

THE AMERICAN ACADEMY OF CLINICAL SEXOLOGISTS
AT MAIMONIDES UNIVERSITY

A STUDY OF THE OLFATORY CONNECTION IN HUMAN SEXUALITY:
IS THE NOSE A SEX ORGAN?

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DISSERTATION APPROVAL

This dissertation submitted by Ursula Chamberlain Kalt has been read and approved by three faculty members of the American Academy of Clinical Sexology at Maimonides University.

The final copies have been examined by the Dissertation Committee and the signatures which appear here verify the fact that any necessary changes have been incorporated and that the dissertation is now given the final approval with reference to content, form and mechanical accuracy.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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VITA

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ABSTRACT

Daily ablutions -- making sure body smell is appealing to others, or at least not offensive -- constitute one of the first tasks undertaken every day in so-called advanced western societies. Moreover, billions of dollars are spent each year on perfumes, deodorants, and fragrances to enhance the sexual attraction of men and women. There is thus a common acceptance in our society of the communication value, for human relations in general and sexual relations in particular, of the smells we give off and those we receive.

Many of the classic studies on human sexuality in the twentieth century do not ignore the sense of smell as a factor in human sexual expression. They rather refer to it in passing only, hinting at its importance, but suggesting by relative inattention that it is beyond the scope of inclusion in systematic examinations of human sexual behavior. In reviewing the literature, there is a paucity of information on this topic. This study will explore the possible influence of olfaction in both human sexual development and its expression. It will also consider the impact of scent and smell on the sex lives of a group of individual subjects who are representative of professional working men and women in America at the turn of this new century.

PREFACE

THE UNIQUE SEXOLOGICAL NATURE OF THE PROBLEM

Despite that fact that I have always been intensely aware of the smells around me, and instantly register them in my environment, I cannot remember, either as a child or as an adult, ever bringing the subject into any serious discussion. Apart from passing comments about foul odors invading nostrils, or remarks about sweet perfumes heightening pleasure, or even a momentary sharing of memories evoked by familiar scents, actual prolonged talk about smell is rare. This is not so for the other senses.

I can wax long on what I see, hear, taste, or touch. How many hours have I gossiped about the doings of others, witnessed personally, or only heard about second hand? The preparation and savoring of interesting food has ever been a passionate subject of my social discourse. And shopping for that specially textured fabric, be it high-thread-count cotton or extra soft toweling, can send me with like-minded friends on a frenzied department store chase. To this day, it is well known in my family that I can sleep only on down pillows. But smells, for me, are more private and personal, a part of my secret inner life, experienced intensely but with relatively little comment, and yet governing so much of my comfort or discomfort with the world around me.

My earliest conscious memory comes to mind with a surge of pungent odor. I was less than two years old, still sleeping in a crib, and staying with an aunt while my mother was in hospital. I see myself grasping at a gold watch from a night table nearby, pulling it through the crib bars, and smearing it with the warm, richly smelling contents of my diaper. The look of horror and fear and who knows what else on the face of my aunt, when she found both the watch and me covered in feces, no doubt helped etch that image

irrevocably in my brain. But the memory of that smell is still powerful and strangely pleasing. Indeed, my lack of disgust at changing my own children's diapers, while characteristic of many mothers, was actually a frank delight in that special odor that only infant bowels can produce.

Other odor memories also come back with particular force. The memory of my mother's pinafore, smelling of baking flour and soap, can make me weep. The aroma of tobacco and tweed, combined with a certain smell of shaved male chin, brings a lump to my throat, as thoughts of my father rise up. I still sometimes savor the frank, sweaty smell of other peoples' little boys when they come in from a hard day's play, recalling my delight in the smell of my own two sons at such moments when they were small.

As this study will review, the powerful link between odor and memory is universally recognized. Personally I would characterize myself as particularly smell-based since my attitude towards a person or place so frequently hinges on the degree of pleasure or repulsion triggered by identifying odors, and not always at a conscious level.

A reminder of how interconnected sex was with smell for me emerged during a class on Sex and Disability. (Sloan 2001) As an exercise in bringing into awareness the part our senses play in our sexuality -- be we disabled or not -- class members were asked to share what was a turn-on for them in terms of each of the senses. I willingly shared my personal preferences as to sight, hearing, taste, and touch, eagerly giving examples and experiences from married life and before to illustrate my choices.

When it came to smell however, my response was unexpectedly different. Trying to explain to classmates how the aroma of my husband's hair and scalp had so often triggered an erotic response in me, I was suddenly speechless with the pain of memory.

He had died less than a year before and his presence came flooding back with the recall of that smell. Tears flowed uncontrollably for a while, but behind them was the recollection of erotic excitement and pleasure evoked by that familiar fragrance.

This highlighting of the role of olfaction in my own sexual life led me to further explore the connections between human sexuality and the sense of smell as a subject of doctoral dissertation. Needless to say, as so often happens when phenomena are examined closely, the olfactory link turned out to be more complex and far-reaching than my personal experience would ever have led me to imagine.

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CHAPTER ONE

A REVIEW OF THE LITERATURE

Smell, Scent and Seduction: A Historical and Literary Perspective

History, literature, and folklore, as well as the explosive growth of a multi-billion dollar perfume industry, bear rich testimony to the inevitable interconnection of smell, scent and seduction in the minds of men and women. From earliest times, the language of love has endeavored to capture the aromatic essence of the other's attraction, or to enhance the likelihood of the other's enticement.

Solomon's Song of Songs to the beloved is bathed in the sensual fragrances of myrrh, frankincense, aloes, flowers, sweet fruit, and the perfumes of Lebanon. The betrothed imagines the beloved as "a bag of myrrh, lodged between my breasts...a cluster of henna blooms, from the vineyards of En-gedi...perfume poured out... the scent of ... breath like apples" (Song of Sol. 1, 1-14). King Xerxes' new queen, Esther, was groomed for her royal betrothal for twelve months, "six months with oil of myrrh and six months with perfumes and women's cosmetics" (Esth. 2:14). Tradition has it that Judith saved her people by seducing, then slaying the Assyrian commander Holofernes. She did not go unprepared, but "bathed her body with water and anointed herself with precious ointment" (Ju. 10:3).

The ancient Egyptians, skilled in the techniques of embalming with spices and unguents and practiced in the lavish ceremonial and religious use of perfume, probably discovered the art of *enfleurage*, which involved pressing aromatics into fatty oils to create more lasting and penetrating perfumes (Ackerman 1990). Egyptian noblewomen used these fragrances extensively. Cleopatra is said to have received Anthony on a

cedarwood ship with perfumed sails, and to have seduced him on a bed set on a carpet of roses (Trueman 1975). As was the custom, each part of her body would have been heavily scented with different fragrances.

It was the sybaritic Egyptians who passed on their elaborate system of baths to the Greeks and Romans, as well as their penchant for massaging fragrant oils and ointments into the skin of athletes, warriors, and lovers alike. Later, Arab warriors conquering and defending lands for Islam, would be inspired and comforted by the words of the Koran, extolling the beauty of the virgin Houris -- created entirely from musk -- who welcome the righteous Muslim into the afterlife (Trueman 1975).

Shakespeare evokes the seductive power of floral aromas: “Come live with me, and be my love” invites the swain, tempting his lover to “a bed of roses, With a thousand fragrant posies”. But the Bard would not allow “all the perfumes of Arabia” to sweeten the stench of blood on the murderous hand of Lady Macbeth. (Shakespeare 1993, 1477, 1147).

Quoting anthropological studies of his day, Havelock Ellis (1936) marvels at the sheer variety of practices among world cultures regarding smell, perfume and sexual availability. He describes the attention to smell of Papuans, New Caledonians, Australian Aborigines, Javanese, Samoans, and Swahilis, concluding the first section of his chapter on smell with a quote from a German anthropological work by Velten -- an almost hedonistic savoring of the amorous aromatic preparations of Swahili women:

When a [Swahili] woman wishes to make herself desirable she anoints herself all over with fragrant ointments, sprinkles herself with rose-water, puts perfume into her clothes, strews jasmine flowers on her bed as well as binding them

around her neck and waist, and smokes *udi* the perfumed wood of the aloe.
 “Every man is glad when his wife smells of *udi*.” (Ellis 1936, 50)

For many the erotic scent of the human body itself was attraction enough. Ellis refers to ancient Hindu writers who describe the perfect woman, the *padmini*, as “the lotus woman...whose sweat has the odor of musk, and whose vulvar secretions are perfumed like the lily that has newly burst.” He quotes a Chinese poet’s hymn to his betrothed: “When I have climbed to the bushy summit of Mount Chao, I have still not reached the level of your odorous armpit ... that embalmed nest”. Ellis himself believed that the odor of the armpit was the most powerful in the body. Referring to nineteenth century writing he remarks that three of Goethe’s female characters in *Faust* openly savor the “ambrosiacal odor of young men”, adding that the playwright “seems to have felt considerable interest in the psychology of smell” (Ellis 1936, 77, 80).

Diane Ackerman refers to a letter that Napoleon had sent to Josephine, telling her “ ‘not to bathe’ during the two weeks that would pass before they met, so that he could enjoy her natural aromas.” She also tells the story of Henry III who “conceived a passion for Maria of Cleves that nothing could allay” simply because he had accidentally wiped his face in a sweaty chemise left behind by her (Ackerman 1990, 9, 93).

Indeed, the acceptance of human body odor was universal before the upper and middle classes of the eighteenth and nineteenth centuries became interested in bathing and body hygiene; for the elite, body odor began to signify physical labor. As Alain Corbin states in *The Foul and the Fragrant*, “Western man and woman would henceforth endeavor with increasing skill to disguise body odors that had become burdensome; it was a way of denying the sexual role of the sense of smell” (Corbin 1986, 74). Victorian reluctance to refer directly to any body parts or functions left little tolerance for such

overt enthusiasm in literature. However, the nineteenth century French poet, Baudelaire, like many of his compatriots, exulted in the body smells of his mistress. In poetry he breathes in the odor of her breasts, swims in her personal perfume, and loses himself in the thick intimacy of her hair (Baudelaire 1996).

Folklore throughout the world also alludes to the attractant properties of human body smells. In *The Scent of Eros* (1995), Kohl and Francoeur describe the custom of a sixteenth century English maiden in love who would tuck a peeled apple in her armpit until it had absorbed her sweat, and then offer this love apple to her lover to excite his passion. In *Scent: The Mysterious and Essential Powers of Smell* (1992), Annick Le Guerer indicates that in some areas of Asia Minor and the Mediterranean during folk dances, “the male dancer stimulates his partner’s ardor by fluttering a handkerchief imbued with underarm sweat under her nose” and presumably sweeps her away (Le Guerer 1992, 10).

But ever and always the tendency to expand the orchestration of attraction with the addition of fragrances is noted in accounts of human sexual pursuit. The first perfumes (from the Latin *per* meaning through and *fumus* meaning smoke) were in fact the sweet-smelling burnings of wood, flowers, herbs, and spices offered to the gods as incense in the Ancient World (The New Encyclopaedia Britannica 15th Ed. 1997). Indeed, the close association of perfume and incense with sexual/fertility and religious/magical practices was an integral part of worship in past civilizations (Le Guerer 1992). Even today the Hindu wedding ceremony is sanctified with the burning of sandalwood in the marriage tent so that the scented fumes envelope the bridal couple (Trueman 1975).

When Mary Magdelene , the fallen woman of the Bible, is described as anointing the feet of Christ “with a pound of spikenard, very costly”, Judas self-righteously objects to such luxurious extravagance. But somehow her person and action are redeemed by the sacred significance of this foreshadowed funeral rite: “Let her alone,” says Jesus, “against the day of my burial has she kept this” (Le Guerer 1992, 149). Twice saved, Mary Magdelene was to become the patron saint of perfumers.

The demands of Hindu gods were satisfied until the last century with the sacrificial burning of widows and concubines on the aromatic sandalwood funeral pyres of their dead lords. This practice has legendary antecedents amongst the Lydians and the Assyrians, whose rulers Croesus and Ashurbanipal, both chose suicide on burning pyres of fragrant woods and gums, forcing their wives to share their fate (Trueman 1975).

Such fumes can be sanctifying or expiatory as above, or safeguarding -- as in the Mayan legend of the virgin Princess Blood impregnated with the sap of the magic dragon tree, whose protective burning odors intoxicate and render powerless her would-be executioners. But more often perfumes and incenses are purifying and cleansing. For instance, marriage in North Africa requires meticulous, precautionary aromatic preparations on the part of the woman. Before the ceremony she, “who is particularly vulnerable to any jealous *djinn* (evil spirit), must undergo a whole series of purifications and perfumings”. Tunisian Bedouin women burn the sweet smelling sarghine plant under their clothing before entering the marriage bed. The smoke “has the property of neutralizing those genital odors -- of the female in particular -- that tend to repulse or hinder the full expression of desire” (Le Guerer 1992, 7, 15).

Echoes of such sacrificial shunning of women, especially for their monthly emanations, are evidenced in the use of segregating menstrual huts in Suriname and Hawaii (Price 1993), as well as the cleansing rites of the Jewish micvah bath, and the old Irish custom of *churching* women -- with purification prayers at the altar -- before marriage and after giving birth. (Reported by the researcher's mother, from her grandmother.) From early civilizations onwards the tendency to characterize women as malodorous and unclean as well as downright dangerous for their bewitching powers, engendered an attitude that no doubt encouraged the witch hunts and burnings of the past, and still informs practices throughout the world.

