Pharmaka, Philtres, and Pheromones

Getting High and Getting Off

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We've been told that with regard to seduction, "candy is dandy, but liquor is quicker," but in truth, rather, properly selected: "candy makes randy; liquor makes desire flicker;" or, as Shakespeare's porter said to Macduff: "[drink] provokes the desire but it takes away the performance." The wines and beers of antiquity, however, which were potent infusions of innumerable psychoactive plants often requiring dilution with water and in which alcohol served rather as preservative than inebriating active principle, had already in Shakespeare's day given way to straight alcoholic beverages, if anything augmented by the soporific and anerotic hops, *Humulus lupulus*. We know not the venereal verities of the archaic wines of mandrake, *Mandragora officinarum* (the famous aphrodisiac of the Biblical story of Leah and Rachel), nor of the *genuine* Pilsener beer, which gets its name, not from the place—Pilsen—but from *Bilsenkraut*, its original inebriating principle, *Hyoscyamus niger* or henbane, which contains visionary tropane alkaloids [Rätsch 1996; 1997]. It is still possible, albeit difficult, to obtain genuine *absinthe*-liqueur in Europe, a potent alcoholic libation fortified with extracts, or oil, of wormwood, *Artemisia absinthium*, which owes its psychoactivity to the volatile terpenoid thujone, which has left a lubricous legacy, at least in European art [Budavari *et al.* 1996; Conrad III 1988; Ott 1996].

An anonymous 16th-century Italian manuscript, *Ricette magiche e afrodisiache* [Pezzella 1978], gives special emphasis to philtres or love-potions, stimulants to venery, and points the way to a modern science of aphrobiology. One recipe, "for venereal pleasures," posits the preparation of a potent alcoholic extract of black truffles, *Tuber melanosporum*, which is concentrated and made into an electuary or comfit with sugar and amber. A second, "a venereal balsam for the impotent," confects in olive-oil large quantities of *betel* "nuts," *Areca catechu*, and oil of nutmeg (*Myristica fragrans*), with animal ingredients: ants, Spanish flies, civet and "oriental" musk (pheromone-rich, sexual-attractant secretions from the civet cat and the Asian musk deer). The third, "for he who cannot make use of women," consists of *boli* or pills made from the powder of dried *Cannabis*, moistened with "a good white wine." Here we see echoes of the use of alcohol and wine rather as solvents than as active principles in the composition of philtres, not to mention of the *proper* way to make truffle-candies, and I have chosen these three recipes of the 27 in the manuscript to highlight the most promising directions for a modern pharmacology of philtres: 1) pheromones (as exemplified by the truffle, amber[gris], plus ants and musks); 2) stimulants (*betel* nuts); and 3) visionary inebriants (*Cannabis*). I will examine hereunder each of these three categories of 16th-century Italian philtre-formulations in some detail.

PHEROMONES, THE QUINTESSENCE OF PHILTRES

Although the truffle might seem out of place here, in fact it was shown in 1981 to be a potent source of androstenol, known since 1944 to be a component of boar-testes, and patented in the early 1970s for use in artificial insemination of sows [Maugh II 1982]. In 1974, androstenol was discovered to be a component of human male axillary perspiration, and later to stimulate sexual interest in human beings. Truffles are one especially rich source, which accounts for their "musky" aroma, and here they are compounded with "amber," in reality ambergris, a pheromone-rich secretion of sperm whales, *Physeter catodon*, like sperm-whale spermaceti, used in perfumery and cosmetics. These pheromonal ingredients lend verisimilitude to the first of our Italian philtre-formulæ, the second of which features musk, both of the civet cat (various species, family Viverridæ) and the musk deer (*Moschus moschiferus*). Musks, likewise from the North American musk ox (*Ovibos moschatus*), derive their name *via* Latin and Greek, from the Sanskrit *muska*, "testicle, scrotum," and consist of oleaginous secretions of special glands that produce sex-attractant pheromones (pheromones are hormone-like substances acting especially between members of the same species, here in mating, thus being allomones, of benefit to the emitting species; they can also serve as *kairomones*, or of benefit to another, or a receiving species, who might exploit them as attractants to predation). Musks have a long and storied use in perfumery, again as sex-attractants, and the discovery that androstenol appears to be a human sex-attractant pheromone has now led to its use in male colognes and after-shaves, often touted in skin-magazines as infallible female lures. Similarly, the masculine pheromone androstadienone is said to attract women; the female pheromone estratetraene, to attract men [Holden 1999]. I have known women who occasionally rub a bit of their own vaginal secretions behind their ears, when they feel the need of such "passion-perfume" to "inphiltrate" some man or other. This points to the urgent need for concerted research into our human pheromones, which of course militates against the absurd superstition of the Judæo-

