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Chapter 1

Snake Oil Sellers...

Why is it always that when I meet people at parties and they ask me what I do for a living, I find myself defending the cosmetic industry? I only have to tell them that I measure the efficacy of cosmetics and immediately a lady that is about to hit the menopausal age will bend over to me, and ask "Do you really believe that antiwrinkle creams work? Which one should I use?" How often is a car salesman asked whether the car he sells really drives? And you all know how we trust those people! Are we the ultimate snake oil salesmen of industry? Whether we like it or not, we have a credibility problem with our customers. We tell them beautiful stories and give them wonderful products, but in one way or another, our stories are more wonderful than our products, as our customers keep telling us subsequently that we sell "Hope in a Bottle." But we also think this is simply unfair because we generated all this beautiful evidence that our product really worked.

But did we really? Last month I was at In-Cosmetics in Barcelona, as probably most of you were. As always, it was a great show, the worst thing being the weather, and even that cleared up dramatically over the three days of the event. I attended both the Conference and the Exhibition. Prof. Morganti had gone a long way in trying to obtain a multidisciplinary group of speakers

It is a disgrace for people who pay money to... have such cosmetic rubbish being poured over them.

consisting of dermatologists, cosmetic scientists and even some cosmetic surgeons. The audience listened to talks discussing a wide variety of subjects such as retinoid receptors, the role of ceramides and the latest developments in skin whitening mechanisms, and the discussions following the presentations were more lively than I have come across at any prior In-Cosmetics. This promised to be a good conference!

But then, all of a sudden this snake oil seller appeared who described a product of such fantastic qualities that you could legitimately ask yourself how we ever survived the last two millennia without it. It was active in at least 20 different fields, ranging from moisturizing to antiaging, from cholesterol-reducing to skin-whitening. After having spent 25% of the available time listing all benefits of this new miraculous ingredient without any evidence, the presenter could only illustrate two specific activities and focused on moisturization and antiwrinkling aspects of this remarkable new ingredient. For the first activity, all we were given was the following statement: "Moisturization increased by 18% relative to control as measured by the Corneometer," and for the antiwrinkling activity we were shown two microrelief photographs, one taken before and one taken after treatment.

Unfortunately for the snake oil presenter, there was a dermatologist in the audience who asked whether TEWL values had been recorded. He almost had to explain what transepidermal water loss was. No, that was not done. Did you take any biopsies by any change? After all, you could incorporate 12% sodium lauryl sulfate in the mildest cream available and get a beautiful antiwrinkling effect due to local oedema formation. No, that was not done either. The audience was left with the feeling that this antiwrinkling aspect of the new wonder ingredient was not that good after all. The evidence was not complete, to put it mildly. There was no delivery on the promise. How about the claim of 18% increase in moisturization, then? It was quickly calculated for the presenter who clearly had never seen Corneometer values, that the type of skin being discussed would have values around 30 to 40, but the audience was being kind to the snake oil seller. Pre-treatment values were set at 50. Add 18%, i.e., 9, and

you go from 50 to 59. In other words, you go from dry skin to dry skin. Another failure to deliver on the promise. To make things even worse, Prof. Morganti made the best comment of the whole conference: “It is OK for suppliers to make claims for new ingredients, but could they please provide sufficient evidence to substantiate them?” In other words, could we please deliver on our promises?

This was just one talk, but things only got worse during the afternoon session. In my opinion it is a disgrace for people who pay money to attend these talks to have such cosmetic rubbish being poured over them. If you would like to make a snake oil presentation, then buy a slot in the free communications session and sell your snake oil ingredient. But do not complain when your clients start complaining to you that you’ve only been selling “Hope in a Bottle.” During cosmetic science conferences for which an admission fee is asked, attendees should be listening to cosmetic research, where the promises are actually delivered.

How do we in the cosmetic industry get away from the customer perception that we are selling “Hope in a Bottle?” Just to get things straight, I would like to stress that I found this the best In-Cosmetics conference that I ever attended. A series of plans is being prepared for conferences that are organized in conjunction with exhibitions to ensure that delegates will get value for money. One step forward would be that scientists should present their own work, not have their marketing colleagues do it for them. There are only two exceptions: those who long for the above-mentioned reception or those who really know what they are talking about. Whereas scientists will have no problem with the latter type of presenter, the real scientists among us could also be more aggressive and embarrass the former type of speakers to such a degree that they will not even think about presenting again unless they can deliver on their promises. Proper proofreading of submitted manuscripts and subsequently rejecting the snake oil papers would also help to lift the overall quality of such conferences. We in the industry only have ourselves to blame for our lack of credibility. It doesn’t matter if we sell snake oil cosmetics without having really well substantiated evidence, but if this is the case, we should not make any claims, not even snake oil claims! You

may argue that things won't sell that way (strictly speaking, it's not even snake oil any longer), but that's the consequence of the decision that you've made. Cosmetic science is a beautiful field of science, maybe even one of the most complex ones, as it involves chemistry, biology, physics, psychology, and much more. Let's be proud of it and treat it accordingly and deliver on our promises. Our customers will benefit from it and so will we. If only we could have some patience... .

Modified from a column "A snake in the grass..." previously published in SPC, May 2000

Chapter 2

What's Normal Anyway?

"Normally, I behave quite naturally, and naturally I behave quite normally." Who would not say that about him or herself? "Normally" and "naturally" are two normal words that are used quite naturally in any normal civilized conversation where their meaning is clear and obvious. Everywhere that is unless you happen to be discussing cosmetics. Then these two words suddenly may have a totally different meaning. How can this be, as for many of us applying cosmetics is a normal and natural thing to do. This time, I'll look at the word "normal" and the impact it has in cosmetics.

To prove my point, here is the meaning of normal as found in The Concise Oxford Dictionary of Current English, 9th Edition. It is defined amongst others as "conforming to a standard; regular, usual, typical; free from mental or emotional disorder." In cosmetics, however, the word "normal" functions as a pivot in differentiating between drugs and cosmetics. The definition of a medicinal product contains the phrase "with a view to … restoring, correcting or modifying physiological functions in human beings… ." An important question therefore is, "What is a physiological function in man and when am I restoring, correcting or modifying it?" In other words: What do I accept as normal?

The battle between drugs and cosmetics is not yet over... you might even argue that it has not even begun.

Imagine you're male and about fifty. Whether you like it or not, you are starting to lose hair at a frightening speed. Your hairline is receding, and you're rapidly going upwards in the Hamilton scale of baldness. It may sound familiar for some of you, and my question to you, folks, is "Is that normal?" Did you go and see a medical doctor to cure this condition? The answer depends on your state of mind. If you are like Elton John and it bothered you to go bald, you probably did go to see your doctor. But if you are like Sean Connery and you couldn't care less, you probably did not. I'll rephrase my question, "Which of these two gentlemen is normal?"

