The earliest date for tobacco use is 200 A.D. with evidence of pipe smoking among Arizona Indians. The archaeological findings are in-terpreted as suggesting that tobacco was magico-religious in nature, possibly in connection with rain-maldng rituals. Indians on the east coast of North America were pipe smoking by 800 A.D. As with so much of our archaeological evidence on drug use, dates are subject to constant revision as new finds push further back the frontiers of time. Since tobacco is native to the Americas, and one species to Australia, it is unlikely that evidence for tobacco use per se will be found else-where than these continents for earlier dates; however, it may be that evidence of smoking will be uncovered for earlier dates in other areas. One find leads in that direction. Sassoon and Yellen (1966) have dis-covered stone bowls in Tanzania which they date at 400 to 800 B.C. and describe as "pipe bowls." No smoking material was uncovered but the excavators deduced that some sort of smoking occurred. If these interpretations are substantiated, they will introduce a new dimension into the history of smoking.

The burning of incense and fumigants as such has been known from at least 3000 B.c. (Corti, 1932). In the temples of Karnak and Jerusalem and possibly later at Delphi, the inhalation of substances dedicated to the gods was a priestly function. Coca leaves are said to have been burned and the smoke either inhaled or, alternatively, its wind drift used for omen interpretation by Inca priests (de Cieza, re-print, 1959). Among Romans the medicinal benefits of drawing smoke through a reed were recommended for coughs (Pliny) and, as noted in the chapter on cannabis, Herodotus described the Scythians' inhalation of fumes from burning cannabis seeds. In all likelihood, other smoking or inhalation practices have occurred elsewhere and are either as yet undiscovered or simply unknown to us. In any event, the practice of inhaling burning substances other than tobacco seems never to have been popular, and such inhalation of fumes as did occur seems to have been limited to medical and religious intentions. The oracular trances of the Delphic oracle are an exception in that these were po-litically important, although the pythoness was a priestess of A-p' olio and all oracles were delivered as though received from the god. Whether or not any psychoactive inhalation ever occurred at Delphi is quite another question; in spite of references to volcanic or sulphuric vapors, laurel leaves, and what-have-you, no one has established mind altering in connection with the Delphic orade. The political wisdom of her utterances was such that no reduction in astuteness or rationality through drugs could have occurred.

A most interesting but little known shamanistic practice which involves inhalation and oracles in a magical-religious setting still oc-curs in the mountains of Central Asia. Friedl (1965) has described shamanism in the region, and von Snoy (1960)' has taken movies showing Farphu shamans inhaling smoke from mulberry leaves, going into a trance, and then delivering prophecies. In the same Gilgit areas, other shamans use the burning leaves of the mountain juniper to achieve trance and prophecy (Blum and Blum, 1967). One wonders about the historical links between these inhalation practices that oc-curred in some of the most isolated mountain regions of Asia (Gilgit, Hunza, Chitral, Dir). and those of the Scythians and Greeks of pre-Christian times.

The sniffing of nonburning substances—snuffs--is a practice in limited locales. South American Indians, especially those in North Central part,s of the continent, engage in various forms of inhalation of hallucinogens and tobacco. Wassén (1965, 1967) describe,s these in detail. The dates of origin are unknown; it is assumed that sniffmg of drugs other than tobacco preceded tobacco sniffing (Zerries, cited in Wassén). Such activities are social in the sense that they are done in company; indeed, one form of sniffing uses an X-shaped blowing tube in which two persons blow substances into each other's nostrils. The function and intent of such sniffmg—which may find tobacco com-bined with a hallucinogen—is magical-religious (communing with and controlling the spirits, comparable with Guatemalan Indian spirit com-munion by means of alcohol) and medical.