The healing power of perfume is long entrenched in the history of humankind, perfumes sometimes being the only hope for cure or prevention of the many plagues that assailed the medieval and renaissance worlds. In a revival of ancient beliefs, aromatherapy is not only popular today; it is also the subject of serious research. Ackerman (1991) described work being done at Yale Psychophysiology Center where researchers have studied how smell decreases stress and increases alertness. Studies by Epple et al. (1999) have confirmed that academic progress has been found to improve in a pleasing aromatic ambiance.

Bieber (1959) noted as far back as the fifties that positive attitudes, generated subliminally by fragrances, could be a major contributor to increased sales, a fact well known by late twentieth century market leaders where "the biggest users of fragrance are Procter and Gamble, Lever Brothers, and Colgate" (Gibbons 1986, 360). Bieber describes the department store sale of two identical lots of stockings -- one scented the other one unscented, and the significant increase in purchases of the scented stockings.

None of the women reported any awareness of the addition of fragrance. Instead they indicated choices were based on texture, a difference that did not, in fact, exist. As a perfumer remarked to Gibbons, “Your hair would wash just as well without a fragrance, but with it, you sing in the shower” (Gibbons 1986, 360).

The body scents used in the ancient world, based as they were in resins, oils, and spices, would probably have been repugnant to us. “However gorgeous they may have looked, Helen of Troy and Cleopatra would have smelled so appallingly to a western man today that they would have reduced him to total impotence” (Trueman 1975, 83). A breakthrough was made in the eleventh century when the Arabian physician and alchemist, Avicenna, seeking “to isolate for Islam the soul of its holy rose” (*The Smell Report* 2000, 1), is believed to have been the first to have used alcohol to distill rose petals for the extraction of rose water. Its seductive powers were recognized, although in the thirteenth century, the Arabic poet Sheykh Moslehodi Sadi declared that men have little need for such aromatic aids in their sexual adventures:

Essence of roses, fragrant aloes, paint, perfume and lust:
All these are ornaments of women.
Take a man; and his testicles are sufficient ornament.
(*The Smell Report* 2000, 1)

With the Crusades a multitude of new fragrances came from North Africa to Europe. From the Orient the art of distilling flowers and spices for perfume was first brought to Italy, and later to the rest of Europe, where France became a center for the perfume industry in the eighteenth century. The pomander was first carried in France to guard against infection, and also as an aromatic distractant, counteracting for the leisure classes the increasingly distasteful body odors of the multitude.

This *pome d'ambre*, meaning apple of amber, recalls the importance of the four main animal secretions used throughout the ages in the manufacture of perfume (Hopson

1979). Ambergris, a strongly reputed love potion, is from the stomach of the sperm whale. Together with musk, which comes from a rutting gland of the tiny musk deer, civet, from the sex glands of the civet cat, and castoreum, found in pear-shaped scent glands of the beaver, it forms the foundation of the perfumer's age-long search for a sure-fire sex attractant for human beings. The odor of each one of these secretions is overpowering in concentrated, harvested form, but miniscule additions to other perfumes work as fixatives to hold and deepen the fragrance, and to intensify the effect.

Every fine perfume, which may contain up to one hundred ingredients, is composed of a top note, the refreshing volatile odor perceived immediately; a middle note, or modifier, providing full, solid character; and a base note, also called an end note or basic note, which is also most persistent. (Encyclopedia Britannica, 15th ed. 1997, 287)

Stoddard (1990) is blunt about the role of each note:

The top notes are made from the sexual secretions of flowers, produced to attract animals for the purposes of cross-pollination and often formulated as mimics of the animals' own sex pheromones. Many of these contain compounds with a fecal odor. The middle notes are made from resinous materials which have odors not unlike those of sex steroids, while the base notes are mammalian sex attractants with a distinctly resinous or fecal odor. (Stoddard 1990, 163)

The age-old thinking seems to be that if such combinations work so successfully for other creatures, they will work equally well for human beings.

Today the center for perfume creation is at International Flavors and Fragrances, Inc. in New York City. It is here, according to Ackerman, that the "best professional noses in the world... work anonymously."

Eighty percent of men's colognes are created in their laboratories, and nearly that much of women's. Though they refuse to name names, in their hallways glass cases display perfumes by Guerlain, Chanel, Dior, Saint Laurent, Halston, Lagerfeld, and Estee Lauder, and many others to which they gave birth. (Ackerman 1990, 46)

Indeed, the development of the modern world-wide perfume industry is one of continual competitive effort to distill ever-more appealing varieties of scents, be they

everyday deodorants, or the healing and mood-enhancing fragrances of aromatherapies, or even the Holy Grail of the perfume world -- an ultimate aphrodisiac. A glance at the advertising pages of any popular magazine leaves little doubt that it is this latter promise that motivates consumers, and thus propels perfume industry researchers. Often the labels on popular perfumes do more than hint vaguely at sexual pleasures to come. Some perfume names, such as Givenchy's latest -- Organza -- can be linguistically ambivalent. But with other brands, such as Opium, Passion, Poison, Desire, Decadence, Tabu, My Sin, Obsession, Addiction, and Sexual, a nether world of orgiastic transcendence is clearly pledged.

The Relevance of the Olfactory Connection in Sexual Communication

For an answer to the question of whether a study of the olfactory component in sex is relevant in the personal sex lives of John and Jane Doe, the author took an informal poll before beginning this study. Thirty people were asked to give a yes or no answer to the question, “Has smell been an important factor in your sex life?” The sample, drawn from casual social interaction, was nevertheless made up of fifteen men and fifteen women. All of the individuals questioned expressed some degree of surprise at the topic, but although sometimes momentarily frustrated by the general nature of the question, and often anxious to go into his or her own specifics, everyone answered a resounding and unequivocal “Yes”.

Nevertheless, despite indications of its abiding association with human sexuality, some of the defining works of the twentieth century have barely touched on the sense of smell as an ingredient in human sexual behavior. Foucault (1990), Kaplan (1974), and Hite (1976) pay little or no attention to the topic. In one paragraph Kinsey (1953) offered that sexual arousal might dim the senses of smell and taste to the extent that “contacts that would be offensive to an individual who was not sexually stimulated, no longer offend” (616). Of the more than one thousand pages in Albert Ellis’ *The Encyclopedia of Sexual Behavior* (1973), only two are devoted to sex and smell. Masters and Johnson (1966, 1970, 1985), concentrating as they did on sensate focus techniques, regarded fragrances and perfumed lotions as admittedly helpful aids to sexual satisfaction, but only briefly commented in their seminal works on the value of research into the role of olfaction in human sexuality (1970). *The Janus Report* (1993) says nothing about

olfaction in human sexual experience. The popular works of Reubin (1969), Barbach (1975), LoPiccolo (1978), and Zilbergeld (1993) are also silent on the issue, as is *The New Our Bodies Ourselves* (1992) by the Boston Women's Health book Collective.

Surprisingly, Alex Comfort's interest in human pheromone research (1971a, 1971b) and his creative speculations about the effect of powerful attractant chemicals on human behavior cited by Ackerman (1991), did not translate into sex/smell discussions in his most popular works (1972, 1991).

Sigmund Freud posited a close connection between sex and the sense of smell in *Civilization and Its Discontents*, suggesting that the diminution of the influence of olfaction and the increase in the importance of sight were a result of man's standing up. "This made his genitals ... visible ... and so evoked feelings of shame", leading ultimately to "the isolation of women at their periods" and providing the "impulse of civilization towards cleanliness" and a corresponding revulsion at excretory functions. He commented, "We know things are different in the nursery", since "excreta arouse no aversion in children" (Hutchins 1952, 782). He considered this part of the inevitable socialization of anal erotic pleasures by rendering them disgusting.

Other significant proponents of a sex/smell link include Havelock Ellis (1936) who began his work at the end of the nineteenth century, Iwan Bloch after the First World War (1933), Irving Bieber in 1959, and John Money towards the end of the twentieth century (1985). Indeed, these students of human sexual behavior were convinced of the intimate relationship between the olfactory sense and sexuality.

Ellis devoted an entire section of his *Sexual Selection in Man* (1936) to the analysis of the sexual allurements of smell. He was interested in the individuality and the

sexual stimulation potential of personal odor and, while acknowledging the predominant influence of sight in human sexual selection, posited the influential role of smell in intimate human sexual contact. Ellis noted the sensual power of odor, citing a lady for whom “the odor of leather suggests that of the sexual organs” and another who felt “such pleasure in smelling flowers that I seem to be committing a sin”, adding that “for many persons -- usually, if not exclusively, women -- the odor of flowers produces not only a highly pleasurable effect, but a distinctly and specifically sexual effect... and moistening of the pudenda” (Ellis 1936, 103).

In his *Odoratus Sexualis* Iwan Bloch explored the sexually stimulating effect of the *odor di femina* on man and the *aura seminalis* on women, as recorded by both ancient and contemporary observers. He emphasized the intimate power of smell in human sexual communication: “What the eye is to distance” he states, “the nose is to proximity” (Bloch 1934, 14).

While acknowledging the contributions of Freud and Ellis, Irving Bieber notes pointedly that “apart from fetishism, the sense of smell, as related to sexuality, has received little or no attention in psychoanalytic writings”. Basing his observations on his own years of clinical experiences with patients, and their many reported “sexually connected references to smell”, he posits a theory “that the sense of smell is the primary sensory modality in the initial development of heterosexual responsivity” (Bieber 1959, 852).

Like Freud and Ellis, John Money sees the role of olfaction in man “to a large extent supplanted by vision”, and certainly “subject to additional programming from cognitional input”. At the same time, he underscores mother-baby pairbonding in

mammals, dependent as it is on odor recognition, as “developmentally the precursor of what subsequently is the male-female bonding of mating” (Money 1986, 94). In considering the olfactophilias in sexuoeroticism, Money marveled at the sheer variety of smelly things that stimulate arousal in the ever-versatile human being.

Nevertheless, despite these notable explorations of the sex/smell link in sexology, studies of human olfaction in general only began to proliferate towards the end of the twentieth century. David Laing and his colleagues saw their comprehensive work as a response to this growing interest but, in the preface, they comment on previous, long-standing academic indifference: “The human sense of smell is vastly underrated, many regarding it as a sense of the past, a sense that has outlived its usefulness” (Laing et al. 1991, i). In *Fragrance* Morris confesses to his initial embarrassment investigating the history of perfume and smells, “as if I were researching trivia or had become the archivist of idleness.” As he continued his investigations, however, he “came to feel less apologetic...as I realized how influential smells can be on our behavior” (Morris 1984, xiii).

The emotional power of smell

As glimpses into history, literature and folklore illustrate, because of its invisible power to evoke and to arouse, smell has been called the guiding spirit (Le Guerer 1992) Diane Ackerman writes of smell as “the mute sense, the one without words.... Smells detonate softly in our memory like poignant land mines” she muses. “Hit a tripwire of smell, and memories explode all at once” (Ackerman 1991, 7). What laymen have intuited about the emotional power of smell and its visceral depth, researchers have

proven: there is in fact, as this paper will demonstrate, an immediate link between olfaction and the emotional brain.

For humans, smelling begins with the floating of volatile molecules up the nasal passages, pulled in with the air we breathe (Appendix D). Most of that air goes to the lungs, but eddies reach the upper chambers of the nasal passages to be screened for toxins by chemical receptors on the nerve endings of both branches of the trigeminal nerve. Dangerous or irritating chemicals are thereby sneezed out. In the roof of the nasal cavity is a yellow patch of membrane called the olfactory epithelium where ten million olfactory neurons wait with moist, waving cilia to receive any floating aromatic particles. These chemical messages are picked up by olfactory neurons and sent directly to the brain via the olfactory bulbs -- "hot-wired" in the words of Kohl and Francoeur (1995). There is no need for the mediation of cornea, lens and retina -- as in sight, eardrum, middle ear, and spiral cochlea -- as in hearing, or connecting tissue and spinal cord -- as in touch. "The olfactory epithelium is only two synapses away from the hypothalamus" (Engen 1982, 28), reminding us of how closely linked smell is to that "motor of the limbic system" (Marieb 1982, 392) and the brain's visceral activities.

It is interesting to note that humans have more olfactory receptor cells (10 million) than any other sense except vision. By contrast, dogs have over 200 million such cells, and thus obviously superior odor sensitivity. However with training, humans are still capable of distinguishing 10,000 different odors (Wilson 2001).

Further proof of nature's valuation of the sense of smell is the fact that olfactory neurons are the only ones in the nervous system capable of continuous regeneration throughout adult life. Constantly besieged by damaging molecules, "their typical life span

is sixty days, after which they are replaced through the differentiation of the basal cells in the olfactory epithelium” (Marieb 1991, 499). Moreover, should serious damage to the olfactory bulb be sustained, the surviving olfactory neurons, (similar to surviving brain sectors) will quickly compensate and do double duty until new cells are formed. The work of Pasquale Graziadei from Florida State University vividly illustrates this capacity. He found that a rat with 90% of its olfactory bulb removed “could still smell quite well...and continued the essential function of passing on aromatic information to the brain from the outside world” (Kohl and Francoeur 1995, 59).

