brahmanol and it is less weighty and less typically sandalwood; for this reason it adequately tempers the overly-technical quality of these two products, which are per se of a less floral character than the sandalwood chemical par excellence: natural *cis*- β -santalol. Mixtures of Brahmanol, Bacdanol and Indianol give us an odour so extraordinarily radiant and beautiful that it can hardly be distinguished from *cis*- β -santalol. Indianol has as much of a floral fragrance as Vetiverol, and in some respects resembles it when it is compared with substances of a more sandalwood character such as Brahmanol or Bacdanol.

Krishnanol is an extraordinary chemical with milky powdery, sandalwood, fruity and velvet characters of unequalled beauty, it is again one of the jewels. Its blends with decenyl cyclo pentenone, *cis*-jasmane lactone, Hedione, Bacdanol, Brahmanol and Dihydroambrinol are really interesting.

The woody-moist-rooty-earthly chemicals include 9-ethylidene-3-oxatricyclo (6,2,1,0²²) Un-

decan called *Rhubaflor*. Extremely powerful, of a floral, fruity, rhubarb, mossy, woody, rooty character, which combines extraordinarily well in small quantities with the quinolines and 4-ethyl-4-butyl-5-valerolactone, it imparts a very lively character. Absent from a great number of laboratories, it is a chemical which hasn't been exploited but, nevertheless, is of capital interest. Accords of Rhubaflor with Tridecen-2-nitrile are excellent and found in prestigious bases.

The woody oak moss chemicals. Besides Veramoss, which I have already mentioned, this group has many new and important developments, but I am only going to mention here *Orcinyl No. 3*, a very strong chemical, typical of the odor of Yugoslavian Oak Moss Absolute. It is not as long lasting as Evernyl but it possesses a very beautiful, extremely natural top note.

Animals

On other occasions I had mentioned the olfactory aspects of natural ambergris as well as some chemicals which were responsible for this odor. The products were Ambrox, Grisalva, dihydro- γ -ionone, α -Ambrinol, α -Ambrinol epoxide, Dynamone and the prestigious Amber Ketal. I would like to add two important products.

Dihydroactinidolide, with its fragrance as extraordinary as it is little known, is missing from most of the perfumery laboratories. It is by far one of the four most important aromatic chemicals in the natural product, the other three being dihydro- γ -ionone, α -Ambrinol, and Ambrox. If one of these four aromatics is missing it is absolutely impossible to achieve the really natural, rich, diffusive, metallic and seductive scent of the mythic natural product.

Dihydroambrinol has an extraordinary odor of ambergris much weaker than given off by α -Ambrinol but with tremendously natural nuances and with a slow, lovely, metallic evaporation similar to amber.

In the subgroup of *animal-musk* products mentioned in parts one and two which have influenced perfumery strongly for a long time are: Muscone, Exaltone, Exaltolide, Civettone, Ambrettolide, Hexadecanolide, Oxalide, Musk R-1, Hibiscolide, Galaxolide, Tonalide, Celestolide and Ethylene Brassilate.

These musks have influenced modern perfumery so much that we can say that their massive use together with Methyl Dihydrojasmonate is the base of what we understand to be the present world of perfumery. The launching of perfumes like Fidji or Calandre have marked the guidelines for an evolution foreseen and that has been made possible thanks to an enormous rich-

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ness in chemical development.

In the family of *animal-fecal-costus* I would like to mention several.

Nolinac has an extreme strength reminiscent of costus and of an animal cage or of straw stepped on by animals. Whenever the correct doses are skillfully used, it makes excellent blends especially in products which contain large amounts of costus absolute or of floral-green notes of the sophistication of *Alliage* or *Aramis Devin*, which don't contain *Nolinac* directly, but instead some note of natural origin reminiscent of *Nolinac*. *Nolinac* can enhance this note which one should know how to make the most of.

4-Ethyl-4-Methyl- δ -Valerolactone, called *Costaulon*, has a very strong, costus, animal, slightly *Tonka-cumin* odor which combines excellently with *Rhubafuran* and *Rhubaflor*, in many blends.

Citric Chemicals

In the family of the citric chemicals, I have already mentioned *trans-2-dodecenal*, *trans-2-tridecenal*, *α -sinensal*, *2,6-dodecadienal*, *nootkatone* and *tridecen-2-nitrile*. The family continues growing and I will describe three more.