Let's make it even more complex. Now you are male and fifty and you still have a full head of hair. Is that normal? Let's give you another decade and we get to someone like Wim Duisenberg, the 63-year old Dutch president of the European Central Bank in Frankfurt. His hair is as white as snow but he still has a full head of beautiful hair. I ask you again, "Is that normal?" Should he go to see his doctor and ask why he is not balding? (A 2010 remark: Wim Duisenberg died on July 31, 2005 at the age of 70).

We seem to be happily accepting both forms of hair aging as being normal. Whether we like it or not, a drug is something that restores, corrects or modifies a physiological function. If we accept balding to be quite natural and normal, we accept hair loss to be a "normal" physiological process. As a consequence, we also accept that the chemical treatments that reverse this normal and natural process are drugs. But by accepting hair loss to be a normal and natural process, we are also indirectly saying that any male over sixty without hair thinning, like Wim Duisenberg, should see his doctor. Similarly, if we accept balding not to be normal and therefore hair loss not to serve a "normal" physiological function, hair growth promoters should be cosmetics. But now those suffering from it are not normal. Hair thinning now becomes a condition or disease for which even Sean Connery should be treated, regardless how sexy he looks! According to the above, drugs are used to treat hair loss when we perceive this to be a normal physiological process and cosmetics are used to treat the same if we do not accept this to be the case! Now I ask you "Is that normal?"

And in case you think that hair loss is the only example, think again. Take incontinence, for instance. We find it perfectly normal to use nappies for our babies, but if we are adults and we happen to be suffering from exactly the same problem, we call this loss of normal physiological function a disturbing condition. But in contrast to the situation above where drugs were used to treat something we perceive to be normal, nappies for babies are seen as "cosmetics" and those for adults as "drugs." I base this on the fact that we buy children nappies predominantly in the supermarket and the adult variety at the pharmacy. How about that for consistency?

So, what is normal? I honestly do not know. The answer must be somewhere in the meaning of a "physiological function." Does hair loss or wetting your pants really serve a physiological function? Apart from Sean Connery, whose hair loss seems to be serving him a (psychological) function, I don't think so. As a consequence, all products that treat hair loss or incontinence products become cosmetics but regulation tells me that things are perceived differently.

Can you turn it around? Can you say that cosmetics do not modify a physiological function? Just take skin moisturization as an example. Dermatologists use words like xerosis, ichtyosis and keratosis, to describe different types of dry skin. Since when did all our cleaning, perfuming, changing our appearance, correcting our body odors, protecting and keeping in good order—in other words looking after ourselves—serve no physiological function? Is that what we really believe in our industry?

The battle between drugs and cosmetics is not yet over. As drugs and cosmetics will continue to come closer and closer together, you might even argue that it has not even begun. There will never be a clear answer to a seemingly simple question: what is normal? And if you thought that was tricky, just wait until I get onto the meaning of "natural."

Modified from a column "Acting normally" previously published in SPC, August 2000

Chapter 3

Naturally Good, Safe and Healthy?

In the previous offering, I opened with the statement "Normally, I behave quite naturally, and naturally I behave quite normally." Following a discussion whether hair loss is a normal physiological process and the consequences of accepting it as being normal or abnormal, I concluded that the differentiation between drugs and cosmetics was far from clear, as well as normal. But I did not discuss the meaning of "natural" and the impact that this word has in our cosmetic industry. As this word is increasing unnaturally in importance, I believe that reflecting on this word would be the natural thing to do. Again, let's begin with the definition according to The Concise Oxford Dictionary of Current English, 9th Edition. Natural, amongst many others, is defined as "existing in or caused by nature; uncultivated, wild; in the course of nature, not exceptional or miraculous; not surprising; unaffected, easy, spontaneous." And particularly appropriate in the cosmetic context, "not disguised or altered (as by make-up, etc.)."

Whilst the dictionary wants us to believe that wearing makeup is not a natural thing to do, you only have to ask your mother-in-law what "natural" means in the context of cosmetics to obtain a totally different meaning that is not found in any dictionary. And it turns out that she is not alone in her beliefs. In the mind of many of our consumers,

Too many consumers believe that a large proportion of current health problems originate from all the chemicals that we consume.

the word "natural" has become synonymous for good, safe and healthy. If an ingredient, a product or treatment is natural, it simply must be good, safe and healthy. Claiming naturalness is already enough to imply safety to our mothers-in-law. But we all know this to be incorrect.

Lead is a very normal element in chemistry that is abundantly available in nature. Therefore, lead is natural and according to it's newly acquired meaning, good, safe and healthy. Queen Elizabeth I used this mineral frequently as a skin whitener. She lost her teeth, her hair and probably also her life due the use of this natural, thus good, safe and healthy ingredient. The potent alkaloids in the beautiful foxglove plant kill very easily. Strychnine and arsenic are also natural ingredients that were used to kill rodents that pestered our ancestors but also killed some unfortunate characters in Agatha Christie's novels. Just before World War II, you could still get live leeches in Dutch pharmacies, very natural creatures but do we still consider being treated by them as normal, let alone good, safe and healthy? But maybe it is just me; leeches and indeed maggots are now quite widely used again in medicine–the latter to clean wounds! I could go on about poison ivy and many more. To cut a long story short, naturalness does not automatically equate with safety. Just to get the record straight, renowned scientific experts in the subject of "naturals," such as Tony Dweck, have never said that naturalness implies safety. He would be the first to acknowledge that this view is scientifically incorrect. Why then do we as the cosmetic industry keep on promoting or at least prevent the correction of this firm but incorrect belief of our customers?

Too many consumers believe that a large proportion of current health problems originate from all the chemicals that we consume. In their mind, chemicals are certainly not natural and thus not good, safe and healthy, but instead really bad. A recent advertisement that I saw claimed the cosmetic product it was promoting to be "chemical -free." Apart from the intangible matters of light, radio waves and other sources of energy, the only thing that I could imagine this product to contain was a vacuum. That's even less then selling hot air!

I really wonder how the brand manager of this product is calculating its sales. In liters or in tonnes of product?

Scientifically similarly incorrect is the whole distinction that is made within the cosmetic industry between industrially and naturally derived products. Glycerin, regardless of whether it is produced chemically or derived from animal or vegetable sources, is always the same, namely $CH_2OH\text{-}CHOH\text{-}CH_2OH$. Admittedly, they may contain different impurities, but since when are impurities seen to be a natural constituent of a chemical product?