That taste is 80% smell underscores another crucial role of olfaction, for “the subtleties of flavor which allow us to distinguish a fine port wine from grape juice and beef Wellington from hamburger actually result from aromas passing through the nose as we eat or drink” (Marieb 1991, 499). Small wonder that the French writer Marcel Proust could build his entire canon on memories evoked by the aromatic taste of his great aunt’s madeleines dipped in tea (*A La Recherche du Temps Perdu* 1954).

Identification by Smell

Experience teaches that olfaction plays a primary warning role in the individual survival of all animals, including the human animal. Without a sense of smell, the danger of odorous toxins, rotting food, and threatening fire, could not be averted, and animals could not distinguish friend from foe. The survival value of an animal’s ability to recognize its own by smell is obvious. For self-preservation, animal infants must recognize the odor of mother, species, nesting areas, and other siblings. This odor sensitivity is so strong that kittens will only return to the same smelling nipple, and

mother rats, which can pick out their offspring from the middle of another litter, will not accept offspring for nursing unless the familiar smell is present (Laing et al. 1991).

Kin recognition appears to operate in humans too. Evidence consistently shows that human infants prefer their own mother's breast. David Laing and his colleagues have studied the work of Macfarlane and his "simple but elegant pioneering studies" (Laing et al. 1991, 159). The researcher hung a clean breast pad against a subject neonate's cheek, and a second one -- worn by the baby's lactating mother -- against the other cheek. Videotapes showed that seventeen of the twenty new-borns spent more time turning towards their own mother's pad. They consistently chose their own mother's pad over that worn by another lactating female. In addition, it was established that the recognition response increases with age, becoming stronger after six weeks, and that maternal odors can calm agitated infants.

According to Engen's findings, "odor perception plays a role in a child's attachment to its mother at three to five years old" (Engen 1982, 133), thus corroborating John Money's research on the link between maternal bonding and the *lovemaps* of adulthood (Money 1986). According to the smell researcher Michael Russell, mothers can also detect their baby's smell. His studies with blindfolded mothers consistently confirmed his personal communication with the latter that "mothers know their little stinkers" (Engen 1982, 133).

Probably the most intriguing area of investigation in olfaction research has been around the suspected link between smell and the immune system (Freedman 1993). In animals, recognition by smell for immediate self-preservation is a given, but scientists have now uncovered the part that the major histocompatibility complex (MHC) plays in

the process of healthy species propagation. MHC molecules from a close relative will have slightly different gene codes; those from a distant relative will be significantly different. A female mouse can pick out the least related male mouse to mate with from the smell of his urine, and so assure genetically varied offspring. “Once impregnated, however, the same mouse will sniff her way to the most closely related mouse to build her nest in a hospitable environment” (Freedman 1993, 8).

Research on organ transplants has revealed that, as in animals, human cells also carry a unique protein signature that can be identified by the patient’s immune system, and that may trigger the rejection of a transplanted organ. It is the MHC system that produces these identifying protein signature tags. Moreover, strong evidence suggests that human mate selection is similarly influenced by gene compatibility recognition -- conveyed through olfaction (Kohl and Francoeur 1995).

In her most recent work Martha McClintock has observed this phenomenon. She and her colleagues demonstrated the exquisite female sensitivity to human leukocyte antigen (HLA) -- part of the human MHC. “Women can detect differences of one allele (an alternative gene form) among male odor donors with different MHC genotypes” (McClintock et al 2002, 175). Such discriminatory powers are based on HLA alleles inherited from her father, not her mother, and lead the researchers to conclude that paternally inherited odor preferences influence mate choice. Jennifer Fisher Wilson discusses the work of Rachel Herz, at Brown University, who is building on previous studies that suggest that women choose mates with complementary genetics in order to minimize recessive mutations of offspring. Herz maintains that women are more influenced by a man’s body odor than any other physical feature. She hypothesizes that,

“women detect a man’s genetic code through his perspiration’s unique molecular odor” (Wilson 2001, 5). Nature’s John Whitfield (2001) describes the work of Manfred Milinski and Claus Wedekind of Bern University in Switzerland which has explored the MHC-dependent preferences in humans for particular smells, and seems to confirm a predilection for certain fragrances according to genotype.

The famous sweaty T-shirt experiments referred to by Gibbons (1986) repeatedly demonstrate the ability of adults to consistently recognize their own smells among that of strangers. Lord and Kasprzak’s study (1989) showed that participants in a double blind experiment were able to identify their own T-shirt 75% of the time on the first try. Richard Porter’s study which confirmed, “that adult humans can discriminate between the odor of full siblings” (Porter 2000, 10), also supports the familiar experience of family-member recognition in adults. A touching example of the olfactory connection in relationships came up on a recent television interview (Interview with Barbara Walters: September 10, 2002) when the widow of a victim of September 11 talked of how she sometimes found comfort in the familiar smell of her dead husbands’ clothes.

Although, as Ellis and others (Trueman 1975, Gibbons 1986, Laing et al. 1991, Stoddart 1992) have demonstrated, odors are judged pleasant or unpleasant according to societal norms, varying from culture to culture and epoch to epoch, it is also apparent that children before the age of five are often indifferent to odors deemed unpleasant by adults. A study described by Engen placed 2-year-olds behind a one-way mirror, exposing them to pleasant (lavender) and unpleasant (dimethyl disulfide) odorants. The mothers on the other side of the screen detected the noxious odorants with disgust, expressing much concern that their infants did not respond: “Some mothers wondered whether their

children had a poor sense of smell” (Engen 1982, 134). Research thus confirms that odor preferences are not only cultural but, since not evidenced until later childhood, most probably learned -- a notion with which Freud was in accord.

Smell and Species Survival

Scientific research has shown that, apart from its alarm function, kin recognition role, and healthy propagation function, olfaction in animals is essential for the very survival of the species. A blind rat can survive and procreate, but without an olfactory system a rat will not only die from undetected dangers, but will be unable to engage in that chain of sexual functions which is triggered by the scent of the opposite sex (Gibbons 1986).

The sex/smell connection has been successfully exploited for centuries by animal breeders, who rely on the odorous lure of the female in estrous to set off aggressive investigation and mating behavior by the male. Artificial insemination is particularly convenient with sows in heat that, at the mere whiff of synthetic boar scent, will arch their backs to present hindquarters for mounting, and consequent impregnation by the farmer’s spirette (Gibbons 1986). “Sows not in their fertile period will be indifferent to the spray” (Kohl and Francoeur 1995, 40).

Human Pheromones

Hopson (1979) describes the work of the French naturalist Jean Henri Fabre who first noted the existence of powerful sex attractants in insects in the early twentieth century. He discovered that, even on a dark night, a male moth could detect a female up to two miles away. The name *pheromone*, derived from the Greek *pherein* “to transfer” and *hormon* “to excite”, was given by Karlson and Luscher (1959) to the host of chemical

signals that had been detected through the study of other insects and mammals. They defined a pheromone as “a substance secreted by an animal to the outside of the individual, which is then received by another individual, classically of the same species, which then elicits some behavior or developmental response in the latter” (Cited by Cutler 1999, 54). Kohl (2001) reports on the established distinction between signal pheromones, which cause short-term changes, such as the release of neurotransmitters directly modifying behavior -- triggering sexual excitement in mammals for example, and primer pheromones, which cause long-term changes because of their effect on the hypothalamic-pituitary-gonadal axis.

Entomologists have learned that ants and bees regulate their colony and hive life through pheromones that sterilize workers, mark home base, identify strangers, and track paths to food. Winifred Cutler (1999) notes that the scientific literature has limited the use of the term to those transmitted chemicals which serve the reproductive system. These chemicals can be odorless, not necessarily detectable by the main olfactory system in animals (MOS), but can be picked up by their accessory olfactory system (AOS), a system which was thought, up until recently, to be non-existent in human beings.

Researchers are certainly intrigued by the possibilities of human pheromones. Beginning in the seventies, and intensifying in the nineties, evidence has accumulated that strongly suggests the existence of the human equivalents of those animal sex attractants which have proven so commercially productive for animal breeding. Engen (1982) reports that it had long been known that the pheromones of a female mouse could suppress the estrous cycles of other female cage companions. According to this researcher’s findings, male mice and other rodents produce chemosignals that induce

regular estrous cycles in females, initiate estrous cycles in females whose cycles have been inhibited by being caged together, and accelerate puberty in immature females of the same species. A female mouse made pregnant by a male mouse that is later replaced in the cage by a strange male is likely to abort. The likelihood of pregnancy block is increased if the interloper is from another strain, a fact not lost on researchers looking for ways to prevent unwanted human pregnancy. Asks Engen , “Could one bottle the odor of a man and use it next morning to block pregnancy caused by another man?” (Engen 1982, 166)

A seminal study by Martha McClintock (1971) demonstrated that, just as in mice, odorless chemicals given off by women living closely together could influence their menstrual cycles, bringing them into synchrony. Some years later the experiments of Russell et al. (1980) involved the systematic dabbing of the underarm secretions (diluted in alcohol) of a regularly cycling woman onto the upper lips of female subjects whose menstrual cycles were irregular. The results showed that the same synchronous effect could be elicited even if the women were living apart.

The findings of Jane Veith and her colleagues showed that exposure to men, either through regular sexual activity or sleeping together without coitus brought on a significantly higher rate of ovulation among female subjects: “The mechanism underlying this phenomenon is unknown but it is conjectured that it is pheromonal in nature” (Veith et al. 1983, 313). Her findings were confirmed by Cutler et al (1985), who also later documented the effect of male underarm secretions regulating the irregular cycles of female subjects (1986). Ackerman’s observation from common knowledge, that women “who are cloistered away from men (in a boarding school, say) enter puberty later than

women who are around men” (Ackerman 1991, 29), thus finds grounds for substantial support in scientific circles.

Michael’s oft-cited study in 1974 indicated that the volatile fatty acid content of human vaginal secretions increased during the late follicular phase of the menstrual cycle, and declined progressively during the luteal phase. The researchers found that these same substances, termed *copulins*, trigger sexual excitement in other primates: rhesus monkeys will exhibit mating behavior when the vaginal secretions of human females have been presented to them. Indeed, the fatty acid chemical components of all mammalian vaginal secretions are similar (Michael 1975) -- biological findings, which underscore the link between animal and human sexual behavior. Richard Doty and his colleagues, with the knowledge that primates advertise their estrous state through odor, conducted double-blind studies on human subjects, recording significant changes in “the intensity and pleasantness of vaginal odors during the menstrual cycle” (Doty et al. 1975, 1316).

David Stoddard maintains that research into whether human body odors play a part in any human sexual behavior has not been conclusive. He concedes the inevitability of the “odorous advertisement of early hominids”, but he reminds us that the female of the relatively monogamous *Homo Sapiens* genus is characterized as having “non-advertised concealed ovulation” (Stoddard 1990, 227). Stoddard argues that this gradual suppression of sensitivity to sexual effluvia was a direct result of the increased importance of pair bonding and the need for longer paternal care in the struggle for human species survival.

Undaunted by such evaluations, McClintock continued her work on female-to-female pheromonal communication in humans. Together with Kathleen Stern she designed a study to demonstrate the unconscious but specific nature of ovulatory manipulation among women subjects. Their fully controlled experiment reported that “odorless compounds from the armpits of women in the late follicular phase of their menstrual cycles accelerated the preovulatory surge of luteinizing hormone” (Stern and McClintock 1998, 177) thereby shortening the subjects’ menstrual cycles. When applied later in the menstrual cycle these compounds did the opposite, delaying the luteinizing-hormone surge of the recipients, thereby lengthening their menstrual cycles.

It is interesting to note that multiple studies have established that the olfactory acuity of women is most intense at ovulation and weakest during menstruation, “thus suggesting that there may be a logical connection between this cycle and the procreation of the species” (Engen 1982, 140). In any case, it appears, according to the National Geographic Smell Survey (1986), which reported on data gathered from approximately 1.4 million people worldwide, that women have greater olfactory acuity than men, and that this holds true over different cultural groups.

The Vomeronasal Organ

As previously stated, whether human beings have the necessary physiology to pick up such scent signals has been the subject of much dispute and considerable curiosity in research circles. It is well established that all mammals, indeed most tetrapods, have developed an accessory olfactory system (AOS) that heightens their sensitivity to chemical signals or pheromones, enabling them to sense identity, arousal or sexual receptivity. The receptor organ used in this chemical communication system is the

Vomeronasal Organ (VNO) or Jacobson's Organ, a pair of narrow ducts, ending in tiny pits located in the nostril, described almost 300 years ago, and long considered to be vestigial in humans (Meredith 2000).

The VNO in mammals is described as “a main chemosensory organ for pheromones mediating reproductive status and inducing sexual behavior” (Doving et al. 1998, 2913). Planel's experiments conducted in the 50's and cited by Doving, demonstrated that male guinea pigs with an impaired VNO failed to mount females; similarly defective females failed to show lordosis (presentation of hind quarters for mounting) and rarely became pregnant. Doving described how the removal of the VNO in hamsters was most severe in an animal that was sexually naïve, and less so when the animal had already been sexually active thus indicating how prior learning can offset deficits. The initial role of the VNO is therefore vital, since removal of olfactory input from the main olfactory system alone does not affect sexual activity. Moreover an extract from female vaginal secretions increases mating behavior in intact male hamsters, but not in males whose VNO has been removed. “All these results and those of many other experiments demonstrate that the vomeronasal organ is a sensory organ involved in reproduction by detecting pheromones” (Doving et al. 1998, 2916).