Christian world, that human beings are not, after all, animals. But we do indeed, like all mammals, possess non-olfactory vomeronasal neuroreceptors believed to respond to pheromones, and encoded by some 100 genes in rodents [Hines 1997; Holy *et al.* 2000]. Interestingly, neural signals from the binding of pheromones to these receptors bypass those ordinary olfactory pathways, and possibly the so-called "higher cognitive centers" [Dorries 1997], and go thence to the amygdala and the hypothalamus, in the so-called midbrain, which separates the brain-stem from the cerebral cortex (connecting to an accessory [posterior] olfactory bulb attached to the cerebral cortex) [Keverne 1999]. As might be expected, both the amygdala and hypothalamus are thought to control our emotional responses.

Human menstrual blood and other vaginal secretions were used as ingredients in philtres or "love-potions," believed to incite both love and lust [Birchler 1975; Müller-Ebeling & Rätsch 1986]. There has been limited research of female human pheromones, but one such study of 50 healthy young women who wore special tampons showed their vaginal secretions contained an extensive complement of simple compounds like acetic, propanoic, and butanoic acids, which are called "copulins" [Michael *et al.* 1974]. These are known sex-attractant pheromones from the vaginal secretions of rhesus monkeys, which stimulate male sexual activity, and they also occur in such secretions of many other primate species. Interestingly, the levels of these human pheromones varied according to the menstrual cycle, being at their highest concentrations in the phase corresponding to maximum fertility.

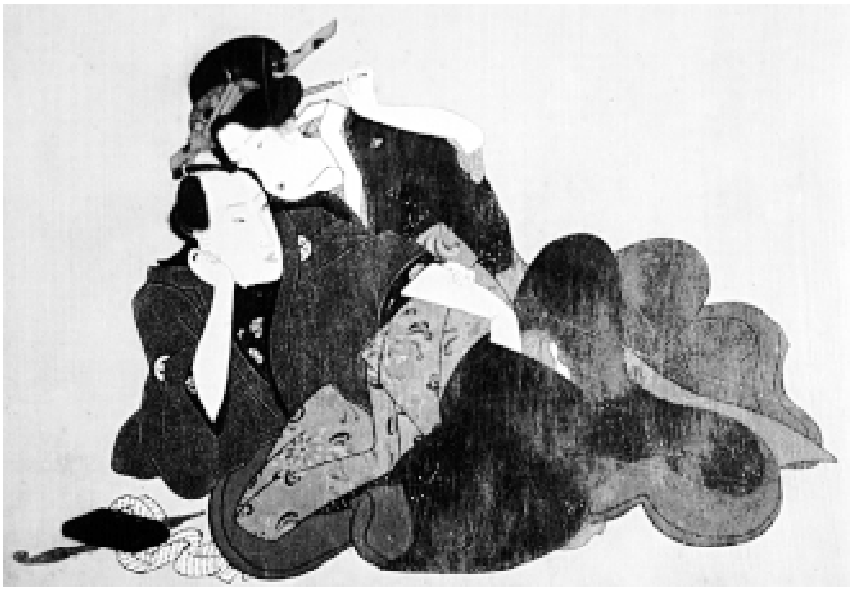
Philtres were employed to induce someone to fall in love, and were supposed to provoke so-called "love-sickness." Here in México, people especially fear *toloache* (*Datura* species) as such an amatory "toxin." Until the mediæval period, men were allegedly primary victims of "love-sickness," although more recently it became rather a supposititious female condition—as in the "hysteria" of the Freudians. There was even posited a so-called *virus amatorium* in menstrual blood, and even modern textbooks of gynæcology (such as the sixth edition of *Geburtshilfe-gynäkologische Propädeutik und Untersuchungslehre*, Leipzig, 1967) there survived belief in the existence of an infectious "menotoxin" in human menstrual blood!