Every tangible product that nature has provided us with is a chemical. Some of them are absolutely safe, some of them are extremely toxic, and some are in between. We should continue to explore this richness, and investigate what specific ingredients can do for us to promote our health, beauty and well-being. However, we should at the same time teach our customers that natural and good, safe and healthy are two different concepts that do not necessarily go together. Really, this can be done. We taught them what moisturization, liposomes and skin aging meant. But the mad cow disease, aka BSE, for instance, illustrates how perception can drive our industry. Despite the fact that topically applied animal-derived glycerin could not constitute a health risk to the consumer, our whole industry wanted to give them what they wanted, the perception of safety. But in doing so also indirectly acknowledged that we were to blame for something, namely that our products were not good, safe and healthy.

Whereas the meaning of the word normal in a cosmetic context is still difficult to grasp, the meaning of the word natural is beyond any doubt. In such a case, we should not fool our consumer by implying or not correcting that this means something else that cannot be substantiated. That in my opinion is not good, safe and healthy for our industry! And also, I admit it hesitantly, not the natural thing to do.

Modified from a column “What does come naturally anyway?” previously published in SPC October 2000

Chapter 4

Cosmetic Science: A Matter of Life and Death?

You agree with me that everything changes, don't you? Yes, you do. You also believe as I do that we all must die one day, don't you? Yes, you do. But, if everything changes and if we all must die one day, this also implies that one day we won't die any longer. But what has this got to do with cosmetic science? Is this the shortest cosmetic claim substantiation possible that antiaging products work? What this has really got to do with cosmetic science are recent developments in molecular biology relating to antiaging! At the end of the 20th century, we just completed the Human Genome Project. Every gene of the human body has been located, identified and catalogued. The possibilities of this for many fields of science are enormous. We may be able to correct genetic life-threatening diseases such as cystic fibrosis and many others. But as soon as we will have accomplished this, what is stopping us from using these techniques to ensure that our offspring will have the eye color we always longed for, or a full head of hair or maybe non-sensitive skin? The UK government recently allowed the use of human embryonic tissue for experimental purposes. This change will allow scientists to culture basal stem cells from human embryos, the only cells that can still differentiate into every specialized cell and organ of the human body. They could be

Our work in the cosmetic industry will therefore never stop, but we may have until eternity to get it right.

used to grow a new heart or kidney for those needing a transplant of these organs, constituting a perfect genetic match. This would also apply to organs such as skin, which would be a great benefit for people covered in burns. But again, once we have achieved that, what is stopping us from using these techniques to 'renew' all physiological structures in someone's face when the signs of aging have become too visible?

I've just returned from Berlin where the 21st IFSCC Congress took place. As was to be expected from an event organized by the DGK, the German Cosmetic Society, it was an excellent congress. As always, there were some talks and posters dedicated to skin aging, detailing progress in this popular cosmetic subject. And the subject is not only popular with cosmetic scientists, but also with the general public. After all, TV adverts make us believe that every 5 seconds at least one person buys a specific antiaging product somewhere in the world. Let's philosophize on what future developments in molecular biology could do to and for us humans as well as to and for our cosmetic industry.

It is beyond any doubt that gene therapy genuinely helps people who are suffering from life-threatening diseases. Minute modifications in a defect gene will ensure that another form of mRNA is copied from this gene, resulting in, for instance, the production of the right enzymes. Whereas all cells in our body contain all our genetic information, these modifications would only be made in those cells where these genes are being expressed, preventing the negative effect of this gene-related sickness. But the disease would remain in the genes of their reproductive organs, and to avoid offspring with the same deficits, we would have to manipulate the eggs or sperm of such an individual prior to conception. We can talk till the cows come home whether this is ethically acceptable or not, but history tells us that when something is technically possible, it will happen. Especially in situations where you have to have your eggs or sperm 'pre-worked' for quite legitimate reasons anyway, it will be tempting to have some additional imperfections such as tendencies towards baldness, obesity and alcoholism eliminated at the same time as well. After all, the difference between having your egg or sperm 'pre-worked' and

're-worked' is only one letter and I'm guessing about 50 years' development. And with time and after many discussions, it will happen.

But are we helping the human race with such 're-working' of our genes? Many of our current drugs keep alive people who would otherwise have died earlier. As a diabetic, I certainly contribute my thanks towards Banting and Best who discovered and developed insulin. But about 80 years later, we have had about three to four additional generations since the first diabetics survived. During this time, more and more people have grown up with diabetes, because of the hereditary influences as well as our deteriorating eating habits. You can argue that Banting and Best's invention of insulin has helped the individual but actually has weakened the human race. But again, our new molecular biology techniques may offer relief. If one would only fix the genes causing the disease in an individual without assuring that the offspring is not affected, one actually weakens the human race as we have already done for more than a century with drugs like insulin. However, if one corrects the gene once and for all, one has helped evolution to create a stronger human species in about one or two generations instead of thousands of years.

The applications of molecular biology in cosmetic science, however, are different in my belief. We have never ever had the chance to influence the direction in which we humans would evolve. So, if we would all aim for a regular shaped face with perfect teeth, curly or straight shiny hair, perfect skin for all of our lives, would this make us happy? I find it attractive that we live in a world where the white-skinned Caucasians want to be sun-tanned and the Asians want to have fairer skin. We all want to be what we are not and want to have what we have not! So, if you as parents make your choice regarding the physical appearance of your child, how can you be sure that you have chosen the right attributes? If we all would look like Cindy Crawford or Brad Pitt, would we still find them attractive?

The IFSCC Congress once again indicated that the influence in molecular biology in cosmetic science continues to increase. It first emerged in basic skin and hair research but is now also filtering through in applied cosmetic science. It has been predicted that towards the end of the 21st century we will be able to prevent

apoptosis or programmed cell death. Without wanting to go into all associated problems, we would theoretically have conquered death because of old age. As predicted above, even the certainty of death in life could be taken away from us. The only certainty remaining will be that everything will continue to change forever. Everything that is, apart from the fact that people will continue to be dissatisfied with themselves and will want to look differently. That will never change. Our work in the cosmetic industry will therefore never stop, but we may have until eternity to get it right. Our cosmetic industry will therefore live forever. Or will that change too? Cosmetic science: truly a matter of life and death.

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Chapter 5

A Sensitive Issue?