In order therefore for pheromones to be detected it appears that the vomeronasal organ must be present. However, as noted above, it was long considered to be no more than vestigial in human fetuses and no longer present in adults at all. Wright (1994) reports that in the mid-80's the presence of VNO duct openings on either side of the upper one third of the nasal septum was detected in all of the human subjects studied by David Moran, an electron microscopist at the University of Colorado's medical school in

Denver, and Bruce Jafek, then chairman of the otolaryngology department. Moran and Jafek found the VNO pits in every one of the 200 plus subjects they examined. Other surveys confirmed the VNO presence in up to 90% of the noses examined, a discrepancy which could be explained, according to Moran, by the fact that, “many surveyors didn’t realize that the size range of the vomeronasal pits straddles the line between the visible and the invisible” (Wright 1994, 65).

In the early 1990’s, Luis Monti-Bloch (1991) and his colleagues examined the ultrastructure of the human vomeronasal organ in more than four hundred subjects. Later, with Grosser (1991), he explored its potential as a functional chemosensory system with receptor sites for human putative pheromones. Monti-Bloch conducted these experiments on the human VNO with a device he invented -- an electrovomeroqram (EVG). Wright (1994) describes how the device delivered chemical substances to the VNO pits through thin wire electrodes and measured the electrical impulses that were generated at the organ’s entrance. First it was set up to send puffs of odorless isolates, derived from human skin extracts by Monti-Bloch’s collaborator, David Berliner, into the olfactory cleft where no effect was registered. When directed into the VNO, however, the effect was immediate and dramatic “putting spikes all over the EVG of the volunteer” and “suggesting that neurons in the VNO were discharging in response to those substances” (Wright 1994, 67). The tests revealed that the substances could change heart rate, respiration, pupil size, and skin temperature. However, according to Wright, Dr. Berliner did not divulge the contents of his pheromones, patented the formula instead, and launched a company to make perfume containing them.

Working together again a few years later, Berliner and Monti-Bloch et al developed a steroidal *vomeropherin* which they described as a chemical synthesis of pheromonal substances (pregna-4, 20-diene-3, 6-dione: PDD) and injected it into the VNOs of human subjects. In males this resulted in “changes of autonomic function, pulsatile release of luteinizing and follicle stimulating hormones, and autonomic and electroencephalographic activity” (Berliner et al. 1996, 259). No significant effects were recorded in female subjects. It was also ascertained by Grosser, Monti-Bloch and colleagues (2000) that the volatile steroid androstadienone (androsta-4, 16, -dien-3-one), obtained from male axillary sweat, when applied to the human female VNO, significantly reduces discomfort and tension. The researchers claim that their investigations have validated the connection between the VNO and various hypothalamic areas in the human brain, as well as its sexually dimorphic role in neuroendocrine functions. Similar results were obtained with synthetic pheromones (Thorne et al. 2002). Still working in the field, McClintock and her colleagues (2001) found that volatile steroids applied directly under the nose, caused physiological responses in both males and females, but that female reaction was greater in the presence of male testers, and therefore more context dependent.

The existence of the human VNO is still the subject of some controversy, as is its role as a functioning chemoreceptor for pheromonal transduction. Presence in humans has been found at varying rates -- ranging from 6% (Zbar et al 2000), to 66% (Knecht et al 2001), to 73% (Trotier et al 2000), and up to the aforementioned 100%. Meredith’s (2001) review of best and worst cases concluded that if the human VNO has a function at

all it might only be during fetal development, when it contributes to the migration of neurosecretory cells containing LHRH to their target sites in the brain.

Finger et al. (2000) also suggest caution in claiming the existence of a human VNO. While acknowledging the organ's role in mediating many responses to chemical signals in vertebrates, they assert that all of these signals are not necessarily pheromones. Furthermore they speculate that the main olfactory system may be alone responsible for responses to some pheromones, or the main and accessory systems may both be involved together. Nevertheless, as noted above, many respected researchers continue to maintain that the human vomeronasal organ is a viable chemosensory receptor for chemical communication, and that subtle but vital pheromonal exchange occurs between human beings.

Human Body Emanations

As the above-reported research indicates, putative human sex signals may be transmitted through those body emanations, which also make up the identifying scent signature of individual human beings. Havelock Ellis' still-cited list of sources of this distinguishing odor is comprehensive indeed:

The most important of these are: (1) the general skin odor, a faint, but agreeable fragrance often to be detected on the skin even immediately after washing; (2) the smell of the hair and scalp; (3) the odor of the breath; (4) the odor of the armpit; (5) the odor of the feet; (6) the perineal odor; (7) in men the odor of the preputial smegma; (8) in women the odor of the mons veneris, that of vulvar smegma, that of vaginal mucus, and the menstrual odor. All these are odors which may usually be detected, though sometimes in a very faint degree, in healthy and well-washed persons under normal conditions. (Ellis 1936, 62)

The undeniable fact of the individuality of human body odor is dramatically

attested to by the ability of a bloodhound to pick up the scent signal from a human foot through layers of shoe sole, even after rain, and despite several hours having passed.

(Pugnetti 1980) Researchers have repeatedly implicated certain scent-producing glands found in the skin as being a likely source of human scent signals or pheromones.

According to Kohl and Francoeur (1995), like most mammals, humans have three types of such chemical-secreting glands, of which eccrine glands are the most abundant. These glands regulate the evaporation of sweat from the body, thereby serving a cooling function. Sebaceous glands are also found over most of the body, particularly on forehead, scalp, and face, but there are none on the palms or on the soles of the feet. Bacteria thrive on the moist secretions of both of these glands and thus contribute to body odor. The glands that are mainly associated with pheromonal production in mammals are the apocrine glands, of which the human fetus has an overabundance. However, these are mostly reabsorbed just before birth, except in the hair follicles around nipples, genitals, armpits, and navel. Apocrine and sebaceous glands are highly sensitive to sex hormones. Androgens increase size and production, estrogens decrease size and production, factors which ultimately play a role in the sex differentiated body odors of teenage boys and girls, as well as adult men and women.

The putative human pheromones that have been used in the above-mentioned experiments are derived from androstenes which are steroid hormones related to sex hormones, and which are found in human urine, saliva, and axillary secretions (Kohl and Francoeur 1995). Androstadienone is the most notable androstene in male axillary hair and on male axillary skin surface. The derivative androstenone functions as a mammalian pheromone, and is the frequently advertised ingredient in the commercial exploitation of human pheromone research.

Vaginal secretions, maternal breast glands, sweat glands, breath, mucus, and skin droppings have all been implicated in putative pheromone transmission, both odorous and odorless, but it is the kiss which is considered by some as the most dramatic example of direct and immediate chemical communication. Says Charles Wysocki (Discover 1994, 68): “The kiss might play a very important role in the transference of chemical signals. In other species, physical contact is often necessary for the exchange of substances that activate the vomeronasal organ”. A likely vehicle of pheromones, both conscious and unconscious, will probably involve a combination of many sources at any given moment -- all dependent on the receiver’s emotional receptivity, and physiological access to a chemical note on the scent signature of the sender.

As Kohl and Francoeur observe in *The Scent of Eros* (1995), since we share 98% of our genes with primates, it seems not unthinkable to suppose that the reproductive process of the human animal might also be governed by chemical scent signals, albeit in a more complex and less stereotypical fashion, given the psychosocial variables which operate in human relations.

Olfaction in Human Sexual Development

Not only does olfaction play a crucial role in intimate, unconscious human interaction, both sexual and social, it has also been shown to be of vital importance in human development itself (Meredith 2001). The foundations of sexual differentiation begun during the first few weeks of pregnancy are intimately bound up with the growth and activity of the fetal olfactory plates (Kohl and Francoeur 1995). The fourth week of fetal development sees the migration inwards of olfactory cells from the olfactory plates to the brain. These cells become the olfactory bulbs, which, as previously stated, connect

directly with the brain, particularly the future hypothalamus and the limbic area. (This latter, primitive, “old brain”, is often referred to in the literature as “the smell brain” because it was the forebrain of the earliest vertebrates, and primarily concerned with smell -- so vital for species self-preservation.)

Neuroendocrinologists have established that some of these migrating cells, known as GnRH neurons, produce the gonadatropin-releasing hormone. As the name indicates the function of GnRH is to stimulate the release of the two gonadotropins -- luteinising hormone and follicle-stimulating hormone. (Schwanzel-Fukada et al. 1996) Termed the starter hormone, GnRH “controls the cascade of hormones from the pituitary, adrenal glands, ovaries, and testes that influence all our sexual development and behavior” (Kohl and Francoeur 1995, 58). Disruption of the sequence of this migration process can in turn disrupt fetal development.

Exemplifying the exquisite delicacy of such developmental processes is a condition known as Kallmann’s syndrome (Caviness 1992). If the GnRH neurons do not migrate correctly, they cannot trigger normal brain and sexual development. Internal and external sex organ growth is impaired or even prevented. Not only does the sufferer have little capacity or interest in sex or reproduction, but also he or she has an impaired or nonexistent sense of smell -- anosmia. When the brains of those with Kallman’s syndrome are examined it is seen that the olfactory neurons are trapped in the nose, far from the site where they could influence the reproductive system. Moreover, “preliminary evidence suggests that people with Kallmann’s syndrome do not respond to putative human pheromones” (Kohl 2001, 4). Treatment involves the replacement of the

absent hormone, which often produces rapid and intense sexual development -- a speedy puberty -- and can even enable future parenthood.

The importance of gonadatropin releasing hormone or GnRH must therefore not be underestimated. Its vital function is to stimulate the release from the pituitary gland of both the luteinizing hormone (LH) controlling female fetal development, and the follicle stimulating hormone (FSH) controlling male fetal development. These gonadatropins regulate the production of the sex hormones estrogen (E) and testosterone (T), essential for sexual differentiation, and ultimately for the production of mature eggs and sperm. “In animals and human studies two things are clear: 1) When GnRH pulse frequency increases, levels of LH and of either T or E increase. 2) When GnRH pulse frequency decreases, levels of FSH increase” (Kohl 1996, 5).

Male fetuses have more GnRH secreting hormones in their hypothalamus than do females. This leads to higher levels of mullerian inhibiting hormone (MIH), causing the defeminization of internal male sexual anatomy. More GnRH neurons create faster GnRH synaptic pulse frequency in males, which causes the pituitary gland to produce more LH than FSH. This in turn causes the testes to produce higher levels of testosterone and lower levels of estrogen, thereby stimulating the development in the male of penis, scrotum, and secondary sex characteristics. This also induces “a male pattern of neural encoding that includes programs for tonic (continuous or noncyclic) production of sex hormones in the hypothalamic-pituitary-gonadal axis” (Kohl and Francoeur 1995, 95). GnRH thus pulses across neural synapses at a relatively steady rate in men. This tonic nature of male hormone secretion, together with the combined interaction of FSH with androgen-binding protein, and LH with testosterone production (overproduction of

sperm being controlled by the hormone Inhibin) keeps sperm production steady and continuous.

Female fetuses have fewer GnRH secreting hormones in their hypothalamus, causing low levels of testosterone and little MIH, and the consequent growth of vagina, uterus, and fallopian tubes, as well as the external female organs of clitoris and labia, with all of the female secondary sex characteristics. The neural encoding in females “sets up a program for a pattern of GnRH pulses that vary in speed and strength during a woman’s monthly cycle.” It is the varying pulsatility of GnRH, which causes variations in FSH and LH production in the pituitary, and it is in the ovaries that “FSH and LH regulate growth and ovulation of the egg and secretions of estrogen and progesterone to direct the uterine and menstrual cycle” (Kohl and Francoeur 1995, 95). It is thus the relatively steady synaptic pulsatility of GnRH in males and the varying pulsatility in females, which contribute to their differentiation as men and women.

Because GnRH regulates hormone production in the pituitary gland, and because pituitary hormones flow through the blood to all body systems, smell plays a vital role in regulating essential life functions. Besides sexual development, such functions as growth, body metabolism, insulin production, milk production and breast-feeding are affected, as well as the “four f’s -- feeding, fighting, fleeing and mating behaviors” (Kohl and Francoeur 1995, 127).

As research reminds us, although the sense of smell has been overshadowed by other senses, olfaction is nevertheless involved in communicative behavioral activities, which are fundamental to our survival as a species as well as to our

human identity as dimorphic sexual creatures. How this complex interaction between olfaction and sexuality might play out in the daily lives of individuals is the subject of the second part of this study.CHAPTER TWO

METHODOLOGY

The nature of this study, which involves an examination of the impact of olfaction on the sexual lives of selected individuals, lends itself naturally to a qualitative analysis of the data collected. By using a variety of specialized nonmathematical techniques described by Strauss (1987), including interviews, tape recordings, transcripts, observations, and notes, material was generated to provide the necessary data for examination through the kind of “pragmatic analytic operations used by everybody in thinking about everyday problems.”