It is the combination of the technique of smoking with the to-bacco plant that demands our attention as an event of the greatest epidemiological interest, for only subsequent to the diffusion of that practice from the Americas to Europe did the smoking of other psy-choactive drugs take place. Thus, the spread of tobacco smoking, opium and cannabis smoking, and the less common smoking of datura—or, as nowadays, aspirin among "teenyboppers" and hollyhock stems among farm youngsters—depended entirely upon the technique itself and the exceptional pharmacological potency and immediacy of drug effects that resulted. We have already seen a parallel in the importance of technique of use when we considered the rapid spread of intrave-nous heroin use after the discovery of the hypodermic syringe—an event in its turn leading to the injection nowadays of other substances, such as DMT, LSD, and, very importantly, methedrine and other amphetamines.

The first European observation of tobacco was reportedly in Brazil in 1555 (Laufer, 1924a). In 1564, Frenchmen in Florida were claiming its virtues, taught them by local Indians, for averting hunger and thirst—an important use for explorers and adventurers. In 1565, John Hawkins brought the plant to England but no use occurred; but in 1573, when Sir Francis Drake brought tobacco to England, smoking became a fad. The drug itself was in short supply so that henbane (HyoscyamusY was used as a substitute. Cultivation in England was reported in 1576 and pipe smoking, learned from sailors who had visited the Americas, was reportedly fashionable. By 1614, seven thousand shops in London purveyed the substance—"ale houses, grosers, apothecaries, chaundlers." Medical value was attributed to the plant, and during this period the medical profession attempted to limit its use (Consumers Union, 1963), and to employ it for its presumed enormous curative worth. (It was also deemed a floral decora-tion and was in demand as a display plant.) Nevertheless, secular use expanded remarkably so that English expenditures in 1614 were over three hundred thousand pounds sterling. King James in 1604 had al-ready reacted against the drug even before so much money began "go-ing up in smoke," but his "Counterblaste" admonishing the English not to act like savages had little effect. Failing to prevent use, the crown turned frustration to capital and began to tax tobacco heavily.

By 1586, tobacco cultivation had begun on the European con-tinent. English sailors, students, merchants, and soldiers carried it and their pipes on their travels, but a traveling Italian cardinal carried it back from England to Italy with him in 1610. It had spread to Turkey by 1605 and was banned under penalty of death in 1623 because of fires in Constantinople due to smokers falling asleep with pipes in their mouths. By 1655, the Sultan had abandoned efforts at control, and water pipes as well as clay pipes were in widespread use.

The Thirty Years War was important in the diffusion of to-bacco, for English and Spanish soldiers carried it to Central Europe, so that by 1650 all the Central European peasantry were said to be lighting up. Other armies carried the habit to the Balkans (Corti, 1932). Poland received the plant in 1590 via its ambassador to Tur-key; from Poland and also via English travelers it went to Russia. By 1634, it was forbidden in Russia, reportedly because it was preferred by the poor over bread and because it led to "stinking and infectuous breath." Russian use was unlike other European use; there, smokers inhaled as deeply and as rapidly as possible so that combined hyper-ventilation and intoxication produced unconsciousness—a prospect not altogether heartening to conventional authority. The Russian proscription, of course, failed.

Japanese use was first reported in 1615 (Laufer, 1924b) when the Japanese emperor prohibited it because Japanese men, women, and children were "besotted in that herb not ten years since its intro-duction." (It was probably introduced by the Portuguese.)1 In China, about the same time, it was heralded as a medicament for colds, ma-laria, and cholera, but use quickly became social and personal; soldiers were the first group to take it up, but soon all ages and classes werem smoking when tobacco was available. The imperial response was an edict of decapitation for smokers in 1638, which proved unenforceable as illicit use continued and expanded. One religious sect continued to forbid it, but—according to one herbal—it was popularly used for intoxication, as an antagonist for wine, and to reduce hunger and aid digestion. In India, use began in 1605 when, according to the records, a king took it on advice of a traveler who claimed that, since the Eu-ropeans would do nothing foolish, smoking must be the correct thing to do. The king's physician demurred but the image of the wise Euro-pean carried the day. Elsewhere in Asia, its spread was rapid and among some peoples it was incorporated into rituals. Among the Ainu, for example, it was said that a "tobacco ordeal" was used as a trial for accused women; those not vomiting a mixture of water and tobacco ash were declared innocent. Laufer states that by the twentieth century only one Asian group was not using it—the Yami on an island near Formosa, who are also alcohol prohibitionists. How they managed their resistance would be well worth knowing. An interesting point made by Laufer is that tobacco chewing was adopted in Asia only by groups already given to betel chewing. Although he is not quite correct, the tendency for one drug to be substituted for another, once a method of administration has become popular, is emphasized by the betel- and tobacco-chewing correspondence.