Thioterpineol, the best products of the family and the one with the most citric notes, it is the finest and the most elegant of all the chemicals that I know that have sulfur in the molecule. It is found in traces in the essential oil of grapefruit and it can be said that it is a key compound. It is much more important than *nootkatone*. *Thioterpineol* is another one of those elite products that enhances the citric character wherever it is used. It is another of my favorite chemicals and I am not going to list the blends it can make, except to say that its ability to enliven citric notes is infinite. The acid effects it creates are made even more beautiful in citric eau fraiches where a good amount of Indonesian patchouly oil, *Hedione* and *Helional* are also used.

The family of herbaceous citric brings us in the way of new developments a true jewel which I am going to try to describe to you. *2,6,9,10-Tetramethyl-1-Oxaspiro (4,5)-3,6 Decadiene*, called *Isospirene* is tremendously powerful with a citric-herbaceous scent that smells a lot like green tea with subnotes of tangerine and grapefruit. It has important fruity nuances, a shade of mango and passion fruit. It is a product of extraordinary power and of a fragrant quality that makes it selective and again one of the best chemicals in existence. Since it forms part of universal bases, it is being used on large scale in perfumery and along with the *Damascone*, *dimethyl cyclohexenyl pentenone*, *methyl propyl*

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oxathian and other compounds, it is imparting a great character to perfumes.

Spicy Scents

Among the family of spicy scents I had earlier mentioned eugenol, cinnamic aldehyde, cuminic aldehyde, livescone, cinnamyl nitrile, ethyl safranate, safranal and myrtenal and I would like to add another.

4-Isopropyl-2-cyclohexenone, called *Crypton*, is a very interesting but little known product. Widely found in nature in the essential oils of lavender, lavandin, pepper, cumin, eucalyptus and wild pine, it is spicy with a strong smell of cumin and caraway.

Florals

The family of floral scents, and the subgroup of herbaceous florals, have classical chemicals which were mentioned in my earlier work like Linalol, Dihydromircenol, Dimetol, Tetrahidrolinalol, Ocymenol, all, as you know, extremely important.

The rose florals I have already mentioned are the rose oxides, nerol oxides, rose furan, and the classical citronellol, geraniol, nerol. I am going to add two more.

3-Methyl-5-phenyl-1-pentanol called *Phenoxanol* has a very radiant geranium-leaf odor of high quality and very natural. It has that "velvet" note of rose petals and has also a fresh aspect with shades of hyacinth.

Anatolil has a smooth intimate, delicate fruity note. It is interesting to substitute Centifolil which is present in Opium of Y.S.L. with Anatolil and see the sweetening effect it has and how it changes the final product.

Of the *jasmine florals* I have already mentioned dihydrojasmone, cis-jasmone, cis-jasmone lactone, Hedione, jasmolactone, methyl jasmone, γ -decalactone and others. I want to include here *α -Hexyl- γ -butyrolactone* with a floral, sweet grassy, fruity note of great radiance and beauty. It is related as far as the smell is concerned with the chemical found in jasmine absolute, cis-3-hexenyl- γ -butyrolactone which is an even more impressive odor. It forms extraordinary blends with cis-3-hexenyl salicylate, Printanyl/C, Helional, Hedione and Methyl Jasmonate. It is an important chemical to modify types like Calandre or Diorella.

While earlier I mentioned *floral fruity* products such as Veloutone, Floralozone and the prestigious Helional, they are going to be enriched by the following scents.

O-methoxy benzyl ethyl ether, called *Rosetyl*, with a really interesting floral, fruity, penetrating

note blends extraordinarily well with tea rose notes, such as geranyl ethyl ether and isodamascone. It forms part of the formulation of many important bases especially tea rose. It is very interesting to work with and to study Rosetyl in depth; combinations with Myroxyde, β -Damascone, Mimosa absolute are rich and infinite.

Decenyl cyclo pentanone is another one of the most impressive products within this group that is forgotten about and which continues to be missing from most of the laboratories. With a very smooth top note of floral fruity-peach scent and of unequalled elegance, its delicate note is perhaps the most velvety of these fruity products.

Let me mention, in order to finish this subgroup, a product of extraordinary power. I am speaking of *Oxo Damascone*. It is going to play a very important role in perfumery.

