

## OPPORTUNITIES FOR CHEMISTS IN THE COSMETIC INDUSTRY\*

By DAN DAHLE, PH.D.

*Director of Research, Bristol-Myers Co., Hillside, N. J.*

THAT COSMETIC firms today are showing an increasing interest in the hiring of chemists is not only a fact but also one of the healthiest signs of a true scientific advancement within the industry. And the establishment of the Society of Cosmetic Chemists may truly be looked upon as an index of how far we have progressed in the right direction. In the past it has been proved time and time again that it is only when the scientists in an industry begin to talk things over, that the industry in question starts going places. Our society now provides a forum, where our scientists may meet and exchange ideas. It looks like our industry has reached that level where scientific advancement will begin to show that there is a place for cosmetics, not only as a luxury, but as a real adjunct to better and more pleasant living.

When I was told that I would be expected to give some kind of a talk on this occasion, I began casting about for some suitable topic. It occurred to me, that it might be

\* Presented at the First Honorary Membership Ceremony, December 6, 1946, New York City.

of interest to you to have a brief outline of some types of work that await the chemist in this industry and some mention of the type of person needed for the job.

The man who is well educated in organic chemistry ranks high on the list of necessary employees. In particular, is this true if he or she has analytical ability. In order to improve a product or create a new one, it is always of interest to see what our competitors have, and the one among us who has a good organic analyst to take a competing product apart and furnish the compounder with a reasonably accurate formula starts out with two strikes on the problem of improvement. Incidentally, there is still much work to be done on the development of good analytical methods, applicable to cosmetics. If you don't believe that, just cite me a real good quantitative method for the determination of such a common cosmetic component as lanolin when present in a cream. Qualitative methods I'll be glad to give you myself.

Next, I should like to mention the

physical chemist. He, too, ranks high. Often, as we all know, the same quantitative formula in the hands of two chemists can result in products of widely varying appearance. The physical chemist with his awareness of the importance of such things as temperature, pressure, reaction rates, surface and interfacial tensions, colloidal behavior, and so forth, is a natural in the field of compounding and also in product and process engineering. If in addition, as is often the case, he has a talent for rigging up apparatus his aid in pilot plant production is indeed valuable.

Strictly speaking of course, the planning of the pilot plant is the job of the chemical engineer. And nobody need be told what a help the chemical engineer can be if he has learned his lessons of unit processes and can judge equipment by something more than the salesman's tempting description of what the gadget can do.

Before we leave the question of compounding, I should like to mention the organoleptic man and the pharmacist. The organoleptic man is the fellow with the "educated nose." Every manufacturer knows the value of the right perfume when it comes to selling a cosmetic product. A consumer test can always be used to decide which perfume is to be picked, but a good organoleptic man will see to it that the chosen perfume will not vary too much from batch to batch, once the product is on the market. Or if the management decides to change

the fragrance of the product the organoleptic man can often engineer a change-over so gradual that it will not shock the consuming public enough to make the sales curve turn downwards.

As for the pharmacist, anyone who has tried to work up a smooth ointment or cream with a few ordinarily incompatible ingredients in it, knows what a good pharmaceutical man can create both in regard to appearance of the product and—even more important—its stability on the shelf.

That in turn brings up the question of product control. Here there is plenty of room for the general analytical chemist. Reliable specifications for cosmetic raw materials are rapidly becoming accepted. But specifications are one thing, seeing that the raw materials meet them is another. For example, even a small variation from batch to batch of the triethanolamine you use in your lotion may upset your carefully laid plans for a certain desirable viscosity. A good control chemist can spot those variations in time before the damage is done. And raw material control, important as it is, deals only with the preliminaries. After all, the real function of the control chemist is to keep check on production in all its details, so that the unavoidable variations from batch to batch are held to a minimum. That requires not only knowledge of chemistry and a little engineering but great care, thoroughness, and a wide-awake mind.

I have heard people say that the control chemist is doomed to be a routine man all his life. Yes, he can be and remain a routine man, but then he is not a *good* control chemist. The wide-awake chemist in working with control can't fail to learn so much about raw materials, formulation, and final products that he becomes a valued adviser of both the production manager, the compounder, the research staff, and last but not least, the purchasing department. In fact, other industries have found it advantageous to have chemists advise the purchasing department in the matter of the best buys of the various products they need. So the good control chemist is not doomed to routine. He has his share of chances for advancement.

Before we leave the question of product control, don't let us forget the plant control man, the fellow who watches over the product in the making; who checks on tank temperature, stirring rates, visual condition of the raw materials (they don't always look as good as the sample the purchasing agent submitted to the laboratory, you know), packages and their appearance, etc., etc. Altogether too often this man is not a chemist, but if he is, what a grand "first line of defense" he is, when something goes wrong (as it does occasionally in the best of factories). His on-the-spot observations can save the firm many weary moments otherwise spent in trying to trace the cause of a failure, hours or maybe days after it

occurred. And a chemical knowledge plus a little experience will often tell him the cause and suggest the remedy as well, when production failures threaten. A first-class plant control man is a potential production manager any day.