But to return now to the truffle: as Valentina P. and R. Gordon Wasson showed in their seminal book *Mushrooms Russia and History* (which, together with a pair of popular articles in 1957 launched the so-called "Psychedelic Age" [Wasson & Wasson 1957; R.G. Wasson 1957; V.P. Wasson 1957]), truffles were long known in Europe as stimulants to venery; indeed, they are known as "testicles" in various languages, such as the old Castillian *turmas de tierra* or *criadillas de tierra*, "Earth's testicles," and when the potato first appeared in Europe, it acquired that reputation of the truffle, inasmuch as unscrupulous vendors would pass-off lowly potatoes as truffles. As Agustín de Zárate noted in 1555: "the Indians consume some roots known as potatoes, which are of the form, and almost even of the taste, of *turmas de tierra* [truffles]." This then gave rise to the phrase "to truffle" or swindle someone, which survives today corrupted as "to trifle"—thus the cad who "trifled" with a damsel's affections was symbolically giving her a *potato*, instead of a pheromonal *truffle* of audacious amatorious repute!

STIMULANTS TO SEXUALITY

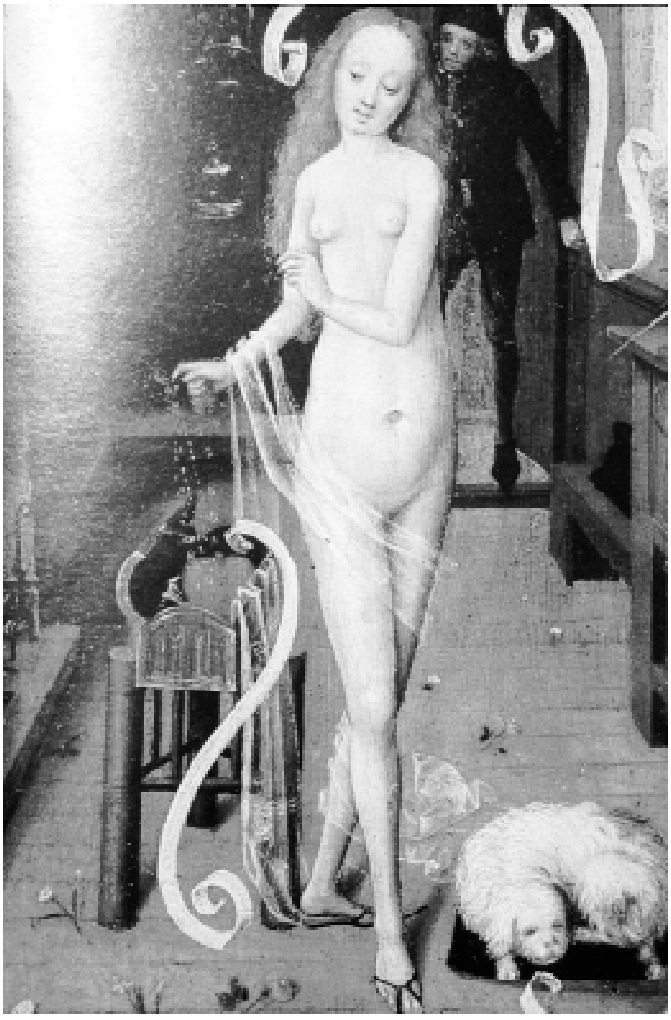
Our second archaic recipe compounds *betel* nuts with pheromone-rich musks. *Betel* is one of the world's most widely-used stimulants, taken as a masticatory, the sliced or shredded fruits of the *betel*-palm being wrapped in aromatic leaves of the *betle* pepper, *Piper betle*, which has been smeared with a paste of a vegetable quicklime, and often the quid be seasoned with cloves and/or cardamoms and other spices, at times likewise with other drugs being added, such as opium and tobacco (and, at least during its glory days, also with cocaine). The major stimulating principle of *betel* is the alkaloid arecoline, which is one of the prototypical "smart-drugs," shown to enhance learning [Sitaram *et al.* 1978]. In the Indian Ayurvedic system of medicine, *betel* is regarded to be an aphrodisiac [Raghavan & Baruah 1958]. Stimulants have singularly and collectively the reputation of potent aphrodisiacs; many act on the body's major stimulant-system—the adrenergic, responding to the hormone adrenaline and the neurotransmitter noradrenaline—also exerting