In the group of *floral-animals* I have already mentioned the prestigious Cashmeran and I add *Penyl cyclo propanoic acid*, called *Patchoulac*, found in patchouly oil but not representative of its scent. Its potency is so extreme that it should be worked with in 0.1% solution. In this concentration it has a floral, milky-tiglic, urinous odor that is difficult to classify.

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Within the floral-muguet scents, where I have already mentioned Hydroxycitronellal, Mayol, Lilial, Lyrall, cyclamen aldehyde, Oncidal, α -pinyl Isobutyraldehyde, Bourgeonal and Pinoacetaldehyde among others, I want to add three others.

Glycerylacetate of Phenylacetaldehyde, a very old product with a nice floral sweetness, is part of some very important bases such as Printanyl/C. Its inclusion in Calandre is very important. (Calandre has always been one of the perfumes that has impressed me the most. It was lucky enough to come into the market at a time when the marketing people let perfumers be perfumers.)

The so called *muguet alcohol*, a profoundly floral note crystallized in its pure state is less fresh than Lyrall but with a precious heavy-wood-floral note.

4,4,6-Trimethyl-2-benzyl (1,3) dioxane, called *Reseda Body*, is another important and unknown chemical of extraordinary odor between muguet, narcissus, hyacinth and magnolia. It is a minor ingredient of the perfume Alliage, another one of those giants in the world of perfumery which brings together some superb green notes with odors of incense, costus and amber as well as some spicy notes with a light woody-Helional, musky background.

Fruity Scents

The family of fruity scents is subdivided in fruity notes recalling melon where I had earlier mentioned, cis-6-Nonenal, 8-Nonenal, watermelon ketone and Floralozone and Helional with important floral notes. I won't add anything else here but I will outline a second subdivision: fruity notes smelling of cassis, for example, *Buccoxime*, an extraordinarily clean fruity note of cassis bud absolute, is reminiscent of p-mercapto menthanone but weaker than this although still very powerful. It creates some fantastic blends in combination with thioterpineol, Oxane, Isospirene and Veloutone. It is present in some interesting bases such as the ones called Buccovert or Thiovert.

Greens

The family of *grassy-greens* include cis-3-hexenol and Triplal, Isocyclocitral. I will add *cis-3-Hexenyl allyl ether*, with a very strong, grassy note. It is a chemical imparting a very original green note.

Among the *fresh-floral-herbaceous-greens* I would like to mention two. *Ethylene glycol acetate*, called Glycolieral, is a fresh, green, floral product that makes good blends and is present in great fragrances of high class and functional per-

fumery. *Phenylal* is one of the jewels of this family with an extraordinarily green, floral note, uncommonly natural with an odor of cyclamen and possessing a great clarity of nuances.

Within the *green-metallic* subgroup I had earlier mentioned several alkoxy pyrazines, emphasizing the immense possibilities of isohexyl methoxy pyrazine; Ourtvert, one of my favourite aromatics, which has had the greatest effect on my creativity; Stemore, Styrallyl Acetate and Syvertal. I am going to add several more.

Kerfoline, of an exceptional strength, should be applied with extreme caution. It has a green-metallic, pyrazinic note with an odor of green pepper and green bean.

Vertamide has a note similar to a certain degree to Buccoxime but with a greener more metallic, less fruity character since it doesn't possess the typical "Bourgeons de Cassis" note at all.

I want to mention now the *ethereal-greens* wherein I have already in the past cited Hyacinth body, Vert de Capucine and the resinous-green-seaweed subgroup in which we find Undecatriene, 1,3,5; ocymene epoxyde and Formyl Tricyclo decane. Three more are of interest. *Fantesal* has a powerful note with an incredible relation to seaweed absolute. *Tangerinol* is to some degree like Fantesal in its odor of seaweed but it is much more citric with a waxy, green, very strong note of tangerine. With an odor of Syringa strongly reminiscent of p-methylphenylacetaldehyde and p-isopropylphenylacetaldehyde, *p-ethyl phenoxyacetaldehyde* creates an extraordinary floral shade which enlivens most of the green and floral blends.