Termed natural analysis, this approach applies the principles of Strauss’ grounded theory to data collection, thereby reporting on it at a more “complex, systematic, and interpretive level.” His concepts of induction, deduction, and verification based on researcher experience and systematic analysis of the gathered data provided a model for the study.

By the use of “certain distinct features, such as theoretical sampling, and certain methodological guidelines, such as the making of constant comparisons, and the use of a coding paradigm, to ensure conceptual development and density” (Strauss 1987, 3, 4) a theory -- and thus a better understanding -- of the sex/smell linkage, as it might operate in the daily lives of men and women, was proposed.

Pilot Interviews

Advocating the value of qualitative interviewing, Robert S. Weiss maintains: “Most of the significant events of peoples can become known to others only through interview” (*Learning from Strangers: The Art and Method of Qualitative Interview Studies* 1987, 3). In order therefore to create a foundation for an effective qualitative interview outline it was essential to conduct a pilot interview -- “our only defense against mistaken expectations.” This helped to generate fertile open questions, and provided the basis for the emerging categories posited by grounded theory methodology. These categories included the impact of early memories, socialization restraints, and defining incidents. Indeed, it was because of the richness of the information obtained during these initial conversations that the exciting possibilities of what Strauss (1987) terms the main story began to come forth. The pilot interviews provided an opportunity not only to explore content, but also to learn about process and find appropriate language. So rich was the testimony of the pilot interviewees that their stories were included in the final study.

Inclusion of “Self”

By initially sharing with participants personal experiences around smell and sex, the researcher had to balance the value of putting them at ease enough to open up, against the possibility of undue influence. In fact -- rather than locking them onto a preconceived path -- a brief discussion at the beginning of the interview about the genesis of this study appeared to give subjects freedom to discuss their own experiences. As the interview continued, mention of corroborating experiences by the researcher, of both self and other

respondents, often enabled interviewees to further expand on salient incidents with freeing assurance, even abandon.

Ethics

Each participant was required to sign the consent form prior to participation in the study (Appendix A) and was given a copy of the completed form. Before signing, participants were informed of their voluntary partnership in the study, and their right to withdraw at any time. Upon withdrawal, the participant's transcripts and audiotapes would be destroyed.

Confidentiality was maintained throughout the research, with each participant's identifying information rigorously protected. All participants agreed to maintain their own anonymity and that of anyone involved in the study. Pseudonyms were used for each participant. All audiotapes and consent forms were securely locked in the researcher's office.

Participants

Willingness, availability, sexual experience, and ability to smell were the essential criteria for inclusion in this study. Subjects with anosmia, though never encountered during the work, would have been discouraged -- sex without olfaction being the basis for an entirely different study. Of the eight participants five were currently married, two were living with partners. Of the five who were married four had been divorced, one of them twice, another three times. Of the two who were partnered one had never married and the other had been married four times. The currently single participant had been married twice. Subjects ranged in age from fifty to sixty-seven.

Education levels included one high school graduate and three college attendees (two with bachelor's degrees). Three participants had master's degrees and one a doctoral degree. Occupations were: computer programmer, insurance broker, housewife, floral designer, mental health professional, construction manager, and builder. One male subject, a mental health worker, described himself as semi-retired.

Interviews were conducted wherever the participants were most comfortable and included the individual's home, a coffee shop, and my office. Interviews were conducted face to face rather than by telephone, a decision based on the researcher's conviction, supported by the literature (Weiss 1994), of the importance of the interviewing relationship and its role in the effective personal communication between researcher and respondent. Although there were originally ten participants, two backed out. A male subject admitted at the last moment: "I just can't do it. I guess I'm not as open as I thought." A female subject was unable to participate because of business travel obligations.

The generalizability (Weiss 1994) of this study is inevitably limited by the sociological profiles of the respondents, who were drawn from this researcher's network of friends, acquaintances and referrals. Perhaps, given the subject of the research and the researcher's profession of psychotherapist, such volunteers were likely to be more open-minded than the general population, and necessarily limited to a somewhat similar age group and professional standing. Because of this also, it might be difficult to guard against possible ethnocentric bias given that five of the respondents were Jewish. Nevertheless, it was this combination of "convenience sampling ... accepting pretty much whomever we can get [and] snowball sampling" (Weiss 1994, 24) -- where

referrals refer others -- which provided the pool of respondents who engaged in this study.

Qualitative Methodology

In order to make sense of the “buzzing, blooming confusion” of individual and collective experience, grounded theory methodology begins with “the raising of generative questions essential to making distinctions and comparisons”. The answers obtained allow for the making of “provisional linkages among the discovered (created) concepts” through thematic coding (Weiss 1994, 17). Hypotheses are verified during each phase of the investigation through constant comparison. Ultimately core categories are sorted and integrated into a well-constructed theory.

According to Weiss, “Because the fuller responses obtained by the qualitative study cannot be easily categorized, their analysis will rely less on counting and correlating and more on interpretation, summary, and integration.” Promoting the qualitative method without apology and asserting that “disparagement is unwarranted”, he maintains: “We gain in the coherence, depth, and density of the material each respondent provides” (Weiss 1994, 3). Thus tables and statistical measures were not used in this study. Findings were supported according to Strauss’ model, by quotations and case descriptions.

Methods and Procedures

Interest and availability were initially established through personal communication, referral, and invitation. A demographic information sheet (Appendix B), including sociosexual information, was filled out. The consent form was signed, and any questions pertaining to it were answered before the taped interview began.

Data Collection Strategy

The overarching question was posed and recorded with subjects' answers on tape. Questions generated by the pilot interviews followed. Weiss' fixed question, open response method was used as a model. Although attempts were made to keep participants somewhat on track during the interviews, Weiss' urging to "sacrifice uniformity of questioning to achieve fuller development of information" was heeded. Thus questions stimulating rich musings were allowed to go in fertile directions and often took on a life of their own.

It was important to learn that the questions posed did not all have to be identical. Moreover, neither the order nor follow-up questions had to be the same, since qualitative research builds on itself, and by nature interviews would be different each time. Thus notes were taken from each recorded interview with a view to informing the next one. After all interviews were completed, the tape recordings were transcribed. In transcribing, a compromise was adopted between the preservationist approach i.e. word for word transcription and the standardized approach i.e. edited for grammar. This was in order to capture the tone and emphasis of subjects' responses without too much distracting nonstandard speech, and "to remain faithful to the subject's thoughts and characteristic mode of expression" (Weiss 94).

Data Analysis Strategy

"Each phase of data analysis entails *data reduction* as the reams of collected data are brought into manageable chunks, and *interpretation* as the researcher brings meaning and insight to the words and acts of the participants" (Marshall and Rossman 1995, 113). Thus the voluminous material obtained from the transcriptions was scrutinized word-by-

word, line-by-line, and paragraph-by-paragraph. By constantly comparing the new information to everything that had gone before, thematic distinctions were noted along the margins of each text: categories found repeatedly were coded accordingly. Blind alleys were ultimately dropped, and integration allowing for interpretation was hopefully achieved. Informal analysis began almost immediately, as initial findings informed continuing strategies. But full attention to interview analysis was only begun after three quarters of the interviews had been conducted.

CHAPTER THREE

RESEARCH FINDINGS AND DISCUSSION

A primary goal of this study was to consider the impact of smell on the sex lives of individuals who would be representative of professional working men and women in America at the turn of this twenty-first century. The convenience sampling nature of the pool of respondents and the inevitably reduced heterogeneity thereof, as described in the previous chapter, might have initially discouraged acceptance of the study's findings. Ultimately, however, given the wealth of human transactions that were described and the depth of common emotions expressed, the value of its findings as representative of the human sexual experience came through repeatedly to the researcher. As Robert S. Weiss (1994) put it so succinctly in arguing for the generalizability of convenience samples, "Underneath the accidents of individuality lies an identity in structure and functioning among all members of our species."

Participant Profiles

The following participant profiles, created from the demographic information sheet (Appendix B), were intended to give some idea of the social and early sexual background of participants in order to make the excerpts of their interviews more meaningful to the reader. They were also intended to confirm the eligibility requirements mentioned in the previous chapter.

Bertha is a sixty-two year-old twice-married white female with two grown children and a college-age son living at home with her and her spouse. She described herself as having had some college courses, as being a full time housewife, and as being

of Jewish religious affiliation. She stated that she experienced her first sexual arousal at ten years old, had her first sexual encounter at sixteen, and never masturbated until she was forty years old.

Manny is a fifty year-old never-married white male who describes himself as being in a committed relationship with a woman he has been living with for several years. He is currently working towards a doctorate in systems engineering, and earns his living as a computer programmer. He is a member of the Unitarian Church. Manny states that he was ten years old when he experienced his first erotic response, began to masturbate at the age of about ten, and engaged in sexual intercourse for the first time at age nineteen.

Sydney is a sixty-four year-old married white female with two grown children and a grand daughter. She has a master's in psychology and has owned her own floral design business for over thirty years. She is Jewish. Sydney states that her first erotic response was at age ten. She began to masturbate at age fifteen, and had her first intercourse at seventeen years old.

Jim is a fifty-one year-old married white male with two grown children, and a grand daughter. He has a college-level education, and works as an operations manager for a construction company. He is a Roman Catholic. Jim could not remember when he had his first erotic response, stated that he had never masturbated, and was fifteen or sixteen when he first had sexual intercourse.

Mauri is a fifty-five year-old thrice-married white female with two grown children. She has a college degree and works as an insurance broker for her own company. Her religious affiliation is Jewish. Mauri could neither remember when she had

a first erotic experience nor when she began to masturbate. She did remember that her first sexual intercourse occurred when she was twenty.

Simon is a sixty-eight year-old white male married for forty-six years to the same woman. They have two grown children. He completed one year of college and has worked as a builder for over fifty years. He describes himself as Jewish.

Simon could not remember his first erotic response, but stated that he began masturbating at age ten, and had intercourse for the first time at age thirteen.

Jilly is a fifty-two year-old single white female who is a masters-level psychotherapist working in the addictions field. She has been married four times, and is currently living with a long-time partner. She is affiliated with the Unitarian Church. Jilly states that the first erotic experience she remembers was when she was about eleven years old, adding that there were probably earlier ones: "But I really don't remember earlier stuff." She began masturbating at age fourteen, and experienced her first sexual intercourse at the age of fifteen.

Nash is a sixty-two year-old twice-married, now single, white male with a doctorate in social work. He describes himself as retired, with no children, and of Jewish religious affiliation. He cannot remember his first erotic response but recalls being about fourteen years old when he began masturbating. He had his first intercourse at age seventeen.

Data Analysis of Qualitative Categories

Coding of categories within individual interviews tended to follow the content of the questions. Depending on the openness, expansiveness and receptiveness of the respondent, and presumably the skill of this researcher, the number of topics covered by

the participants varied from as few as seven to as many as twenty-eight. All topics in each individual's interview were number-coded. Although participants did drift from the sex/smell focus, musings were almost always about one or other of the two domains under investigation.

Topics were sorted into categories or themes, and then color-coded accordingly. As work progressed it became clear that some initially differentiated categories were, in fact, varied aspects of others -- the overlapping of categories being inherent to the nature of the subjects under discussion. Recollections of childhood sexual experiences, for instance often sparked reflections on parental smell/sex associations that, in turn, triggered thoughts about scent preferences, or negative odor memories. Progressive sorting generated more definitive categories and sub-categories, which were further refined as the coding process was finalized.

It was interesting to note that only two respondents -- both among the first interviewees -- did not touch on one of the topics, and one of those two did not touch on two of them. A follow-up telephone interview was arranged to gather their thoughts on all three of these categories.

Emerging Categories and Sub-categories after Sorting the Codes

There were six main categories: Variations in sensitivity to the effect of smell on sex, The effect of the smell of body emanations on erotic pleasure, The impact of smell memories on erotic response, The effect of fragrances on erotic response, Sensuality and sexuality, Other thoughts on sex and smell. From these main categories sub-categories emerged that will be identified with each main category.

Variations in sensitivity to the effect of smell on sex.

From intense identification

To cautious association

The effect of the smell of body emanations on erotic pleasure.

Clean is crucial

Bad breath

The odor of perspiration

The odor of body fluids

The effect of menstruation

The impact of smell memories on erotic response.

The influence of parental associations

Singular individual sexual memories involving smell

The effect of fragrances on erotic response.

The fragrances of perfumery

Preferences for essential oils

Sensuality and sexuality.

Body language

Food and sex

Environmental smells

Other thoughts on sex and smell.

The smell of death

The smell of life

Some categories were clearly broader than others and, as stated above, frequently crossed over into related domains. Most respondents freely associated with one topic and often

touched on others without being asked. The sorting of categories and subcategories was not finalized until the chapter was completed.

Variations in Sensitivity to the Effect of Smell on Sex.

Replies to the pilot question -- “Has smell ever affected your sex life?” were uniformly affirmative, but responses varied significantly in the degree of identification and level of intensity.