Japanese masturbatory scene from pillow-book. Note the opium pipe.



dramatic effects on the neurotransmitter dopamine, key element of our so-called "pleasure-circuits" in the midbrain. The best-studied are the amphetamines, including the "psychedelic amphetamines" like Ecstasy or MDMA, and of course cocaine. Straight away one can dismiss MDMA as aphrodisiac—it belongs rather in the same class as alcohol, inasmuch as it "takes away the performance," as noted in a recent British book [Rudgley 1998]. The garden-variety amphetamines, on the other hand, richly deserve their concupiscent reputation, providing one does not exaggerate the dose. Not only do they dramatically heighten libido, but they have been used medically to reverse *the depression of libido* associated with the chronic use of some serotonine-enhancing antidepressants—the "serotonergic" effect in general, while it may help to overcome depression, clearly depresses the sex-drive, which just might give the "patient" new cause for depression! Note, however, that the anti-depressant drug nefazodone, *Serzone*® or *Dutonin*®, is known rather *to enhance* libido! Moreover, amphetamines can retard ejaculation in men and seem for many to enhance orgasmic pleasure; besides, they tend to raise blood-pressure, to which might accrue ancillary priapic benefits.

A naked damsel prepares a philtre whilst being espied by the already besmitten object of her affections; 15th-century German oil painting.



The same can be said for cocaine; although again, excess doses may even *depress* male performance. Indeed, the plant-source of cocaine, the *coca*-leaf (*Erythroxylum* species) has a robust erotic reputation in its Andean home. As W.G. Mortimer noted in his 1901 classic *History of Coca* [Mortimer 1901], "The Peruvian Indians employ Coca to stimulate uterine contractions and regard it as a powerful aphrodisiac." He then went on to quote several contemporary authorities, who were adjudging its medical potentials before *our* modern era, blighted as it is with pharmacopathological nonsense: *"Leopold Casper, of Berlin, considers Coca one of the best of genital tonics, and many modern observers concur in this opinion. Vecki says that cocaine internally to a man aged fifty-six invariably occasioned sexual excitement and cheerfulness."*

In fairness, it must also be said that he noted that homœopaths: "employ Coca in sexual excess, especially when dependent on onanism." I would say one "dependent on onanism" suffers rather from sexual *dearth* than excess, and this indeed serves as a valuable *caveat* regarding the dangers also of *an insufficient dose* of an aphrosidiac!

As regards *qat* (*Catha edulis*), the stimulant-plant of Yemen and Ethiopia, the tender branches of which are chewed neat, and which contain the natural amphetamine cathinone and other stimulants: given that this was adopted as a drug in historical times, during the Moslem era, it is not surprising that there be little emphasis on aphrodisiacal effects in the scant literature. To be sure, like coffee after it (likewise adopted in comparatively recent times), and to avoid the general Islamic proscription of "intoxicants" (specifically alcohol, although this ban was extended to cover also traditional Arabian inebriants opium and *hashish*, but *not* the non-traditional tobacco), it became necessary to justify *qat*-use in the context of alertness for late-night Koranic study, for nocturnal prayers in the mosque, and the like. Although pharmacopuritans have disparaged *qat*-use as conducive to "sexual problems" (of course, for them, heightened libido is the *primary* such) and "spermatorrhea," or involuntary, non-orgasmic seminal emission, a recent careful study found that about a third of chronic male (but only about one in 20 of female) users reported aphrodisiacal properties, which were personally confirmed by the intrepid researcher, who found that *qat*-use both stimulated libido and enhanced sexual performance [Kennedy 1987]. Again, the dosage and ancillary health-factors may account for the 20% of male and 10% of female users who rather reported anaphrodisiacal effects.