The last classification that I want to cover, the *citric-greens*, includes *Dimethyl-cyclohexenyl-pentenone*, called Neogal, which has an uncommon strength and, used in 1% solutions, imparts a green-fruity note like that of Undecatriene 1,3,5 and allyl-amyl-glycolate together, but with an equally important subnote that is deeply citric—mandarin or lemon—more natural and less metallic aldehyde than that of the alkadienal twelve and thirteen. It has also, as allyl-amyl-glycolate, a fruity pineapple shade. It yields new blends with Sinensals and 2-dodecenal, 2-tridecenal as well as with tridecen-2-nitrile, citronitrile, Agrunitrile and citralva.

Let me remind you of other chemicals of this subgroup mentioned before like allyl-amyl-glycolate, cyclogalbanate, and the so-called Vertacetate.

New Chemicals: Innovations and Creativity

Now I would like to discuss our profession. I want to insist once again that new chemicals and

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essential oils have always opened up the flood gates of innovation and creativity; nowadays more than ever the perfumer can no longer continue to say that everything can be done just with talent, spontaneity, sensibility and creativity. Our profession has become complicated and effort is something that is absolutely essential: effort and a complete dedication and a "love" for the new developments that continue to arise from those ingenious structures that our most faithful collaborators, the chemists, are searching for. Today a perfume is, in part, their work and here I want to render them the homage of being the "wise men behind the scenes."

On the other hand, as I have already said, a true perfumer should always be an artist and unfortunately we live in a century and at a time of great confusion which is indifferent to spiritual values and to interior life that, in my opinion, is what makes for the richness of the true perfumer.

Like many good perfumers such as Mr. Roudnitzka or Mr. Wolkowisky, I believe that a good perfume is an odor, of course, a mixture of ingredients from natural and artificial origins . . . but I prefer to say that it is an aromatic image, a poetic image, an emotional image, a symbol, which, if it is really *good*, should be apprehended by the senses and reach the unconscious world of spirit. A great perfume should create emotions, enliven the imagination and intuition . . . should be in opposition to the ideals of restraint and cold reason.

But how do we emphasize today, the subjective, spiritual or fantastic? Nowadays the kind of society in which we live is marked by an extreme materialism, leading people to frustration and an insufficiency of ideals and dreams.

I have said and I would dare to say again that high class perfumery and also the perfume used in functional products are not only industrial. This is something deeply related to the most intimate anxieties of the consumer. Our industry has debased the most sublime aspect of this profession. There are some sectors that have completely ignored the most important emotional values that belong to it.

I do not mean by this that a good perfume can lead to absolute happiness; but I do mean that the day society demands art and true spiritual progress it will be in a position to overcome its problems.

Unfortunately this is not what is happening and I wonder, if, in spite of so much progress, we have ever lived through an age of greater spiritual insecurity.

Spiritual progress is the goal of every artist and this is the road good perfumers should take. It is

beyond our control to change the road the profession has taken. What is in our power, though, is to keep ourselves free and creative enough to understand intimately one of the most beautiful and most poetic professions that has ever existed.

Inside every good perfumer there is the same challenge to attain beauty and to achieve a real advance in humanity, not only in the material aspects but also in the spiritual. In collaboration with our modest possibilities, we hope to see unquestioned penetration of art in our society. I believe in art because art is the expression of the most sublime of human values, and material development for which we oftentimes strive without reason should be only a support to arrive at a better understanding of art.

I have always placed men and women at the center of the Universe and, for me, perfumery like all the arts is an emotional reflection cultivated by the depth of an individual conscience. While I agree with Marcel Proust, that life, in its permanent flow, is no more than lost time that can only be recovered for eternity by the artist's work, I cannot accept his belief that there is no relation between interior life and social life. I believe that mankind and society will have really progressed the day that we have found the way to face the differences between exterior social existence and the interior life, or the "memoires" described by Proust.

Because Proust was perhaps the most detailed and descriptive writer ever, he projected his interior life in his words without meaning to, because he was doubtful that people would understand him. This doubt, or skepticism, is what keeps all of our interior lives hidden. The problem is that people who love art and the spiritual things in life are skeptical because they are not understood by a materialistic society.

This understanding is just a question of sensitivity. Sensitivity to art and a sense of being cultured should be norms that guide society; instead society is guided by materialism and dogmatism. Only the day that this sensitive understanding of art and culture succeeds in guiding will our society see its wishes fulfilled. Only then will the interior private life be merged with the exterior social life. This concern is the duty of every citizen, of every artist and, therefore, of every perfumer.

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