Those of you who have ever tried the following experiment know that I am speaking the truth and nothing but the truth. Ask all ladies in a reasonably sized audience to stick up their hand and then to keep this hand up if they have sensitive skin. You will see that more than 50% of the ladies present, sometimes even more than 70%, will keep their hand up. Then repeat the same two questions for the gentlemen in your audience. The outcome for the second question will be a lot lower. You're lucky if you even get 10% of the males to admit that they have sensitive skin. This rather uncontrolled experiment tells us that females are suffering significantly more from sensitive skin than males do but that is something you probably already knew. As a cosmetic scientist, I am more interested in the reasons why than in the actual percentages, and it turns out that I am not the only one. At most cosmetic conferences you will be able to listen to presentations in which methods to objectively assess the occurrence of sensitive skin are discussed and compared to self-perception of skin sensitivity. Unfortunately, the bottom line of all these presentations is that we can hardly find any concrete physiological manifestations of sensitive skin. Minute differences can be found but you need really large panels to get this difference to be significant. Why is it

Like skin moisturization, is sensitive skin just another example of a mismatch between what can be objectively measured and subjectively perceived?

that you need well over 500 people in a panel to be able to differentiate sensitive from non-sensitive skin using skin bioengineering methods whereas every single woman can tell you without any doubt in her mind whether she has sensitive skin or not? Like skin moisturization, is sensitive skin just another example of a mismatch between what can be objectively measured and subjectively perceived?

But I should be honest with you and not only tell you what helps me to make my point. What I conveniently forgot to mention is that you have to do your experiment in specific countries. A high incidence of female skin sensitivity is guaranteed in countries like Luxembourg, Switzerland, Japan, Denmark, Norway and the United States, etc. The answer is guaranteed to be different in countries like Mozambique and Ethiopia, Vietnam and Nepal, Haiti and Nicaragua. The major difference between these two groups of countries is their Gross National Product (GNP) per capita. Countries with a higher GNP per capita have a higher incidence of skin sensitivity, although my data is not extensive enough to support the statement that the greater the GNP per capita, the higher the incidence of female skin sensitivity. The data that Dr. Ota of Japan presented for some Asian countries at the 21st IFSCC Congress in Berlin[1] suggests that female skin sensitivity is evident but also reasonably constant above a certain threshold value of GNP per capita. But, as I said above, as a cosmetic scientist, I am more interested in the reasons for skin sensitivity than in its statistics.

Now here is my theory. First of all, people in countries with a higher GNP per capita can afford to spend money on things like soap, toothpaste and more luxurious forms of cosmetics. They apply a lot more products to their skin and this continuous challenge may result in impaired barrier function and as a consequence such people will have a higher incidence of sensitive skin. This could also explain why men have a lower incidence of sensitive skin compared to women. On a whole, men apply far less cosmetics to their skin than women do. The chemical insult on their skin is less and thus is their incidence of sensitive skin less. If you actually ask those men brave enough to publicly admit that they had sensitive skin, they will tell you that this particularly manifests itself on their face where they

shave. Exactly the area where they apply shaving foam every day or where a rotating blade in their razor will cut the beard hair on average 13 times every time you shave. Both treatments will lead to some skin barrier damage that is not overcome by the time the process is repeated. This pretreatment enhances the probability for an aftershave lotion to sting.

However, if my theory is correct it should not be difficult to demonstrate a difference in trans-epidermal water loss (TEWL) values between people with and without sensitive skin. Already in 1989, my friend and colleague Ron Tupker published an article in which he showed that basal TEWL values are indicative for a subject's reaction to repeated soap exposure. People with lower basal TEWL values showed smaller increases of TEWL caused by repeated sodium lauryl sulphate treatment than those with higher basal TEWL values[2]. So, if this correlation was shown to exist for objectively measured skin effects, why is TEWL then not found to be significantly different everywhere on the face or body in both groups of self-assessed sensitive skin as discussed by Berardesca et al. in Berlin[3]?

This leads to my second theory, which is much more difficult to prove. Most of the time, sensitive skin does not exist at all, except in the minds of those suffering from it. People in lower GNP countries do not worry about what they will eat tonight, they worry about whether they will eat tonight. The condition of their skin will be the least of their worries. People in higher GNP countries spend large sums of money on food at Christmas and Thanksgiving and their big worry is always "Do I have enough?" They apply their cosmetic products not necessarily out of a need but out of a desire and can subsequently afford to worry about their skin condition. For some obscure reason, women worry more about this than men, and the incidence of sensitive skin is higher in women. Maybe this is because women are more conditioned to do so by their upbringing or advertising of cosmetic products than men. Men with sensitive skin are considered to be wimps, whereas for women you could argue that it is a fashionable thing to have sensitive skin. Even more than that, for women it is not only "I've got sensitive skin because I'm worth

it" feel, but also an expression of being unique, different and an individual, rather than part of the "crowd."

The real reason for sensitive skin is probably somewhere in the middle. Clearly the number and amount of products we apply does contribute to sensitive skin, despite the many extremely mild ingredients we use. Some of us really have clinically sensitive skin. However, I am also convinced that there is a large proportion out there that is suffering from sensitive skin between the ears—another trendy, fast-moving-consumer-goods syndrome that is so typical of our modern times. Like its medical equivalent the 'burn-out' syndrome, you need to have it to be part of the in-crowd, or as my children say to be 'cool.' It is 'cool' to be sensitive, just in the same way my children are sensitive to being 'cool.' But on that basis, with everyone moving towards having more sensitive skin, it may one day be cool to simply have normal skin again! I just wonder what menthol would do for sensitive skin. Would it perceivably cool the sensitivity down or is that just too sensitive a question to ask? After all, men have used menthol in shaving creams for a long time and seem to have less sensitive skin.

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Chapter 6

In Need of Fresh Blood...

I've got a problem. You've got a problem. In fact, our whole industry has got a problem. The weird thing is that we do not even realize it. Neither did I actually until I was told by my good friend Ruud Zagt. I realize that this may come as a surprise because only two columns ago I wrote optimistically about the influence of molecular biology on cosmetic science. This new field of science brings immense opportunities to our industry, for instance by shaping the looks of our offspring to be exactly what we as parents would like them to be. However, our tailor-made children would, per definition, be unhappy with their looks and rely on cosmetics to change them again. Therefore, our jobs would be safe and so would our industry. But according to Ruud, I overlooked one thing, and unfortunately he is absolutely right. As everywhere else in business, in the cosmetic industry we also rely on the law of supply and demand to survive. And when I spoke about molecular biology, I only looked at the demand issue, which is ever increasing with an aging population and thus perfect, but not at the supply side of the equation.