Of the caffeine-containing stimulants, it is the African *cola*-nut (*Cola nitida*), which has the strongest reputation as an aphrodisiac. *Cola*, of course, was ingeniously combined by a Georgia pharmacist with *coca*-leaves to yield the original *Coca-Cola*®, that brilliant, non-alcoholic "temperance"

beverage which however, along with its host of imitators, was later to be denounced as being causative of the "*Coca-Cola* fiends" (largely African-American, of course), given to raping white women; to be used as a pretext to proscribe the free-sale of *coca* and cocaine in the United States in 1914. Coffee (roasted seeds of *Coffea* species), tea (fermented leaves of *Camellia sinensis*) and *guaraná* (seeds of *Paullinia cupana*) are alike caffeine-containing stimulants with some renown as aphrodisiacs [Rätsch 1997], whereas the caffeine-rich *guayusa*-leaves (*Ilex guayusa*) are used in Ecuador against female sterility, and in Argentina the related *yerba mate* (*Ilex paraguariensis*) is closely associated with romantic intrigue, judging by the number of *mate*-sayings used to intimate or reject coquetry. Another African aphrodisiac of wide repute is *eboka* or *iboga*, the root of *Tabernanthe iboga*, which contains the visionary stimulant ibogaine [Pope 1967; Shulgin & Shulgin 1997]. I would be remiss should I fail to mention here that other great African aphrodisiac, chemically related to *eboka*, *yohimbe* or the bark of *Corynanthe johimbe*, which contains yohimbine, an alkaloid that has been shown dramatically to enhance sexual motivation in male rats [Clark *et al.* 1984]; and has been used to treat "erectile dysfunction" [Pittler 1998].

My brief survey of stimulant aphrodisiacs would be incomplete were I to fail to include that most famous love-drug of all time, chocolate or cacao, from the seeds of *Theobroma cacao*. As I detailed in my book on the subject [Ott 1985], when the Spanish *conquistadores* first reached the palace of Aztec ruler Moctezuma II, they were astonished to find the royal coffers filled, not with gold, but with cacao-beans, and that the emperor took no other beverage than his cacao-potion, *cacáhautl*, particularly when he would repair to his harem [Díaz del Castillo 1976]! Pharmacopuritans denounced chocolate early on as an "inflamer of passions," and indeed, its major alkaloid, theobromine (there are only minor amounts of the related xanthine, caffeine), proved to be a potent aphrodisiac in hornets, their drones even copulating with moribund queens [Ishay & Paniry 1979]! Although I should point out I have yet seen no evidence of such dramatic "inphiltration" in the human species, nonetheless chocolate is *the* love-drug, being packaged in heart-shaped boxes for St. Valentine's Day gifts to a sweetheart, and theobromine, like love, is a potent cardiac stimulant, its effects akin to the quickening pulse of amorous excitement. Chocolate also contains minute levels of anandamide, which is our *natural* neurochemical whose receptor the THC from marijuana activates [di Tomasso *et al.* 1996], and Moctezuma's *cacáhuatl* was "spiked" with all manner of stimulant and visionary plants, which may help account for its reputation as an aphrodisiac [Ott 1985; 1996]. Compounded with the appropriate ingredients, not for nothing might they be known as "chocolate truffles!"

PHILTRUM PSYCHOPTICUM, OR VISIONARY VENERY

Our *excursus* among the erotic electuaries, philtry potions and pubic pomades now brings us to the *truly* heroic medicines, the "Psychoptica" or entheogens, in which direction points our third classic recipe, for the *bhang-boli* or pot-pills. *Cannabis* or marijuana, of course, has long been tarred with a licentious brush, but there are many who attest to its place on Aphrodite's altar. In my experience, unlike many of the *pharmaka* we have examined, where the emphasis in on male performance (for which alone I can personally vouch), *Cannabis* would seem to be a bisexual stimulant. In my case, I find its effects to be rather too debilitating in general to be of much use in this regard, more enervating than erotic, but many women I have known are effusively enthusiastic about its aphrodisiacal amatory attributes.

In the pages of *Playboy* magazine [Leary 1966], Timothy Leary described LSD as being: "the most powerful aphrodisiac ever discovered," noting also that the LSD-state was to ordinary, waking consciousness as that state was to deep sleep. (I don't know about anybody else, but that had been enough for me—being a bored, 17-year-old high-schooler in the dreariest of suburbs, I began at once assiduously to seek LSD!) Leary, then well on his path from professor to proselyte, continued:

"[S]ex under LSD becomes miraculously enhanced and intensified. I don't mean that it simply generates genital energy. It doesn't automatically produce a longer erection. Rather, it increases your sensitivity a thousand percent. […] In a carefully prepared, loving LSD session, a woman will inevitably have several hundred orgasms."