From intense identification

An ardent reply of “Absolutely.” “Yes. Yes.” and “Oh. Yes.” came from Sidney, Mauri, and Bertha respectively. Indeed Mauri stated categorically, “If the people that I’ve been with didn’t smell the way they smelled, I never would have had sex with them. End of story. There was no option.” Bertha was no less adamant: “The person I have sex with has to smell good.” A forewarning to the researcher -- “I have a very acute nose” -- preceded Jim’s strong “Yes.” Manny, who initially replied to the first question with a quiet and thoughtful, “Yes, I have.” later used different forms of the word “surprise” eight times in his conversation, and ultimately launched into excited discoveries about his smell/sex history: “I’m actually finding a lot of surprises in this.”

To cautious connection

Nash’s response was a hesitant “Yes”, followed by a qualifying comment, “But I would not say that smell was a prime motivator for me.” Jilly responded tentatively also and with considerable circumspection: “I think it has, but I think I’m pretty tied in with social learning.” Simon reflected quizzically, “I really never thought of it, but I imagine it

has. Yes. Yes.” and then admitted, “Basically I’m attracted visually. I’m more of a visual person.”

The effect of the smell of body emanations on erotic pleasure

Clean is crucial

The overriding importance of cleanliness in sexual attraction and pursuit was probably the most recurring theme for the participants in this study. The odor of the unwashed was attractive to no one. Sydney was adamant about cleanliness: “Clean is wonderful,” she declared. “And if you asked me what would turn me off any man, it would be someone who wasn’t clean. That would be the number one turn-off.” Mauri was equally firm about cleanliness as a primary requisite in her sexual relations: “Somebody has to be as equally neurotic when it comes to this stuff, otherwise it’s a turn-off. I just could not be with a partner who did not understand that.”

The thought of “unwashed bodies” made Bertha shake her head in disgust. “I will always bathe for sex because I would be afraid of offending”, adding that it was important for her that her husband, “keeps himself clean. He’s a big man and an oily person, so he has to be very careful of that.” Clean skin was a primary turn-on for Jilly who explained, “I like the smell of a body that’s fresh out of the shower, and the skin tastes slightly sweet.” Jim listed his fundamentals for sexual pleasure to begin: “Basic hygiene, shower, baths, brushing teeth, cleanliness.” And for Manny “recent bathing” was essential. Nash offered that for him, “Cleanliness is a big part of connecting sexually with a person.” As he reflected on how he handled a partner’s lack of hygiene, he

confided, “If I have a choice, we both get in the shower, and then have fun”, adding that he enjoyed “making washing a part of sex.” Said Simon with a look of distaste, “You can smell a person who hasn’t taken a bath. That to me is very, very off-putting.”

Bad breath

Bad breath was a universal turn-off. All respondents stated that they conscientiously prepared themselves for sex by brushing their own teeth, and insisted that partners do likewise. Bertha remembered that there was a time in her younger years when she was too timid to ask her first husband to take care of his halitosis. “His breath smelled so bad that sex was only possible from behind. I could not face him, but I did not dare to tell him either.” For Simon also bad breath was an immediate barrier to physical connection. “It’s very repugnant to me. I cannot take it at all.” He went on to say, “After all, the first contact is between the face and the neck, as I look at it.” Jim was ever mindful of his wife’s instructions when he smoked cigars. “I know to clean the teeth, do the mouthwash, and do the toothpaste. Otherwise no kissy kissy.”

The odor of perspiration

All of the respondents discussed their reactions to the smell of perspiration from their partners during sex, usually distinguishing, like Bertha, between the distasteful “rancid smell of old sweat” and the exciting “clean sweaty smell” that Sydney declared herself to be “just fine with.” Mauri relished her husband’s sweat. “He does not have a poor body odor when he perspires. When he comes off the racket ball court and he’s really sweaty, it’s a big turn-on”, she stated, adding as she relished the recall of such moments. “Like I’m ready to hop on it now.”

One of the surprises that Manny uncovered for himself during the interview was his private passion for the smell of fresh female sweat. He waxed long on the delights of female athletic odors.

For example, if a girl showers before she plays tennis, or goes jogging, and then she gets good and sweaty ... that's actually a turn-on. In 1996, I became a fan of the UConn Huskies, a University of Connecticut women's basketball team. I've gotten to become a fan of women's athletics because I have this association with the smell of women who play hard, who work hard.

Nash referred to his negative experiences with two lovers who smelled so badly that he ended the relationships. "The first woman's body odor just turned me off. I don't know what it was." As for the second: "She had some kind of a skin problem, and she couldn't use soap. I saw her actually touch soap and break out. She had the problem with soap and I had the problem with her body odor." To underline her savoring of the smell of a man's testicles, Bertha offered a long-remembered saying: "The fragrance of a young man's genitals is like fresh Camembert." To which she added, "Very pleasant."

The odor of body fluids

Sydney reveled in the smell of sexual fluids, which she first encountered during oral sex. "I really came in contact with the male fluids then. It's very hard for me to distinguish which I remember more. The smell or the taste." She elaborated in almost lyrical fashion about the erotic power for her of the odor of male ejaculation.

The smell of ejaculation. That turns me on. Nothing turns me on more than male ejaculation. There's something about male ejaculation that brings on my orgasm. I can do two or three orgasms by myself. But no matter how many times it makes me come by myself, when he's ready to have his orgasm.... Ah. Man, that turns me on. So much so that no matter what I'm doing, I'll have another one.

Manny was aroused by the smell of his own ejaculation, wet or dry. “You could have asked me”, he offered, “how smell plays a part in my masturbation ritual,” and then continued:

It plays a big part. I have a cum sheet. I’ve had it since 1977. When I met my current girlfriend cum was all over the sheet, like droplets on droplets. There was even some corrosion there. So she said, “We’re going to have to wash this.” But she didn’t run out of the house screaming, “This guy’s a perv” And we still have it, and we still use it. But she did say that we’d need to run it through the washer. And I said, “I hope not too often.” And she said, “No. Occasionally.”

Everyone except Jim alluded positively to the odor of sexual body fluids. He was somewhat conflicted about the disagreeable “south” smell of a woman’s vagina, as well as “the most offensive smell lingering in the room and on the sheets” after sex, later admitting, “It wasn’t totally offensive, because it comes with the program. Even my smell sometimes.” Manny emphasized, “Female crotch odor has never been a turn-off for me.” Jilly confessed that she was “a little bit fascinated by the way my vagina smells.”

Nash described a lover “who did not like to take a shower after we had sex. She wanted to walk around smelling what we had done.” He added as a playful aside, “And that was fine with me. She smelled so good to me.” Nash did recall that he had been occasionally put off from anal sex because of the smell of feces, “when it’s very strong.” Mauri savored the after-smell of intercourse too; “I don’t get in the bathtub immediately after making love to wash it out. I mean the acids are incredible.” Sydney enjoyed the smell left on her hands after lovemaking, “I’ll deliberately not wash my hands, so that I can bring it back for a little while. For a couple of hours... till I do wash.”

The effect of menstruation

In discussing menstruation and accompanying odors, Manny spoke excitedly.

“I noticed that at a certain time of month women would smell a certain way. And that would get me more excited than anything else. Really. With my partner it’s just before her period. We have sex and she starts her period just after she’s seen me. I bring it on ... the curse of Manny!”

Menstruation fluids did not discourage Mauri. “It never stopped me from having sex. The smell never turned me off. I figured the bodies are hot. If you’re there, do it.” She further expanded, “And it added more moisture. Wet. It’s all about wet.” Jim was frankly repelled by the smell of his wife’s menstrual fluids, but put it down to her “particular problem with her cycle -- for which she sought medical attention for years without solution -- and which makes the smell so offensive.”

The impact of smell memories on erotic response

The influence of parental associations

As in so much of human experience, smell memories around parents had a lot to do with erotic triggers or dampeners later on. Learned attitudes towards cleanliness came up during respondents’ reflections. Said Mauri, “My mother always smelled very clean. Always insisted on cleanliness. Was even obsessed by it. And I guess I got a little of that myself.” Jim sank into a reverie as he remembered his mother. “She was a very clean woman -- a little heavy set -- but she bathed herself, and was always clean. Never an offensive smell with my mother.” He remarked that his wife was also “big on hygiene”, reminding the researcher several times how “spotless”, “clean”, “immaculate” she was. When asked to recall the smell of his mother he declared, “A rosy smell. A blush smell. You know, some of that rosy, soft smell.” Later on, not surprisingly, when invited to share his favorite fragrance -- the one that would turn him on most consistently -- he said, “Oh. I just like that rosy smell. I’m just a good old-fashioned boy. It don’t take much to make me happy.”

Simon attributes his preference for a “clean and natural smell” in a sex partner partly to his abiding fondness for his father’s presence. As he spoke tears welled up in his eyes.

My father had this smell... a body smell that was clean. And even though he was a big man, he never smelled bad. Never did. If you were to ask me to recall the smell of a natural person, it would be my father. It was a camaraderie smell. Maybe it was because I was really in love with him.

Jilly revealed that her mother had been “water phobic” and dared not bathe in more than “three inches of water.” She stated that she consequently became convinced that her mother “was never clean enough”, and that was the reason why she herself became “a personal body-clean freak.”

Bertha remembered a painful and defining interaction with her father when she was an early adolescent. She was tall for her age, and going through puberty. One day she recalls hurrying up several flights of stairs to speak to her father who was going on a trip.

And evidently I’d been sweating. He asked what I would like him to bring me back, so I told him. “Cologne, Daddy. The one that I’m wearing now. It’s called Bluegrass.” And he yelled, “Well, don’t wear that anymore because you smell like you’re having your period.” I felt terrible. I had tried to disguise -- before the female revolution, when Germaine Greer taught you to enjoy your own body smells -- I was trying to disguise my body smell. So I do not ever, ever, ever wear any of those perfumes now. And I’m very careful not to smell ripe. I’m afraid of offending.

Some unlikely odors became erotic signals for respondents because of parental association. Mauri described how

From the time that I was very young I would go to the golf course with my Dad. It was the smell of the golf club locker room with the chlorine and the men walking in and out after eighteen holes of golf. I remember that very vividly. It always intrigued me, and always had the smell of sex, or wealth, or power.

Later, when asked about an odor that turned her on that others might find disagreeable, it was another smell of power that came to her mind as a reliable aphrodisiac.

It's gasoline, gasoline from a boat engine. For me that's a very manly, sexy association. It's power -- that smell on the water. Making love on the water. Oral sex on the water. We did it all on the boat. Oh yes. The luxury of it. It's a lot different from in the back of a car.

For Sydney that idiosyncratic turn-on was the smell of liquor.

“Because my father always had liquor, always a drunk. I associate liquor with him. And I adored my father. I'm sure he was the first man I was attracted to. Very much so” As she continued to remember “cuddling up to his coats and ties”, she described him as her model for living and the personification of hedonistic pleasure.

I sensed right away that my father was out for the pleasures of life. That's what he valued. I just wanted to follow in his footsteps. To enjoy life the way he did. My mother only worried about what other people would think.

She also described how her father smoked cigarettes and that, although she doesn't like smoking in general, tobacco fumes can be a trigger: “Yes. Yes. Smoke does it too”, she said pensively. Not surprisingly another major turn-on for Sydney was the smell of marijuana. “Whenever I smell marijuana it reminds me of the total letting go that being stoned promotes.” Sydney returned to this topic again when considering her most dependable turn-on. “Nothing like marijuana. It arouses me quite a bit. Just letting go of all inhibitions.”

Mauri, who told of how her first college boyfriend, her first husband and her current one all smoked, reflected,

I don't smoke. But there's a certain smell of fresh smoke which I find very sexy because it's very masculine. And so that's a turn-on because it reminds me of a time... Even though now cigarettes make me cough, it can still be a turn-on. That initial smoke. Not constant smoking.

Bertha also remembered that the smell of smoke “makes me more receptive.” She recalled having been very attracted to her children's pediatrician. “It was the odor, the aura of the cigar smoke. The smell of the older male.” She added mischievously, “I hope I didn't fondle him.”

Singular individual sexual memories involving smell

The previous category analysis demonstrates that many of the respondents' defining smell/sex memories were associated in some way with parents and upbringing. Manny and Simon however, also recounted experiences that, while far from home base, were equally compelling for them. Simon told his “whorehouse story” with chuckles and self-deprecating grins.

It was my first and only visit to a whorehouse where there were eight or nine girls -- a mass of women. Remember, I'm fourteen years-old, and I don't know what the hell I'm doing, and I'm mostly scared shitless. But I remember the smell of the place. There was like a repugnant, sweet smell. A perfume smell was what it was. A very heavy perfume smell. And musty -- a musty sex smell. It was not a glamorous place either, let's put it that way. A very strong, mixed, sweet smell. Not pleasant. I'll never forget it. It was awful.

Simon saw this memory as the main reason why he could not tolerate heavy perfumes on women in general and on his sex partners in particular:

“I don’t like a strong perfume on a woman, ever.” Echoing his previously stated “natural smell” association with his father, but not linking it during the interview, he mused, “I like a natural smell,” and then added, “The actual smell of a woman. That is a definite turn-on.”

When asked to describe a significant smell/sex experience, Manny was eager to elaborate.