Just ask any executive director of your company what his or her most precious asset is and (s)he will confirm that the business would come to a grinding halt without its staff, i.e. without you! Capable people like yourself are absolutely essential

Our industry will have to act quickly to avoid losing its lifeblood. We're suffering from arterial bleeding and most of us obviously don't even notice it.

to keep our industry going. Remarkably enough, you are the problem; not now but when you, like my friend Ruud Zagt, are retiring or otherwise leaving our industry.

Let's start with some statistics. When I started my pharmacy studies at the University of Groningen in the Netherlands in 1978, we had 53 students in our first year. Parts of our course were given in the Department of Chemistry. We were small relative to the large group of 97 first-year students who studied chemistry. That was 1978, but in 2001 the respective numbers of first-year students were 66 for pharmacy but only 39 for chemistry. And the University of Groningen is absolutely not unique in that sense. The problem is universal. I've spoken to professors in chemistry all over the world and apart from Eastern Asia they all tell me the same story: "Hardly any students this year!"

If life sciences cannot get our children into college, what are they then studying? Probably law or management studies! Although our sons and daughters all want to look and feel good, they want money even more, in order to spend it just the way they like. And law, business administration studies like MBAs and ICT are perceived to be the quickest way to heaven. Of course, there will always be a few nerds genuinely interested in molecules, what you can make of them and what you can do with them. Those few will study chemistry, physics or biology, but those numbers are not enough to ensure a healthy future for our industry.

As you all know, chemistry is the lifeblood of our industry. Most of us actually started as chemistry students. Many member societies of the International Federation of the Societies of Cosmetic Chemists (IFSCC) have the words "Cosmetic Chemists" or "Cosmetic Chemistry" in their names. What will happen to our cosmetic industry if the numbers of chemistry students remain as low as they are nowadays for a period of a decade or so? The quality of cosmetic science would definitely not improve! Let's please realize that we are not the only industry having this problem. The big chemical companies will also need new recruits to work for them and will do their utmost to recruit the best they can get as soon as students graduate.

But for our industry, this situation will be even more difficult. Because you cannot study cosmetic science as a separate science subject in many countries, you will have to learn this via training within cosmetic companies or at a few specialized universities or via distance learning courses as offered by the SCS after you graduate. Why choose for something you do not even know when you finish university, while the big chemical firms are offering you an appealing job that you understand with the associated appealing pay package?

One of the rules in business life is to bring solutions and not problems, whereas I feel I have just brought you one of the latter. Let's therefore think about how we can reverse this seemingly hopeless situation. It is clear that our industry will have to act quickly to avoid losing its lifeblood rapidly. We're suffering from arterial bleeding and most of us obviously don't even notice it. Our biggest problem is that we have also run out of bandages, first aid staff and hospital beds. What can we do to get more teenagers to study chemistry?

I can foresee a couple of scenarios: money, education and passionate stimulation. The problem seems to be caused by everybody wanting to earn big bucks quickly. Our employers want us to contribute to their bottom line too. To counteract the issue of money that can be earned elsewhere, starting salaries of cosmetic scientists will have to go up, which will most probably dissatisfy those already in the business. They might even feel more inclined to do something else and that is exactly the last thing we want, so this needs to be handled with care. Moreover, you cannot simply solve this issue only with money. On the education front, we could and should start with increasing the awareness amongst life sciences students that cosmetic science is a worthy and truly scientific subject, like pharmacy, that also borrows from a lot of other life sciences disciplines. I was lucky enough to teach a class of pharmacy students a while ago in a "Battle Between Pharmacy and Cosmetics." Following this lecture, a few students asked me for possibilities to spend their mandatory six-month science project with me in my cosmetic laboratory. There certainly is the interest, only the awareness is lacking. We have to teach both students and the public at large that just because the phenomena we treat are not life-threatening, they are not less worthy. Working on

the stock market does not save a single life, actually just the opposite, but no one has difficulties with that! We have to change that perception early on, already in the mind of teenagers. Who of us has gone out to high schools or secondary schools and showed them how to make a shampoo? If this is done with passion, it is an experience that is not easily forgotten by either side. Last week, I spoke to a large group of British science teachers about cosmetic science being at the crossroads of biology, chemistry, mathematics and physics, and they regretted never having such talks in their classrooms.

My friend Ruud Zagt is retiring from our industry. For many years, he was the chairman of the Dutch Society of Cosmetic Chemistry. During one of our annual General Meetings, he was rewarded for all his efforts in cosmetic science and society in general with a knighthood. He was the mastermind behind the "Choice" educational program for young cosmetic scientists. He realized the problem outlined above and he reacted. You now know the problem too. Will you react in the same way as he did? Our industry needs more passionate people like Ruud, a lot more passionate people. You could be one of them, the Ruud Zagt of the future. Ruud, many thanks for everything, I wish you a happy retirement. We'll work on your problem, it's ours and we owe it to you!

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Chapter 7

Sustainability: Yes, but of What?

"All Americans are fat, and all Dutch smoke cannabis." Undoubtedly, you've heard that too and you know it to be largely untrue. Why? Because humans, including the Americans and the Dutch, generally care about themselves reasonably well. And because being fat or smoking cannabis is not good for any one of us, the majority of us tend to stay away from this. Even more, we want to look and feel good. Fulfilling that need is one of the reasons why we are in the personal care business. So far, so good.

But we have responsibilities beyond the care for our own bodies. Already on the first page of the Bible you can read that we also have to take care of the world and all that is on it. Regardless whether you believe this order from a Divine Being to "let (man) rule over the fish of the sea and the birds of the air, over the livestock, over all the earth, and over all the creatures that move along the ground" or not, history has shown that we interpreted this command in our own peculiar way. We did take charge of our natural surroundings as well as its wildlife for our benefit. In doing so, we certainly increased our health, our life expectancy; we reduced illiteracy and child mortality and eliminated various life-threatening diseases. But how well have we taken care of our world and all that is on it? And at what expense?

"Only after the last tree has been chopped...the last river has been poisoned...the last fish has been caught...will we realize that we cannot eat money."-Cree Indians

Look at how we have treated our land. We have eroded, over-cropped and exhausted it. We subsequently over-fertilized it to further increase its yields. We drilled for oil, constructed railways and roads and built skyscrapers. We polluted our seas after we overfished them. We intensified arable farming, stockbreeding and dairy farming to such an extent that when a disaster like foot and mouth disease prevents us from transporting our cattle, piglets start to fight and bite each other because of severe space limitations. Within days farmers have to dispose of thousands of liters of milk. Do we really care for our animals or simply only for ourselves?