If that sounds too good to be true, it is—no woman I have ever spoken to has had the good fortune to experience any suchlike "carefully prepared LSD session!" Noting that by that time he had had 311 "psychedelic sessions" and had made love "every time I've taken" LSD, Leary twice evaded the interviewer's questions regarding the number of orgasms a *man* might expect under the lubricous influence of LSD! But Leary had clearly hit at least one nail squarely on the head, and by the following year there were pulp-novels aplenty, exposing *The Sexual Paradise of LSD*, *LSD Lusters* (both 1967) and the 1969 *Acid Party*, among others, all festooned with concupiscent cover-art. There had already appeared Thelma Moss' pseudonymous (as Constance Newland) account of her having been cured of her frigidity *via* LSD-psychotherapy [Newland 1962], one of many testimonials to the curative virtues of this uniquely-potent entheogen.

The comments that follow apply likewise to the visionary familiars of LSD, such as psilocybine and the mushrooms that contain it (species of *Psilocybe* and other genera), mescaline (from *péyotl*, *Lophophora williamsii*, *San Pedro*, *Trichocereus* species, and others) and N,N-DiMethylTryptamine or DMT (from some *ayahuasca*-brews and related South American entheogens). In my opinion, LSD has by far the

Pre-Colombian Taíno *cemí* from the Greater Antilles, used as a base for ritual insufflation of the visionary *cohoba*-snuff — note the prodigious priapism.

best erotic possibilities of the class, since it is generally free of physical side-effects, apart from exerting an amphetamine-like stimulation, at 1% of the dose! Like the amphetamines, LSD can work aphrodisiacal wonders, and can certainly exert solid erectile effects on men, but as is the case with many other aspects of its pharmacology, this is captive to "set and setting" (expectation and *milieu*). As Grinspoon and Bakalar noted in their unbiased review *Psychedelic Drugs Reconsidered* [Grinspoon & Bakalar 1979]:

"The basic rule, for stronger psychedelic drugs as for marihuana, is that they heighten sexual interest and enjoyment only when the user is already inclined that way. They are anything but a stimulus to indiscriminate activity. Nevertheless, if temperaments, mood, and circumstances are right, they can produce an extraordinary intensification, prolongation, and elaboration of sexual experience, as they can for almost any experience. […] But psychedelic drugs are not a reliable way to increase sexual pleasure any more than to achieve other emotional states. They not only enhance sexuality but transform it, often to the point where it becomes hardly recognizable; **and they can be as powerfully anaphrodisiac as aphrodisiac**. *In the varying moods of the drug trip, intense sexual desire may suddenly turn into equally intense disgust or fear, or it may be transcended in a feeling of all-embracing cosmic love that makes mere sexual pleasure seem trivial or irrelevant."* [emphasis mine]

Although I have never experienced intense sexual desire transmogrifying into disgust or fear, for me the rule has been that the immoderately-prolonged nature of LSD-time in general causes that desire to be transcended before the particular sexual act is consummated or willfully brought to closure. I can recall episodes when some titillating *tête à tête* mysteriously transmogrified into something else; then abruptly, an eternity later, one or the other might remember: hey, what happened, weren't we making love? To my mind, the true erotic potential of LSD and allied Psychoptica is to ease a mutual attraction into the sexual realm, rapidly to enable people to become better acquainted, in an emotionally-opened way, which applies equally to MDMA. Having spoken to innumerable people about their entheogenic experiences, I would have to say that very rarely does the subject of eroticism ever come up, and it is rather in the scope of "pale religious letchery," to borrow Blake's phrase, in the paranoid, propagandistic fantasies of the pharmacopuritans, that the priapic potentials of LSD and its congeners loom large, so to speak.

Moreover, in the traditional world, and with the exception of *Cannabis*, whose use can be seen clearly in Indian erotic paintings, as well as in association with the Tantric arts, it must be said that the emphasis is far more upon spiritual ecstasy (literally, separating the soul from the body—sex, eating, much light or noise, tend to anchor one's consciousness in the body, militating *against* ecstasy), whether this be used for self-actualization or more commonly for shamanic healing, than on any potential aphrodisiacal virtues. On the other hand, we are dealing today with the degenerated remnants of archaic traditions, often corrupted by Christianity, and we know but little of the potential breadth of use-modalities in antiquity. In Mesoamerica, there survives rather extensive documentation of "the Age of Entheogens" [Ott 1995] from the time of the conquest a half-millennium ago, which tells us that the entheogens enjoyed ludible, as well as medicinal, sacred and ceremonial roles. To my knowledge there is no specific mention of entheogens as aphrodisiacs, with the exception of the famous case of the *cacáhuatl*-potion of Moctezuma, but the arrogant Spaniards, who evidently did not deign to sample them in *any* context, could hardly have been aware of such, had it existed, which I think quite likely.