The surprising thing is that all the women I used to date when I was younger were all older than me, in their thirties and forties. “So what’s this thing about women in their thirties and forties?” I asked myself. I then went back to my later adolescent years from sixteen to eighteen when I did a lot of volunteer work at hospitals. There were a lot of women there, all of whom were in their thirties and forties, and I found them very attractive. And I associated a smell with them. It’s Betadine. They used it on patients all the time. So when I smell Betadine, all you have to be is living, breathing, with a white nurse’s uniform on, and in your thirties and forties, and I want to jump your bones.

A poignant example of a powerful smell memory turn-off was given by Jilly. She had been a prostitute in former times and recalls an incident during an encounter with a particularly foul-smelling customer.

I remember when I was tricking one day, and it was gross. I was cleaning a fellow up at the sink. He was extremely overweight and he wasn’t clean at all. As I was skinning him back, I washed him very carefully and very thoroughly. And even though I washed him very carefully and very thoroughly, I couldn’t get the smegma smell off his penis, despite repeated washing with Irish Spring soap. After that I couldn’t stand the smell of Irish Spring. Wow! It took a long time to extinguish that as a turn-off.

The effect of fragrances on erotic response

For every one of the respondents, preparation for sexual activity with a partner not only included attention to hygiene, but also invariably involved the use of fragrances.

Again categories overlapped, some respondents favoring brand-name scents, others preferring essential oils, and some relishing both.

The fragrances of perfumery

Mauri recalled how her mother taught her to always use “fabulous French perfumes”. She described her own preparations for an evening of intimacy. “I will take a bath with wonderful soaps. I’ll put on fabulous perfume lotion. And I’m a dabber. I dab all over. I’m from the nose to the toes.” Pondering what turns her on most consistently to her partner she concluded, “Probably an aftershave. It’s like a readiness. Like he’s done it because, not only does he want to smell good, but he’s making a statement that he’s ready.”

“Nocturn by Caron is the most exciting perfume for me”, said Nash.

I remember the woman. I remember her smell, that I remarked on it. She told me that the smell was her, not her perfume. She even changed perfumes to show me that it was her. But it wasn’t her. Eventually we stopped dating but she introduced me to a perfume that I really liked, and I’ve never found another one. My girlfriend uses it for me. I have her wearing my perfume.

However, he was also fond of “the old colognes for men”, asserting with some insistence, “I don’t like most of the new ones.” Nostalgically, he listed his favorites. “I liked Old Spice. And Canoe, do you remember that? I had one person who liked Houbigan Musk, and I wore that for her for a number of years.”

Describing how he prepared himself for sexual intimacy with attention first to “showering, bathing, clean teeth... then cologne”, Simon listed his favorite brands over the years. “I’ve used Lagerfeld for maybe twenty years. Canoe was before that. I used to

use Mennen too, years ago when I was a kid. In fact I use a lot of cologne. Sometimes my wife says I put on too much.”

Jim uses cologne to prepare himself “for my better half.” And a certain male cologne was the only “commercial fragrance” that Bertha could tolerate. “Thank God my husband has found a cologne that appeals to me, that doesn’t offend me.” The memory of a particular men’s cologne brought nostalgic chuckles from Sydney.

When I first began making love with the man who was to be my husband, he used Mennen Skin Bracer. And, Man, that turned me on so much because of all the memories that I had in my brain, all the wonderful closeness that we had experienced And I went away to college and I was alone and I missed him. So I went out and bought a bottle and put it on my stuffed monkey. And I would take it to bed with me, and cuddle with it.

When asked what he wore to prepare himself, Manny stated reflectively:

That’s very interesting because the few times when I would put anything on I would get one of two reactions: either an obvious Oooh, or somewhat of an avoidance by the other person. They’d sniff and they’d say, “Oh! That’s such and such, or that’s some other such. In other words, it’s so familiar that there’s no surprise there. Of course, wearing scents I had this vision, at least back in the seventies, that you find in the commercials, you know, that they don’t know what hit them. But it was often really like, “Oh yeh. That scent’s been popular for years.” Fortunately I didn’t have the lack of taste to wear Bill Bass, or anything like that. That was a babe repellent. I’m not good at choosing scents, so let me not use scent as an inducement.

Indeed, he admitted that, to enhance his attractiveness to his partner, he relied chiefly “on minimizing the amount of body grease, by showering off and using deodorant. And then desmegmatizing the back of my ears.”

Preferences for essential oils

Sydney described how she sets her scented scene for sexual intimacy.

I’m always covering my body with oil. I prefer natural essences, the essential oils. I enjoy my own smell more if I do that. And I surround myself with fragrances. I have a whole bathroom full of fragrances. I put fragrance in my bath. I spray the room with fragrances. I have oil burners that scent the room. And I

love my garden for the smells. I have a wonderful night garden. You know, white flowers are most fragrant at night. So I have a garden that's filled with white flowers. And one or other of them is always blooming, giving me this wonderful fragrance in my garden. So when I'm in my hot tub, which is often where it all begins, I smell these fragrances. Smell is very much a part of the atmosphere I want to create in my life.

Overall Jilly preferred the effect of essential oils on her libido, but was open to any perfume "that was kind of close."

I smelled the perfume of a woman on the elevator, and I asked her what she was wearing, and she said, "Coco Chanel's Mademoiselle, but that's about \$100 an ounce. It was essential oily - almost half way in one world and half way in the other. If I was going to be carried away, it would be with something like patchouli, with maybe some rose mixed in it, or maybe some of the essential blends. My nose gets riveted to the spot where that patchouli is. I've probably grabbed a few people and thrown them in the sack that smelled like patchouli.

Manny recalled that his early religious upbringing had not been conducive to sexual liberation. "I really didn't kiss a girl till I was eighteen [because] Christianity is not a very sex-positive path and a lot of the other paths of eastern religions were". He stated that he became fascinated by the hippy movement and its emphasis on essential oils. "I loved sandalwood, patchouli, and champacha."

Yes. We were all hippies, interested in eastern religions. So a lot of the women that I became sexual with earlier on was in a tantric or quasi-tantric context. Sex and spirit. I associate those essential oils with spirituality and sexuality, because to me it seems pointless to have sexuality without spirituality -- unless you're talking about masturbation. And then I could masturbate and not be concerned with spirituality or anything else. But when it involves other people I feel it's more fulfilling -- more than just insert penis into vagina and move. I like to think that there's more to it than that. For me smell is linked to spirituality. And champacha is used as incense in temples, and women wearing that used to be... pretty nice.

Bertha was the respondent who was most repulsed by what she called "commercial perfumes", preferring "the purity, the subtlety of essential oils, their one note that doesn't change." The people she encountered who wore such scents also

repelled her. Railing passionately against the heaviness and inconsistency of commercial perfumes and thumping her hand on the arm of the chair to make her point, she stated in disgust: “They turn on the skin. It’s the change that I smell. It smells yucky, nauseating.” Thus she chose only essential oils for herself and filled her environment with their fragrance. “Lavender calms me down, relaxes me. The astringent smells of vetivert and patchouli cut the oily smells I don’t like. They’re put on pillows to combat the oily smell. I like the dry smell of sandalwood for the same reason.” As she pondered her concern with getting rid of the smell of oily skin, she wondered aloud, “Maybe I want to be asexual. Who knows?”

Nash also expounded on the popularity of essential oils, but with considerable resentment at the false advertising and deception that he perceived were at the root of the trend.

It’s just a commercial idea. I don’t care if the scent was made by a little Chinaman in a shop. Roses from the south of France. It’s all smells. I like it or I don’t like it. It’s not that it’s natural or where it comes from. I’m long past the “It’s natural” business, because in this society that has no meaning.

Sensuality and sexuality

Body language

Descriptions of some of the details of sex/smell interactions were often accompanied by expressions of voluptuous indulgence that involved closed eyes, and the seeming deep breathing in of recollected scenes of scented sexual delights, or orgiastic humors. Respondents licked and pursed their lips at the memory of perfumed bodies and sexual fluids. They sniffed imaginary aromas as they described remembered fragrances, fond and familiar traces of home and safety. Sensual body language highlighted content and context, exemplifying Weiss’ (1994) comment, “Interviewing rescues events that

would otherwise be lost.” (2) The researcher’s decision to conduct a face-to-face conversation rather than a telephone interview was indeed vindicated.

Food and sex.

Sexuality is certainly experienced through all the senses, but since food is the specific common ground of taste and smell (“80% of taste is smell”, as noted in Chapter One), there also seemed to be a common sensual thread between food and sex for some of the respondents. Nash, who described himself as “very relationship-based”, discussed his interest in food as a basis for intimacy.

My primary sense is intimacy, and food is really important to me. I think the smell of the food is what makes it taste so good. But the importance of the food is the sharing. For me sharing food is being closer to someone. I love the smell of cooking garlic. And the smell of fresh bread. It’s fantastic. I don’t know which is better -- eating it or smelling it. If you want to see my smell base, come cook with me, that’s where you’ll see it. And then join me in the back room and I’ll spray you down.

Closing his eyes and inhaling the remembered smell of his mother’s Italian cooking with the same look of rapture that he wore when he described his wife’s candle aromas, Jim recalled the “pleasant smells of my Mom’s kitchen. There was always food in her house.” Simon shed tears and drew in his breath at the memory of his mother’s cooking.

On Jewish holidays I can smell my house as if it was yesterday. My wife does Jewish cooking sometimes. When she cooks, I smell my mother. It’s a family smell. A very nesting smell. Comforting. Very comforting. It brings back nice memories.

Mauri remembered that her mother was “not a kitchen girl.”

She never really cooked, and she always said, “Be a looker. Don’t be a cooker.” Therefore I am a kitchen girl now in the sense that I do great gourmet things. I don’t bake but I love that smell. I love the smell of fresh peppers. I love the smell of fresh apples for apple pie. I love a good steak. And garlic in the oven, that’s a very sexy smell. Garlic and wine and garlic bread. Oh. Oh. And my mother, growing up, would never have garlic or onions or anything that she thought smelled poorly. And so I went the other way. ‘Cos I figured this is hot.

Environmental smells

Discussion of the need to feel comfortable before sexual activity, and thus be free to lose oneself in the sexual experience, was the basis of much of the reference to acceptable personal and partner aromas. There was also reference to the need for comfortable environmental smells, which appeared to echo a need for safety, familiarity, and absence of invasive distractions. Bertha was particularly sensitive to the smell of her surroundings:

As soon as I walk into a room, I smell every little thing. It’s affected me all my life. I couldn’t go to sleep in someone else’s home. I’d never go to sleepovers because I couldn’t stand other smells of the other house. Even the dust, the different dust. It would keep me awake. When I walk into my house I want that comforting smell.

The subject of home smells came up for Sydney also; aware of how “some houses have a particular smell, and the people who live there can’t smell it.” She worried about the “off-putting smell” of her old dog and asked, “Does this house have a particular smell?” Simon talked of the comfort of “a nesting smell... no mothballs.”

Jim’s fear was the distraction of “Body heat. Body sweat.” He valued an “air-conditioned room versus no air-conditioned room. It makes for more calm, more relaxed, more longevity... a state of tranquility.” Mauri’s self-declared obsession with cleanliness

was reflected in her sensitivity to environmental odors: “I don’t like foul smells. I can detect where a poor odor is coming from, whether it be in a house or on a person.”

Other thoughts on sex and smell

The smell of death.

In the middle of discussions about smells that dampen sexual attraction, odors of decay and sickness were alluded to. Mauri described the smell of her mother’s fatal illness.

At the end she lost her sense of smell, and she urinated a lot but couldn’t smell it. And she denied it. It was terrible. It was a urine smell. Dank. Gross. Repulsive. You get that smell when you visit a nursing home. I’d know that smell anywhere. I equate it with ... I don’t want to go near it because it’s a turn-off. It’s awful.

Simon hated the smell of mothballs, the smell of camphor. “It reminds me of death”, he said starkly.

It reminds me of dark and dingy and musty. When I was a kid they used to put mothballs all over because we lived in those God-forsaken places. You had to do something to get rid of the smells. But you have to understand I don’t like musty smells. That reminds me of how really poor we were. The mothballs. That musty smell. Dark. Dingy. Poverty. Death. Yes, it smelled like death, especially in my area of Detroit. They winterized the clothes by throwing mothballs in the closets, to keep the moths off, the rats out. And it was just all around me that damn smell. Cannot take that smell. It smells like that to this day, when old people come into the office. They all smell that way. I guess they put their clothes away in mothballs too. And I don’t like mothballs. I don’t like them.

Bertha recalled her father’s obsession with the smell of age. His worst insult was “She smells like an old lady.” She offered an interpretation of her own desire “to always

smell fresh” saying, “Maybe it means youth. It must be a desire to remain young.” She added that, for her, odors could not have “that smell of knickers. You know what that means. That old, musty, cloying decaying smell that is not pleasant.”

The smell of life.

As respondents described their most closely guarded secret excitements around smell and sex, their faces were full of the signs of remembered pleasures and savored joys. The fire of life glowed in their eyes and burned in the intensity of their words. Indeed, when Simon was trying to capture the essence of the attraction for him of female sexual fluids in particular and of all sexual smells in general, he declared, “Life smells, that’s what those smells are. They’re about life. They’re different.”