So far we have dealt with chemists needed in the development of cosmetic products and in the maintenance of quality. But there is another important angle, the safety of the products themselves. After all, even the best products will fail in the long run in spite of appearance, attractiveness of perfume, package, and advertising if the consumers do not keep on buying them. And customers will not long keep buying any product if even a fairly small percentage of them are or become allergic to some ingredient in it or if the product proves a trifle irritating to the skin. Well, here's where the physiological chemist, the pharmacologist, and even the bacteriologist comes into his own. Their work has become increasingly important with the appearance of Federal government regulation of cosmetics. Just to mention one example where the product information developed by pharmacological testing is going to be important: New synthetic surface-active agents are coming into the market almost daily. And often an addition of as little as a fraction of one per cent or so of one of these agents will not only confer desirable application properties to cosmetic products but will also increase the irritating properties of at least some

cosmetics. Take heatless permanent waving for example. There is no doubt in my mind but that part of the trouble there can be laid at the door of surface-active agents.

This in turn leads us to consider a broader aspect of this same problem, and the chemist to fit that job. I am thinking of the man who can and will keep up with new materials. Offhand, you may say that any chemist will do that. Yes, and no, or maybe we should say more or less. Some of us seem to have more of a natural curiosity than others. And some of us keep up with literature in a haphazard fashion, while others go about it methodically. And last but not least, some of us after trying new materials or methods without success a few times, become pessimistic and develop a conservative resistance to all new things. That is a worse attitude than that of the fellow who indiscriminately falls for everything new. At least the latter will now and then come up with something of value. The ideal of course, is the man with scientific curiosity, tempered by good judgment. He is a scarce phenomenon, but oh, how valuable in research.

Finally, there is a type that deserves a mention even if it is hard to describe him. He is the expert in "imagineering." Or if you don't like that word, he is the practical day dreamer. I almost hesitate to mention him because it is sometimes hard to distinguish him from the fellow who is just plain lazy. But *practical* day dreaming requires one

thing the lazy man never acquires: background and knowledge of the past. The Good Book tells us that there is nothing new under the sun. Our industry may well remember that. And the practical day dreamer is the one who can go back over old and maybe forgotten or discarded products and judiciously pick out something that with a changed process, a variation in appearance, or an extension in applicability can be revived and turned into a "new product." I admit, frankly, that I cannot set up educational specifications for that type of chemist, but I know that every research director in his heart is fervently hoping to discover one of them among his crew.

You may feel that I could sum up my many words by saying that the cosmetic industry can use chemists with almost any type of qualification. That is very close to the truth. And the future of our industry depends on how well its need for chemists becomes recognized—and filled. The simple cosmetics of 30 to 40 years ago do not satisfy milady of today any more than the haphazard production methods of yesterday will produce a good competitive product now. But neither are our products of today going to satisfy the consumer 30 to 40 years hence. There is going to be a demand for many improvements. Today, for example, the terms emollient and lubricating are synonymous when applied to creams. Actually, lubrication involves nothing more than creating a slippery

surface. Too often this slippery surface is mistaken, for the real softness of true emolliency. The creams of the future will be more emollient, and less lubricating. Research on skin reactions will see to that. And this will no doubt be achieved without involving reagents with therapeutic action.

Or let us take a rather well-known problem. Brushless shaving creams of the future will not suffer from their greatest drawback of today—that of clogging the safety razor. Research will see to that, too.

You, yourself, can add to the list of needed product improvements. There are many, and it is up to the cosmetic chemist to see to it that progress is made in the right direction. If improvements keep ahead of demand, the industry will prosper. If not—but let's not think of that. The responsibility of the chemist is great and will be greater. In fact, whether it be admitted today or not, the future success or failure of our industry is in the hands of our chemists.

## *An Appreciation*

The following Institutions have made substantial grants toward the publication and maintenance of  
THE JOURNAL OF THE SOCIETY OF COSMETIC CHEMISTS:

Alrose Chemical Company  
American Perfumer  
Atlas Powder Company  
J. T. Baker Chemical Company  
Beauty Counselors, Inc.  
Compagnie Parento Inc.  
Compagnie Parento, Limited  
Dow Chemical Company  
Emulsol Corporation  
Firmenich & Company  
Givaudan Delawanna, Inc.  
Lehn & Fink Products Corporation  
Raymond Laboratories Inc.  
Reheis Company, Inc.  
Schimmel & Company  
The Toni Company  
Van Ameringen Haebler, Inc.  
Van Dyk & Company  
Albert Verley, Inc.