There is, however, one class of entheogen that merits special mention here: the Caribbean and South American visionary snuffs *ñopo/cohoba* and *cebíl* (prepared from seeds of *Anadenanthera peregrina* and *A. colubrina* var. *Cebil*), whose psychoptic principle is bufotenine, a positional isomer of psilocine, the true active principle of the psilocybian mushrooms [Ott 2001A; 2001B]. As the accompanying photograph of a classic Taíno *cemí* (*zemí*) indicates (these are wooden or stone anthropomorphic tables, the flat upper-surface of

which was used to array "lines" of the *cohoba*-snuff), the erotic essence of this entheogen hardly took a back-seat in that long-lost culture. These *cemí*-artifacts have been found on all four large islands in the Greater Antilles, and their association with the snuff was documented at first-hand by Ramón Pané, left by Columbus on Hispaniola to study the Taíno [Pané 1974; Torres 1998]. Bufotenine provoked circulatory crises when unethically injected intravenously into convicts and mental "patients" (non-convict prisoners) in the United States, and turned their faces the color of an "eggplant" [Fabing & Hawkins 1956; Ott 1996; Turner & Merlis 1959]. Bufotenine is dimethyl-serotonine, and of the many visionary tryptamines (LSD, psilocybine, DMT, *etc.*) is the closest to serotonine—all are thought to act primarily *via* serotonine-receptors in the brain. But there are also serotonine-receptors in the vascular system, which accounts for its name: *sero*, "blood[pressure]," *tonine* "toning." That bufotenine injected into the bloodstream would cause facial lividity suggests the compound can also bring blood to the penis and indeed, after one particularly intense session of snuffing bufotenine-rich *cebíl*-seeds in Argentina, I experienced an impressive priapism when I repaired to my lodging. Regrettably, I was totally alone at that moment, and so had no other recourse than "onanism" (note to any homœopaths: I was *already* chewing *coca* to beat the band!). *Cebíl* may well prove to be that much sought-after "herbal *Viagra*®."

While on the subject of bufotenine, a few words about toads (*Bufo* species, from which the compound gets its name) are in order. Toads being marathon-copulators, some species of which breed *en masse* in ponds, it is natural that they came to symbolize fertility and venery, and indeed toads figure prominently as ingredients in philtres [Morgan 1995; Wasson & Wasson 1957]. The toad parotoid-gland secretions (technically not venoms, 'though commonly called that) often contain bufotenine, which was first isolated from secretions of *Bufo vulgaris* in 1920 [Ott 1996]. On the other hand, these toad-secretions contain various toxic compounds, especially cardiotoxic steroids, which would seem to overwhelm bufotenine toxicologically, as this is generally present in relatively modest amounts. Nevertheless, dried *Bufo*-secretion is used in traditional Chinese medicine, under the name *Ch'an-su*, and similar preparations were used to treat cardiac insufficiency before the introduction of *Digitalis* extracts. One use of *Ch'an-su* is as a so-called "love-stone"—small cubes of the dried secretion are sold as aphrodisiacs, to be moistened and rubbed on the penis to prolong erections, which is thought to involve local anæsthesia, rather than any vascular actions of bufotenine, although this *has* been detected in the "love-stones." Recently, however, at least four toad-titillators in New York died after they had *ingested* this product, which likewise contained toxic amounts of cardioactive steroids! There also exist reports of people smoking these toad-preparations, as a supposititious psychoactive drug [Chamakura 1994].