Did you know that CO2 emissions in 2001 have doubled from 1960 and will do so again by 2040? That the burning of fossil fuels has increased five times since 1950? That global freshwater availability has dropped from 17,000 cubic meters per capita in 1950 to 7,000 today? That wild species are becoming extinct 50 to 100 times faster than naturally? That we have destroyed more than 30% of the world's natural capital since 1970? Did you know that if we would all enjoy the lifestyle of the North Americans, we would need the resources of three Earths?

Fortunately, we are gradually starting to realize that we are not dealing very well with our responsibility to look after our world and all that is on and in it. We feel guilty and have therefore invented new concepts such as eco-tourism and biological farming. In eco-tourism, we happily pay a lot more for our holidays in Nepal, knowing that our money is spent in small family-run hotels. But we still take the plane (and pollute the air) to get there and will not do without our daily showers and so increase the need for brushwood that subsequently speeds up erosion in Nepal. We happily pay more for free-range eggs and meat, but please realize that the extra price we pay is to off-set the reduced income of the free-range farmer. Because he or she cannot have the same number of animals per acre, this biological farmer will earn less and that is a sacrifice that most of them are not willing to pay.

Clearly, we have looked well after ourselves but not after our environment. Nevertheless, we do turn to Nature for new functional ingredients that we can incorporate in our cosmetic products. We

obtain them from deserts, rain forests and oceans. To reduce cost, we try to culture the plants or animals from which these new functional ingredients are extracted only to realize that the new alternatives are less effective than their natural counterparts. We therefore go back into the Gobi Desert, the Amazon Rainforest or the Great Barrier Reef to harvest the original substrates. But in doing so, just as in eco-tourism, we damage the environment both globally and locally because we still need to fly out there, and go into places that would otherwise remain undisturbed. Before I sound too negative, certain cosmetic companies have found a good compromise by working with local tribes to obtain their extracts but the similarity with the small family-run hotels in Nepal is striking. But at least they are trying, which is a lot more than can be said about most of us.

I discovered a far less positive attitude towards sustainability at the IFSCC conference in Stockholm in May 2001. It had a workshop on the subject of "Green Cosmetics/Environmentally Friendly Cosmetics." It was very well attended, reflecting the general interest in this subject, but the overall conclusion was that although the cosmetic industry should create and promote the use of such cosmetics, someone else should start. Right now, our customers do not insist on environmentally friendly cosmetics in sufficiently large numbers, so we prefer not to accrue the extra costs that we cannot recoup. In other words, we continue to behave as we always did.

I could now easily end by quoting a piece of wisdom from the Cree Indians that says "Only after the last tree has been chopped, only after the last river has been poisoned, only after the last fish has been caught, only then we will realize that we cannot eat money." I could easily say that George W. Bush has certainly chosen to prefer money in his pocket rather than a world for its children. I could easily say that he will not ratify the Kyoto Protocol because it might damage the US economy. Likewise, I could easily say that he approved the exploitation of oil fields in the Arctic National Wildlife Refuge, a remote nature reserve in Alaska, because it might help the same economy. However, blaming George W. Bush or the United States would be too easy. None of the developed countries has yet ratified the Kyoto Protocol. Yet we all want sustainability, but of what? Of money or of

our environment? Sustainability of environment and economic profits can go together, but it requires some creativity. Someone has to start. If it cannot be the developed world, why can it not be us in the cosmetic industry? Next time, I promise to share some solutions with you. I am still thinking … or maybe I'm filing patents! Sustainability? Absolutely, yes. But of what?

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Chapter 8

Mediocre Mediacracy?

And, how was your holiday? I hope you went somewhere nice and were able to have a relaxing time in the sun. But maybe you worried whether or not to use sunscreen. If you have no idea what I am talking about, you certainly had a very long holiday. Let me update you in case you missed it all.

Exactly on the first day of In-Cosmetics, the Danish government decided to take all products containing three specific organic sun filters off the market because of their claimed oestrogenicity. This decision was based on the outcome of a study by Dr. Margret Schlumpf et al. of the Institute of Pharmacology and Toxicology of the University of Zürich, Switzerland. Fate had it that Dr. Schlumpf herself was also in Düsseldorf, where In-Cosmetics was taking place, to give a lecture on the very same subject. In short, as I'm sure you've heard it all before, she concluded that 4-methylbenzylidene camphor (4-MBC), ethylhexylmethoxycinnamate (EHMC) and benzophenone-3 (BP-3) had oestrogenic activity. In a series of experiments, she first showed that four out of six commonly used UV filters had a stimulatory effect on the proliferation of MCF-7 breast cancer cells. These four filters were subsequently investigated in the uterotrophic

We as cosmetic scientists should not only perform proper science, we should also continuously communicate our results properly and correctly and in the right context.

assay, which demonstrated that the three above-mentioned sun filters were, in their opinion, oestrogenic.

It is good that such investigations are performed. After all, a prime characteristic of cosmetics is that they have to be safe under known and reasonably foreseeable conditions of use. Why then am I writing about it? I would like to discuss the context in which we place our scientific findings. Dr. Schlumpf started her presentation with the statement that organic sun filters were now found in freshwater fish. Moreover, they were now also found in breast milk. Combining that with the proclaimed oestrogenic activity of the sun filters, she ended her presentation with the question to the audience, "Is that what you would like to give to your baby?" Clearly, an attention-seeking finalizing statement directed at the public at large, not the scientific audience gathered in Düsseldorf.

The general press had got hold of her findings but interpreted the statement "enhanced proliferation of MCF-7 breast cancer cells" as "sun filters cause breast cancer." Of course, such a statement makes newspapers sell and it could be found in a large font on many covers of magazines and newspapers. Even Dr. Schlumpf said that this was not what she had intended, but the damage was done. She only contended that some of the sun filters were oestrogenic, not carcinogenic. But our industry present in Düsseldorf was not even convinced of the oestrogenicity and in the following talks both at that mini-symposium on sun care as well as later on other occasions, the relevance of it all was beautifully shown.

Dr. Gerd Nohynek of L'Oréal stated that regardless of whether these studies were done correctly or not, many more chemicals have oestrogenic activity. He quoted soy sauce, the birth control pill and the morning-after pill. These "medications" that are readily accepted by the public at large have a relative potency of 35, 500 and 5,500, respectively, whereas the positive control ethinylestradiol has a potency of 10,000,000 and the tested UV-filters 0.4 (4-MBC), 0.03 (EHMC) and 0.004 (BP-3). Professor Vera Rogiers of the Free University in Brussels presented on May 19, 2001 at the Badecos Symposium in Brussels oestrogenic equivalent values that were even

further apart: from 333,500 (morning-after pill) to 16,675 (birth control pill) to 0.0000025 (4-MBC). Nohynek also stated that safety regulations for the chemical industry would generally accept a risk of one in one-million in a lifetime. If the findings of Schlumpf were correct, we would now withdraw from the market chemicals with a risk already lower than 1/1,000,000/lifetime, but at the same time accept a risk of 60 to 70,000/million/lifetime for being in the sun unprotected.