Discussion

Although clearly not representative of the group of professional working men and women originally intended, the respondents were nevertheless authentic examples of a generation that had lived through the sexual revolution of the sixties and seventies. They were forthright and open in their responses, comfortable about telling what excited them sexually, frankly curious about their own inner sex/smell dynamics, and often surprised, moved, and delighted with what they discovered during the course of their conversations with the researcher. Yet, although it was evident from the interview material that the sex/smell link played a powerful role in their lives, none of the participants in this study, according to self-report, had ever explored its impact before. They had not even spoken about it in depth to themselves, much less to anyone else.

Discourse on the specifics of how smell had affected sexual experience was initially sometimes blocked. Jilly’s frustrated “I can’t come up with anything”, Bertha’s

initial “I’ll have to think about that”, Nash’s blanket “I don’t think there is a significant incident”, Simon’s dismissive, “I never really thought about it”, Jim’s hesitant “I can’t really say”, Mauri’s thoughtful “Perhaps we can get back to that later because nothing comes to mind”, Sidney’s deliberative “You have me looking into the past, and I have a tendency not to remember things when I’m asked, but later to think about them and recall things that happened a long time ago”, and Manny’s previously cited “I’m actually finding a lot of surprises in this”; all were comments hiding the rich tapestry of intense experiences described in this chapter. Indeed, these responses often represented first steps into a largely unmapped, but deeply familiar and very personal interior territory. The last part of this study will examine some of the links between this inner world and the collective experience as described in the literature.

CHAPTER FOUR

DISCUSSION AND IMPLICATION OF THE STUDY

The goal of this study on the olfactory connection in human sexual behavior was to explore historical, literary, and scientific observations on the matter, with a view to examining -- in the light of these observations -- the relevance of the sex/smell link in the every day life of the individual subjects interviewed. The results reveal a wide spectrum of correspondences between academic findings and personal experiences.

The prizing of aromatics as enhancers to attraction is apparently as strong for the participants in the study as it was for the ancients. The biblical lover of Solomon's psalms was no more entranced by the fragrance of "perfume poured out" than Mauri, who listed, one after the other, the names of those favorite fragrances worn by her spouse, any one of which was guaranteed to encourage her to, "do anything." Queen Esther's ablutions and anointments recalled Sydney's lavish use of bath fragrances and body oils. Her unabashed delight in the seductive power of "of a garden filled with white flowers" certainly equals that of the Shakespearean suitor's faith in "a thousand fragrant posies." The variety of fragrances enjoyed among the Swahili women, and marveled at by Ellis, closely parallels Mauri's "Nose to my toes" strategy.

The notion of cleanliness -- so crucial to the seduction scenarios of the respondents -- far from being a modern obsession, was well established among the Egyptians, Greeks and Romans. At the same time, the erotic scent of human body emanations, favored by such as Goethe, Napoleon, and Henry III were also a consistently reported as a source of erotic arousal among the interviewees. Manny's fascination with

the sweaty smell of women “who play hard”, Sydney’s enjoyment of a “clean sweaty smell”, and Mauri’s unabashed relish at the odor of her husband after racket ball -- all echo the amorous preoccupations of lovers past.

Ellis’ report of ancient Hindu writers captivated by the smell of the perfect woman’s vulvar secretions, was mirrored in the words of Jilly -- “fascinated by the way my vagina smells”, as well as in Mauri’s enthusiastic recall, “Those juices are sometimes very pungent. I will say, sometimes very pungent. Yeh.” Simon, while earnestly reminding the researcher, “Now I don’t go around sniffing ladies’ pants”, offered frankly, “That smell is an enjoyable smell, if you’re having sex.”

The healing and religious function of perfume, discussed in the first part of this paper, was also alluded to by several of the respondents. Bertha, who was brought up in North Africa, reminded the researcher that her preference for the dry smell of sandalwood and vetivert has sacred antecedents: “Those are used in religious, mystical, and cleansing ceremonies. The incense is burnt to ward off germs.” Talking of body fluids left on bedclothes, Jilly, who had talked of her interest in the eastern spiritual tradition of Tantra, remarked, “It’s very tantric to have your energy stored up on the sheet.” Manny, for whom partnered sex without spirituality “seems pointless”, also identified with “all eastern religions” and their ceremonial and sexual use of essential oils, uniting “sex and spirit”. Clarifying, he added “... and so smell is linked to spirituality too.”

While the creations of perfumers have been valued from earliest times, it is only in the last century that industrial methods of production have brought perfume to the masses, and caused a seemingly exponential explosion of aromatic choices for the consumer. Respondents were sometimes overwhelmed by the variety of fragrances

available. Said Jim, “If I walk through the women’s makeup department, there’s too many smells. Some just make me gag.” Mauri wondered at, “The onslaught of fragrances.” marveling at how, “Every Company has come out with another men’s fragrance.” Although Sydney enjoyed the quest for new aromas (She stated that she had once traveled to Canada with the sole intention of finding a certain body oil), and was anxious to let the researcher smell her latest acquisitions, she admitted that those aftershave worn during pleasurable experiences with early partners were the ones that continued to have an erotic effect on her today: “Thereafter the smell of that cologne would arouse me.”

Unlike the others, Manny was so unsure of his ability to choose a fragrance that was not “a babe repellent” that he stayed with his tried and true technique of good hygiene, but Nash was loyal to his favorite brand, as were Simon, and Jim. Mauri’s list of “fabulous French perfumes”, and Bertha’s unwavering allegiance to the superiority of particular essential oils revealed partialities engendered in the early years of sexual experimentation. Indeed, the frequent nostalgic return to old favorites underscored the impact of earlier smell memories and sexual associations. It is clear, however, that modern perfume industry’s “odor evaluation boards” (Gibbons 1986, 359) operate just as successfully in the sexual lives of all of the members of this group as the ancient makers of unguents and incense did in the amorous adventures of privileged lovers past.

The generally accepted notion described in this study, that man is more vision-dependent than smell-dependent would certainly have been heartily seconded by Simon (“basically attracted visually”) and corroborated by Nash (“[Smell] is not a prime motivator”). Jim (“I have a very acute nose.”) saw himself as atypical among his fellow

men. Since his profession called for him to detect dangerous odors, “electrical fires, burnt-out bulbs, overheating, and ventilation problems”, he had acquired an unusual sensitivity to smells. He repeated forcefully, “My nose is trained. I’ve trained myself. So certain smells become very offensive to me.” This may have been what prompted his particularly intolerant attitude towards the menstruation odor of his wife who was otherwise, in his opinion, “immaculate.”

Although unaccustomed to talking about it, Sydney, Mauri, Jilly, and Bertha were all acutely aware, on very personal and private levels, of how smell operated in their sexual lives. Manny was openly excited by his olfactory insights. But the experience of this study caused all of the participants to recognize unsuspected olfactory triggers in their sex lives. Perhaps Simon said it best, “I like to be made aware of things which I take for granted. And I think smell is just something you take for granted.”

The sexually stimulating effect of the *odor di femina* on men and the *aura seminalis* on women, referred to in the first chapter of this study, was also alluded to by participants. Not only were they turned on by all of the body emanations noted above, but also there was mention of a distinct smell of female or male that was erotic in itself. Bertha spoke of “the warm comforting odor” of a sexually interesting male. Jilly smelled a “super sweet smell, but not fruity, even slightly vinegary” on her attractive male partner. For Manny, a woman smelled “light and airy.” At the same time he confessed, “I love a tuna sandwich”, referring to the same vaginal smells that excited Mauri’s spouse: “Are the tuna running?” he reportedly asks when he thinks she may be ready for sex.

“Male power-smells” characterized Mauri’s sense of maleness: “Somewhat of a sports arena kind of maleness.” For Jim, females smelled “nice and soft and fresh and

dainty.” But for Sydney, “I find that most men smell the same. Those fluids smell the same. The only distinguishing smells were the colognes. But the sexual smells are pretty similar. The smell of the animal. The smell of sex.”

Simon, who was sure that he could recognize his wife by her smell, wholly supported the existence of an individual scent signature put forward in Chapter One. “I know when she’s in a room. And I smell her hair. I smell her hair all the time. There’s nothing about my wife that I don’t like the smell of.”

Such talk of family-member smells among respondents paralleled some of the findings around smell and kin recognition that were discussed in this study. Bertha’s longing for the safe smells of her own home, and her sense of alienation amongst the odors of other people’s houses, was particularly telling. The mother/ baby bond, while not specifically linked to primary caretaker odor and thus to the *lovemaps* of John Money, was touched on indirectly by those respondents who acknowledged the power of their parent smell memories.

It was interesting to note also that parents and grandparents among the respondents were quick to remember their delight in the special, familiar smell of their own offspring. “And my children”, said Simon, “The way they smell, I could just eat ‘em up. I’d smell their necks. I’d grab ‘em, and they had a smell. I could smell my kids anytime. And my granddaughter the same way.” Not surprisingly, Jim indicated that when his children were little they were synonymous with spotlessness, and that familiar smell of family of origin: “My kids always smelled nice and fresh. It was the nice rosy smell that I like.” Mauri rhapsodized about “Nectar. Baby nectar. It’s wonderful. Those babies -- you can’t bottle that smell.” But such evident sensitivities, although perhaps

illustrative of smell identification among family members, hardly support the previously cited genetic recognition capacities of human beings.

The possibility of human menstrual synchrony, speculations on direct pheromonal activity through a human vomeronasal organ, and the crucial olfactory role postulated in human hormonal development -- which constitute so much of the research reviewed in the last part of Chapter One -- were little pondered upon by respondents during their musings on the sex/smell link. They were mostly concerned about their own internal worlds and how past and present sexual experiences were affected by the particular olfactory connection that they were exploring at the time. The scientific picture was far removed from them. However, their intense interest in the importance of the olfactory connection in human sexual experience was abundantly evident in the interviews. Indeed, the notion that the nose was in fact another sexual organ that played a vital part in the complex dynamics of human sexual expression amused everyone, but was dismissed by no one.

The conclusions of this study are necessarily limited by the small and restricted sampling size of the group studied, as well as the narrow age range. However the information gathered created an in-depth view of the participants' perception of the questions considered. Moreover, the message of close identification with the subject by the participants in this study strongly supports the value of continued research -- using a larger and more widely representative population pool -- into the function of fundamental olfactory connections in human sexual development and expression.

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APPENDIX A

PARTICIPANT CONSENT FORM

Title: IS THE NOSE A SEX ORGAN? A STUDY OF THE OLFACTORY CONNECTION IN HUMAN SEXUALITY

Researcher:
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Description: *The purpose of this research is to fulfill the requirements for my dissertation and completion of a Ph.D. degree in Sexology. The methods used to collect data will include: tape-recording of pilot and individual interviews, written transcription of these recordings, and qualitative textual analysis of them. This information will provide data for my dissertation on the olfactory link in human sexual expression.*

Confidentiality: *Strict confidentiality will be maintained at all times throughout the course of this research project. The confidentiality of each participant will be insured by securing all identifying documents, audiotapes, and related information in a locked file cabinet in the principle investigator's private office. Only the principle investigator will have access to identifying information. The audiotapes will be used for the purpose*

of completing this project and will be erased after completion of my dissertation process. A pseudonym will be used for each participant to further insure confidentiality and anonymity of all identifying information. A final research report from this study will be used for academic purposes and will be published.

Costs and Payments: Participation in this study will be strictly voluntary. Participants will not receive any payment for their involvement.

Right to Withdraw: You have the right to refuse to participate in this project or withdraw at any point of the study.

***Voluntary Consent:* I have read the above and I understand the contents. All my questions concerning this research have been answered. If I have any questions in the future about this study the candidate or her advisor will answer them. A copy of this form will be given to me.**

I agree to be audiotaped.

Yes _____ No _____

Participant Signature: _____ Date: _____

Witness Signature: _____ Date: _____

APPENDIX B

Participant Demographic Information

Name: _____ Male: __ Female: __

DOB: _____ Place of Birth _____

Marital Status, now: __ How many times married?: __ Single: __

Partnered/Relationship?:

No. of Children: __

Education Level: _____ Occupation: _____

Religious Affiliation (or Belief System) : _____

Early Sexuality

How old were you when you experienced your first erotic response? (sexual arousal, lubrication, erection, feeling of sexual attraction)

How old were you when you first began to masturbate?

How old were you when you experienced your first intercourse with a partner?

APPENDIX C

GUIDED INTERVIEW QUESTIONS

Has smell ever affected your sex life?

Describe to me how smell has affected your life?

Can you describe a significant example of the effect of smell in your initial attraction to someone?

Can you describe something about smell that has specifically affected your sex life?

Can you describe your last experience with smell and sex?

Can you remember and describe a significant event that was particularly important for you regarding sex and smell?

Can you think of a time when you were turned off by a smell?

What smell turns you on specifically?

What would you say smell-wise turns you on most consistently?

What about a specific fragrance.

What about body odor?

What about the smells during sex?

Tell me about the female smell.

Tell me about the male smell.

The body odors of your partner – do they affect you at all?

What about breath?

Is there anything about a male/female partner that you might particularly like the smell of?

Is there any smell that turns you on that you suspect other people might find objectionable?

Is there anything you do specifically to prepare yourself for a sexual encounter?

Any other thoughts on sex and smell?

Your earliest smell/sex memory?

Any memories around the primal scene? Your parents' bedroom?

Any thoughts on the smell of family members? Past? Present?

Any other thoughts on sex and smell?