In the famous potion-brewing scene of Shakespeare's *Macbeth*, his three "weird sisters" give the toad pride of place in their cauldron: "Toad, that under cold stone / Days and nights hast thirty-one / Swelter'd venom sleeping got / Boil thou first i' the charmed pot." There is some evidence for the use of toads in European witches' philtres, as well as in the so-called "flying ointments," as also their addition as fortificants to American *chicha* beers, but we have at present insufficient *data* to speculate on relevant pharmacology, either psychoptic or aphrodisiac. Several artistic representations point to an erotic dimension of the ointments, which did contain known visionary plants, such as belladonna (*Atropa belladonna*), henbane (*Hyoscyamus niger*), mandrake (*Mandragora officinarum*) and thornapple (*Datura stramonium*) [Hansen 1978; Müller-Ebeling *et al.* 1998], all of which contain psychoptic tropane alkaloids, such as scopolamine, hyoscyamine and atropine [Ott 1996]. Indeed, in a famous bioassay experiment, the Spanish physician Andrés de Laguna "managed to obtain a good cannister-full" of a "flying ointment" which he "used to anoint from head to toe the wife of the hangman" of Metz, who promptly fell into a profound sleep for 36 hours! When she came to her senses, she was distraught at having been awakened "from all the pleasures and delights of the world," and told her husband with a sly smile: "know that I have made you a cuckhold, and with a lover younger and better than you" [Gómez Fernández 1999]! Toad-secretions or oneirogenic aphrodisiacs anyone?—I prefer conscious concupiscence!

AN EROTIC EPILOGUE

Laurence Sterne showed the keenest of poetic intuition in his riotous farce, *The Life & Opinions of Tristram Shandy, Gentleman*, that "Cock and a Bull" story, "and one of the best of its kind, I ever heard," when he included the learned Hafen Slawkenbergius' tale, in which Nosarians and prodigious Noses take the place of priapic Penises [Sterne 1935]. For in matters erotic, it is clear to me that the nose knows, and we would do well to remember that our sexual centers are not in the cerebral cortex but in that reptilian *rhinencephalon* or "smell brain." Indeed, the best sexual connections I have ever experienced have been with women that not only were *not* exemplary of my particular ideal of female allure, but with whom I had all manner of fundamental incompatibilities; cultural, (anti-) religious, socioeconomic and intellectual—indeed, the *only compatibility* evident to me was a fabulous fit between pheromones and receptors which, not surprisingly, tends to be mutual. In one particularly memorable case, I could not be for too long within a meter or two of the woman—even fully clothed, in a crowded office—without getting a persistent erection, which I usually had to conceal with my backpack. In somewhat over a year, essentially all we did together was have animalistic sex, and if we had managed to sate our amatory appetites, which generally required some hours, we basically just got in each other's

way! Conversely, alas, some of the best overall compatibilities I have known with women have tended to be sexually ordinary.

It is clear to me that the pathway to a science of aphrochemistry leads *via* research on human sex-attractant pheromones, and that most potent philtre will likely be some erotic effluvium, a sort of "amorous aromatherapy," rather than a pill, puff or powder; mayhap a pheromonal pessary for women, philtry pomade for men. This direction was pointed to by Patrick Süskind, in his interesting novel *The Perfume*, at the climax of which his antihero Grenouille ("frog," which should rather be *Crapaud*, "toad") is about to be executed for the murder of numerous women, when he uncorks the bottle of perfume he had made from the erotic essences of their bodies, for which purpose he had slain them, so unleashing a frenetic orgy in the crowd of morbid spectators!

It is evident that pheromones, indeed olfaction itself, are not operative in all human beings. Many people are effectively anosmic, and 72% of the roughly 1000 human genes associated with olfactory receptors are non-functional (pseudogenes), as well as *all* of the human genes which have been correlated with putative pheromonal receptors. Moreover, anatomical studies of 564 adults found that 70% lacked the vomeronasal organ, which was present bilaterally in merely 8%, unilaterally in the remaining 22% [Keverne 1999]. Even stranger, it has been said that in those human beings possessing a vomeronasal organ, this invariably lacks effective neuronal connections! This I do not believe, at least in my own case, and there are surely those *Grenouille* among us, we who inhabit a mysterious, musky and mellifluous world. Through pharmacogenetic study of human idiosyncrasy [Ott 1997] with respect to genes for our pheromone-receptors, it is theoretically possible to develop individually customized "cocktails" of pheromones, personalized philtre-prescriptions. Such a paramount philtre would in principle be capable of transforming virtually any compatible individual into that "most concupiscible object" (to paraphrase Laurence Sterne) more desirable than which "neither could your heart desire, nor your concupiscence covet." •

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