Subsequently, the SCCNFP (now the SCCP) were invited to provide their assessment of these findings. Their opinion provided a welcome statement on the importance of scientific method and a critical insight into data interpretation. For the in vitro studies, the SCCNFP commented they can only demonstrate whether UV filters bind on the oestrogen receptor or not, and do not provide evidence whether the compounds have oestrogenic activity or not. The authors' claims that the 5 UV-filters have oestrogenic properties based on an in vitro test were judged to be premature. The in vivo studies were subject to similar critical comment, particularly in relation to the test protocol design and conduct. There were some important uncertainties associated with study duration and conditions of exposure which led the SCCNFP concluding "that the organic UV filters used in cosmetic sunscreen products, allowed in the EU market today, have no oestrogenic effects that could potentially affect human health."

I also did my own calculations to verify the relevance of all this work in terms of exposure and dosage. When I extrapolate the uterotrophic experiment (where the authors let rats swim in solutions of the sun filter under study) to humans, we would have to ingest 70 grams of EHMC every day. Assuming a concentration of 1% UV filter in a 100 mL tube, this would correspond to the amount of sun filter available in 70 tubes on a daily basis. Via percutaneous absorption, where levels are seldom above 1%, this means that a daily usage of 7,000 tubes would be required to achieve the same loading. But 7,000 tubes, on the other hand, may just fill a bathtub to let us swim in UV filter!

In Düsseldorf at In-Cosmetics, Vera Rogiers commented that Dr. Schlumpf was mixing up hazard and risk, and that when compromising results were found, a scientific discussion should take place instead of walking to the press. The head of Schlumpf's department, Professor Walter Lichtensteiger, commented that this had actually happened and scientists of Merck confirmed this to be the case. However, they had not been able to repeat the outcomes of Schlumpf in 19 subsequent investigations. No other country has followed Denmark's unilateral decision and my latest information is that the Danish EPA suggests a voluntary labeling, advising consumers not to use sun products containing 4-MBC for children of less than 12 years of age. But you will not see this on the front covers of the same magazines and newspapers!

A lesson from all this is that we as cosmetic scientists should not only perform proper science, we should also continuously communicate our results properly and correctly and in the right context to avoid situations like this sun filter scare from happening. We have lived in ages of aristocracy (power to the nobility), plutocracy (power to the rich) and democracy (power to the people). Today we seem to be living in the era of mediacracy! Let's be careful, it is only a few letters away from mediocrity and we've all seen spelling mistakes in newspapers. Let's do proper science and communicate it properly and in the right context too!

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Chapter 9

Body and Mind...

Are we doing something wrong? We don't like aging, but we do age. We fight it as much as we can, but is that normal? How good do you think Methuselah, the oldest man recorded in the Bible, would look after 969 years of chronological- and photoaging? Did he die in total solitude because he was too ugly to look at and interact with? Aging must be as old as the world itself, which is pretty old if you reject the Creation theory. Charles Darwin has upgraded our knowledge on Creation with his evolution theory and we now know that the dinosaurs were wiped out by meteorites about 65 million years ago, long before Methuselah was even born. In this column, I would like to look at antiaging cosmetics from an evolutionary point of view and extract the ethics associated with our strive for aesthetics.

According to Darwinian theory, the only goal of a species, including the human race, is to maintain itself in the best possible shape. In a changing environment, species adapt themselves to their new habitats or become extinct. The key thing in survival is reproduction. Those species that reproduce most frequently have the highest degree of adaptability and constantly changing microorganisms in reaction to penicillin and antibiotics are a perfect example of this.

Improving the quality of life after our reproductive years is wasted energy as far as evolution is concerned.

Humans are at a disadvantage here because of the long time it

takes before their children mature. As a consequence, our number of offspring is small, but this is compensated for by a heavy investment of time in our current average of 1.4 children, ensuring a success rate of over 95%. This is a lot higher than that of, for instance, sea turtles where this is only one in a million. But regardless of whether one is a microorganism, a sea turtle or a human being, as soon as the offspring matures, it should replicate to maintain the species. With the arrival of the new generation, the older generation has become superfluous.

My point? From an evolutionary point of view, only the young among us count and only they have to be beautiful and attractive enough to the other sex to ensure reproduction. But our current sociological behavior is absolutely not in line with these Darwinist principles. According to the latter, once our reproductive years are over, there is no longer a need to be beautiful. But economic developments in our world today have resulted in a society where life only seems to start after our reproductive years have elapsed. Looking young and beautiful at an older age gives us humans the confidence we had when we were younger despite our inexperience. We are buying security. Our desire to achieve this has become greater and greater, and so has the size of the anti-aging market. With an ever increasing aging population with money to spend, the double-digit growth of this type of cosmetics is easily explained.

But what can the cosmetics industry do to meet this demand? Age is hitting us hard in a number of different ways. Our skin dehydrates and becomes less elastic while age spots and wrinkles appear. Our hair becomes grayer and thinner. Our bones weaken with every gram of calcium we lose. As a consequence, antiaging products can work in a variety of ways, normally affecting only one or two of these areas, some of which are only remotely associated with aging. As an example, a simple moisturizer can be argued to be a skin antiaging product simply because our skin dehydrates as we get older. The moisturizer could therefore reduce or possibly even reverse this sign of aging, regardless of whether this has been induced by age, by climatic conditions or by using harsh soap.

From a Darwinian point of view, our antiaging research activities are mere vanity. Improving the quality of life after our reproductive years is wasted energy as far as evolution is concerned. A previous column on molecular bioengineering indicated that we are creating our own evolution, a situation that Darwin probably didn't foresee. History repeats itself. Darwin did away with the need for the existence of a God as the Creator of the universe. Now we are gradually replacing evolution (based on the coincidental emergence of a stronger species) with molecular bioengineering (the deliberate emergence of a stronger species).

This whole transition springs from a human desire to be in total control of one's own destiny. But time we cannot (yet) control and as a consequence neither can we control the effects of time, such as aging. While some of the chemistries mentioned here may temporarily alleviate the symptoms, none return our 80-something-year-old grandmother to her teenage years. A more holistic approach to cosmetics will be required. People will have to feel good about themselves.