The spread of tobacco in Africa followed the same pattern as elsewhere—a wildfire adoption (Laufer, Hambly, and Linton, 1930). By 1607, it was planted widely in West Africa with men, women, and children growing and using considerable quantities. Traded in return for slaves by the Portuguese, it was so popular that its purchase took priority over any other commodity. Women took it in trade for their bodies, men for a day's labor, and—it is said (LaLoubere, cited in Laufer et al.)—the Hottentot peoples accepted rather than resisted Dutch colonists simply because the latter carried tobacco. In some places the Russian manner of use was popular—deep and rapid inha-lation to produce intoxication and coma. In parts of Africa, as we have noted in the chapter on cannabis, smoking per se was of great importance, so that if no tobacco—or substitute such as hashish—was available, a hot coal would be smoked instead "for solace." If one man had tobacco and another none, others would stand dose to in-hale the smoke. To make the supply last longer, tobacco would be "cut" with wood chips. In Dahomey, female warriors considered it an honor to manufacture smoking equipment for chiefs, and on state oc-casions a man's smoking apparatus was carried behind him to signify his rank. During ceremonial speeches the king's head smoker moved among the guests, blowing smoke in their faces as a sign of royal favor. A reverse-status association occurred among aristocratic Moors, who considered it lowly to smoke tobacco--or hemp. A religious stricture among the Senussis of Libya and the Moslem Wahabis of Arabia prohibited the use of tobacco. There was also more general Moslem resistance in Morocco to its adoption, but use nevertheless developed. A delayed-reaction constraint was introduced by law in 1887, with smokers being put in prison. But this was to no avail.

In the Americas its use was already widespread among Indians so that no reintroduction needed to occur. Colonists, of course, used it and newcomers brought the habit they learned in Europe with them, rather than learning it directly from the dwindling indigenous folk. In Mexico, in 1575, the first "American" edict against use was issued, a Catholic council enjoining its use in any church. A year later, it was necessary to order priests to forbid smoking while performing -the Mass. Elsewhere in Europe and among Europeans in America, there was resistance on grounds of taste—the noxious smell, cost, or the im-plied depravity of emulating the heathen savages of the New World. As we have seen—except among a few isolated religions or culturally insulated groups—state or religious prohibitions or restrictions by tax-ation or medical control were rarely successful anywhere in reducing the prevalence of smoking.

Scholars present many factors to account for the tobacco "epi-demic." Laufer (19244 argues that there was no prior resistance any-where on grounds of convention, religion, morality, or law simply be-cause neither the substance nor the technique was known. Both were completely new and there were no direct arguments against innova-tion. In Europe, furthermore, it was an era of exploration and dis-covery and popular heroes--men like Sir Francis Drake—were copied as they brought back the wondrous treasures of new worlds. Laufer argues further than the smoke itself suggested fire, dragons, and devil-try, making it a status symbol in the

post-Reformation era. Gener-ally, diffusion proceeded from those with prestige to those with less prestige; in other words, the people copied smoking from those they admired. Smoking's initial "carriers" or "vectors" were necessaiily those wlio moved about—whether ambassadors or fleet admirals or simply merchants and sailors. The plant was cheap and the technique easy to copy; exposure to a smoker allowed the onlooker to learn easily.

