



The National Geographic Smell Survey . . .

I. The Beginning

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Two and one half years ago I could not have imagined myself standing before the American Society of Perfumers and saying anything that could conceivably be of interest to all of you involved in the world of smell.

Two and a half years ago I knew as much about smell as the average person—that there are good smells and that there are bad smells. But that was about the extent of it. Smell was there, but generally unappreciated and certainly not understood. All that was to change.

When Editor-in-Chief Bill Garrett first approached me with the idea of doing an article in the *National Geographic* on the sense of smell, I looked at him aghast. How could you, I asked, do a story on *something* that cannot be seen or photographed, described (what does a rose smell like), held, heard, or touched. The more I looked

into it, however, the more I was intrigued by the idea of tackling this subject.

Over a year later, and with the creative talents of a superb writer and a good photographer, we had ready for publication a story that both explained and *evoked* the least understood of our senses and its impact on our lives.

It had been both my fascination and duty during that year to become as familiar with olfaction as a layman can. What struck me, however, as I sat there with this story ready to go to press was that very little was really known about this elusive sense. A medical textbook might have chapters or entire volumes on the physiology of nerves and touch, or sight, or hearing, but scant pages on olfaction. And even more ignorant were we on how populations perceived different



smells, or conversely, the impact of smells on people. Rashly and very naively I asked myself "Why not try to develop a nice simple little scientific test using microencapsulated fragrances that would attempt to answer some of the outstanding and unanswered questions of olfactory science?" I should have known better. Eighteen months and a million dollars later, balder, older, and wiser, we had *The National Geographic* Smell Survey before our eleven million subscribers and fifty million readers worldwide.

From the beginning, it was essential to me that several goals be accomplished if we were to produce a successful smell survey.

Firstly, that it was a good editorial product that added to the readers' knowledge and experience. *The National Geographic* is a non-profit organization devoted to education—to further our readers' understanding of the world around them is our first charter. The second and equally important reason to create this survey was to produce good and useful science that could further *scientific* knowledge of this little known sense. In this regard *The National Geographic*, too, had experience—as the grantor of over five million dollars worth of scientific grants annually to researchers of all disciplines worldwide.

After discussing this wild idea of a smell survey with many people and organizations in the olfactory world and deciding it was indeed plausible, we went looking for the right scientist to actually create the scientific rationale, choose the scents that would be studied, and develop the questionnaire.

In the Monell Chemical Senses Center we found the right partner—a fellow non-profit organization, doing excellent science, with no strings attached. Two of their brightest researchers, Dr. Chuck Wysocki and Dr. Avery Gilbert, who will also discuss in this issue the expected findings of the survey, came forward and have been the scientific expertise behind this project ever since. Without them, this survey would have never been possible—and the resulting data useless to science.

Initially, we thought of placing one or two scents on a page in the magazine. Because of production problems inherent in this approach we eventually turned to the format you now have in your hand—36 inches long and 7½ inches wide in which we were to place six scents carefully chosen by Monell for their scientific worth. The procedure used to choose these six was long and intensive. Beginning with fifteen scents we eventually winnowed out six, leaving nine to be tested in actual field conditions. At this point

there were many skeptics in and out of the magazine who were predicting that this project could not work—printers, editors, scientists. To prove that it could, we decided to go ahead with a full test print run of the survey using all nine scents that we were considering. Working with Meehan-Tooker, a specialty press in East Rutherford, New Jersey, we developed for the first time the technical capability of applying six microencapsulated fragrances to a fast gravure press—all this taking weeks of major equipment modifications and testing.

What resulted was two different surveys that incorporated nine different scents and was attached to a full questionnaire. Taking these surveys on the road we tested them before individuals and focus groups up and down the east coast. Some things were a surprise, such as having to tell the participants to smell the fragrance squares (our initial instructions had only said scratch here)—other things were not, such as the fact that isovaleric acid was a thoroughly unpleasant odor. Eventually, and as a result of this testing, we cast out three scents and boiled the fragrance choices to these six odorants: androsterone, iso-amyl acetate, galaxolide, eugenol, mercaptan, rose.