We know that care of the mind will impart health and beauty to the body (skin) and that care of the body (skin) will be similarly important in maintaining good mental health. Cosmetics may help people to achieve that state of mind. Once that has been implemented, our aging population can age gracefully. How might this happen? Not by unrealistic striving for a perfect body at an age well beyond our reproductive years, but by striving–with the help of cosmetics–for a healthy state of mind. Only when we bring body (including skin) and mind into perfect harmony, will we age gracefully. Our chemistries should help to place mind and body in an ideal relationship to one another to achieve a virtuous cycle and strengthen this relationship. Then we will have gone full circle, from a sound mind in a sound body (suggesting that you have to work on your body first) to a sound body thanks to a sound mind. Once you accept aging, you age less. Believe in inner beauty. After all, as the rhyme goes: "You could be a sexy saucepot, with loads and loads of style. But what makes a person scrummy, is a super smashing smile!" Charles Darwin, how does that sound?

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Chapter 10

Speaking is Silver, Silence (Also Known as Listening) is Gold...

And where were you on 9/11? The horrible events that took place in New York and Washington changed our world forever. In my last column, I wrote about achieving personal happiness and satisfaction via the use of cosmetics, but these recent attacks have made it painfully clear that personal happiness is not enough. We will actually need happiness for societies to overcome our current problems.

Actually, this may be one of our main problems. All over the Western World (which in fact spans from East to West), we have been striving for personal happiness and satisfaction for far too long. We were so relentless in these attempts that there was no room for anyone or anything that did not fit that philosophy. Only now, when the Western World's values and our principles are under attack, may we start to see the downside of our way of thinking. Our way of thinking implied that all agreed and all followed our main rules. That is no longer the case. As a consequence, we are shaken and live in fear for the next attack from those that do not agree to our way of thinking and have their own set of values and rules.

Very understandably, the Western World reacted to these threats, but in the back of our minds we also know that violence never solves violence.

If the time to talk will become more precious, maybe the world will be learning again how to communicate.

We've seen that for far too long in the Middle East. However, doing nothing would also send the wrong message to those responsible for these acts of terrorism. Unfortunately, this is a perfect example of a lose-lose situation. Yes, the world has definitely changed forever and I do not envy those in power for the impossible decisions that they will have to make. On September 11, I feared that President Bush would immediately retaliate but he first built a coalition before finally attacking. He and his team probably did that by talking to the various partners and they needed their negotiation skills to get certain countries included. September 11 has, at the same time, brought the world together as well as separated it into definite camps.

Let's look at the impact of 9/11 on cosmetic science beyond the adaptations of already slimming profit projections that many cosmetic companies have already made. At the time of the disaster, there were various cosmetic conferences about to start in the world. The 15th COLAMIQC Latin American Cosmetic Congress in Buenos Aires, Argentina had started the very same day. In Basel, Switzerland, Stratum Corneum III would start the next day but probably all delegates had already arrived there. These meetings still took place, although the attendants probably did not focus on the science to the same extent as they would otherwise have done. The Sunscreen symposium organized by the Florida Chapter of the SCC that would start on September 13 was cancelled. Even if people wanted to go, they could not, due to all air traffic being halted. Events that were planned in the week after 9/11, such as the IFSCC 2001 Conference in Taipei, were held in a somewhat reduced format. Even we as cosmetic scientists were divided into two camps, those who could travel and those who could not.

If there is one way at all by which we can solve this conflict, it must be by communication. But if the cosmetic world is a reflection of the real world, then we certainly talk enough. We even had four cosmetic conferences within two weeks. And this does not only apply to the scientific conferences; we also have plenty of trade shows in which we try to convince our customers to use our products. And that may be exactly where the problem lies, not only in cosmetic science, but also

in society in general. We think we are talking, we think we are communicating, but in reality we are only trying to convince the other of something. We do not really listen; we only talk about our latest scientific results or our latest cosmetic product and we will give you all the reasons why we are better, smarter or more efficient and cost-effective than everybody else.

In case you're not convinced, let me give you an example from the cosmetic industry (mark the word convinced!). Exhibitors had complained for years about all kind of things at In-Cosmetics, the annual trade exhibition for cosmetic raw materials and associated services in Europe. The exhibitors complained, but the organizers did not listen. Why should they? It would cost them money. But then some other people did listen and started their own trade exhibition, Personal Care Ingredients Europe, where the complaints of exhibitors were taken into account. All of a sudden, the organizers of In-Cosmetics did listen. After all, not listening would cost them money. Certainly in the current economic climate and travel restrictions, there will not be enough room for both of these exhibitions, so may the best win.

There will be less talking for a while, less convincing. People will be uncomfortable travelling for quite a while. This also happened after the Gulf War and then it took 18 months for air traffic to pick up again. But now there is not an underlying booming economy. We will go only where we strictly have to be. If the time to talk will become more precious, maybe the world will be learning again how to communicate. Communication is a two-way process and not the same as talking convincingly about yourself.

When Foot and Mouth disease and BSE were ravaging certain countries within Europe, we decided to kill every animal around, just to be sure. We killed the healthy animals with the sick animals. Now we are dealing with people rather than animals, our values dictate us to be more careful. We cannot kill the good ones with the bad ones. When the Lord wanted to destroy Sodom and Gomorrah for the grievous sins their inhabitants had done, He agreed not to do this if only ten righteous people could be found among the wicked (Genesis 18). In the current world situation, who are we to kill the righteous and the wicked alike?

To maintain this beautiful world of ours, we must indeed communicate more, but also listen even more than that. That's quite a New Year resolution for a talkative guy like myself. But let's not wait till 2002. The Christmas season is a time for reflection. Why don't we invite our neighbors with whom we never talk to join us and ask them to share their thinking? Maybe that would help to convey the message of peace in this world. Maybe our personal happiness can only really start after we've given some happiness to someone else in this world.

Dear Readers, I realize that there was not a lot of cosmetic science in this column. There is too much on all our minds right now that prevent our beloved science area from having top priority. It was something that I had to get off my chest before I could even think about the usual cosmetic subjects. I hope to regain my usual satirical style again very soon. I thank all of you that have sent me some mail agreeing or disagreeing to my writings over the last year. It has been a pleasure communicating convincingly with you. If you write more, even I one day might also learn the listening skill. I wish you all the best greetings of the festive season and a most peaceful 2002. May not only your wishes materialize but also those of your neighbors you do not even know. Only then we can transform from personal happiness to happiness for a whole society.

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Personal Care Spectator