By this time we had been fortunate to enlist Firmenich and International Flavors and Fragrances as our volunteer consultants on the scents that they would later contribute to our project. The Firmenich contingent, led by Richard Ensor and the IFF group led by Craig Warren, provided consumer test panels, laboratory assistance and the raw material. Without them this survey would not have been possible.

Finally, in June of 1986 with all the bugs worked out of the survey and minor and major modifications made to it, we were ready to go to press.

The planning and logistics needed to insert eleven million of these surveys into the September '86 issue of the magazine was staggering. Paper, 192,000 lbs of it, 96 tons, had to be imprinted with six fragrances—all to exacting standards of quality, and all with the press going 60 feet per second, 24 hours a day for 22 days. Because of its unorthodox size, the survey had to be taken to New Hampshire for folding and cutting, then crated in special wax-lined containers to minimize friction and rupturing of the micro-encapsulated scents. After loading of the crates into refrigerated trucks (again to minimize rupturing of the scents) all the surveys were shipped to the plant in Mississippi where the magazine is printed, there to be inserted into each issue.



The results of our efforts exceeded our own wildest expectations. As soon as the survey began arriving in homes in over 140 countries worldwide we began getting calls, letters, cables. The media picked it up and played it in over 1,300 international newspapers, magazines, television and radio stations. We received 1,700 letters from our readers, nearly three times the amount we had ever received from a previous story. This record flood of letters leaves no doubt about the power of smell to evoke sharp memories and powerful emotions and to cause physical, mental, and emotional pleasures and anguish. Let me share some with you briefly:

From Minnesota a reader wrote: Your article certainly had a strong effect on me. I have no sense of smell and it wasn't until I read your article and Survey that I ever regreted not having it. The vivid descriptions of the memory-inducing smell of your grandfather's vest made me cry. All this time, all I thought I was missing out on was body odor, wet dogs and skunks.

Another wrote: I'm now 85. After my husband died, I missed him so much that I would go into

his closet and hug his suits because they smelled of his own body odor, slight cigarette smell, and "Old Spice." I'd stand there hugging his clothes, making believe, close my eyes—and cry.

Another: Years after a "sad-affair of the heart" a Missouri dentist gets a whiff of a friend's perfume that reminds him of the fragrance his girl had worn in those days. He writes, "Bang! There I was getting a teen-ager's nervous flutters in the stomach all over again."

In a more humorous vein another reader wrote: I thought you would appreciate knowing that after taking the Survey, I presented the six panels to my Golden Retriever. He showed no interest in any of the scents except #5, the one I found most unpleasant. What is it?

And finally: One man suggested employing his wife in smell tests. "She is an expert" he writes, before concluding "And she is also a Baptist and can smell beer over the telephone."

The greater proof of the survey's success was in the staggering total of 1.5 million questionnaire returns we got back from our readers, nearly 15%—and they had to provide the stamp. It was gratifying to see that people were indeed interested in smell and its effect on their everyday lives.

The flood of returns has now tapered off. Monell's Gilbert and Wysocki are busy analysing the results of the data gleaned from a random sample of 30,000 replies, results they will publish in the October '87 issue. I'm also pleased to announce that The National Geographic Society Board of Directors has just approved the expenditure of \$200,000 in additional monies to allow for the data entry of all the 1.4 million remaining survey replies—a task that will take another 18,000 man-hours of time.

This invaluable store of data representing a goldmine of information about human olfactory abilities and perceptions will be available to all interested parties, be they scientists or corporations, as a public service from *The National Geographic*. We want the widest possible use and dissemination of this informational matrix in the hopes that this least understood of our senses may one day be better known. We hope to hear from you all.

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