There is contemporary evidence for the same learning process, whether the drug be alcohol, LSD, tobacco, or any other. McArthur, Waldron, and Dickinson (1958) clearly show that whether or not a man smokes or does not seems to be determined by whether or not he has been oriented to the habit as a result of his social milieu. That milieu includes the smoking habits and correlated attitudes of family, peers, and socioeconomic-class associates. Salber and her colleagues in a number of studies (Salber and MacMahon, 1961; Salber, Mac-Mahon and Harrison, 1963; Salber, Reed, Harrison, and Green, 1963) have shown that the likelihood of smoking increases as a func-tion of parental smoking, older-sibling smoking, and age-mate asso-ciate smoking. What contemporary studies and historical data both indicate is that exposure to others who use tobacco, especially exposure to admired or prestigeful persons (parents, older siblings, or—as in seventeenth-century England—folk heroes), is one set of factors leading to a smoking habit. Modern data show that moral and drug factors, as well,as attitudinal and personality (and physiological) factors, also play an important role. For example, nonsmokers are also more likely not to drink alcohol or coffee (McArthur et al., 1958) ; heavy smokers are generally more tense, constricted, and maladjusted. Significantly, infant oral experience and inferred gratification differ, for as McArthur and his colleagues show, nonsmokers were weaned at an average of 8 months, heavy smokers able to stop were weaned at an average of 6.8 months, heavy smokers who didn't try to stop were weaned at 5 months, and heavy smokers who tried and could not stop (are ad-dicted) were weaned at 4.7 months. Looking at the rapidity with which the tobacco habit spread over the world, we assume that its attractiveness must be related to the oral satisfaction of sucking as well as to the pharmacological effects which, although diversely described introspectively, are apparently related to felt tension reduction.

To illustrate that diversity in stated reasons for using tobacco, Corti (1932) quotes a perplexed English observer in 1667 :

Some drink their tobacco, some eat it, others sniff it, but other methods I have seen practiced from prince, to bishop, to barber and each can explain how it benefits him. One smokes because it enables him to see better, another because it disperses water in the brain, a third to ease his toothache, a fourth to stop the singing in his ears, a fifth will tell you that it makes him sleep, a sixth that it quenches his thirst, a seventh that it neutralizes the bad effects of too much water-drinking, an eighth that it expels evil humours, a ninth smokes to pass the time and a tenth because he doesn't wish to be unsociable.

The observer adequately portrays the multiplicity of personal functions, such as social-recreational, self-medicating, magical, and mood-alter-ing, which a drug in popular use is said to serve. Studies show—not with tobacco but with peyote (Aberle, 1966) and with LSD (Blum and Associates, 1964)—that a correspondence exists between the ex-tent of an individual's use of a given drug and the variety of differ-ent functions which the individual says that drug accomplishes for him. Whether or not an observer would concur is another matter; what is implied—and what we would expect to hold true for tobacco or alcohol or any other popularly employed psychoactive substance—is that a correlation exists between the extent an individual uses a drug and the variety of needs, interests, or aims which he believes the drug to meet, fulfill, or facilitate for himself. There is also the expectation that as the ritual, or traditional, institutionally controlled use of a drug is reduced and secularization occurs that—depending upon the hetero-geneity of myths, ills, interests, and values within a society—an increas-ing diversity of individual functions or intentions served by the drug will be reported. In the ca,se of tobacco, where both substance and method of administration were novel, no controlling rituals or pro-scriptions existed to limit the variety of intentions or settings which surrounded the initial use of the drug. Consequently, a diversity of reasons offered for its use was to be expected—each an interpretation of what was obviously a gratifying drug experience and simultaneously a gratifying method of administration.

In retrospect, it seems clear that the spread of tobacco use, especially of tobacco smoking, was the most dramatic "epidemic" of drug use in the observed history of mankind. The spread of the prac-tice was itself dependent upon the historical era itself—an age of exploration, expanding commerce, and openness to new ideas—which brought Europeans to the Americas and allowed their folk heroes to return to the Continent with the "foule weede" and in turn to spread it outward to Asia and Africa as they voyaged, traded, and made war. The adoption of tobacco by a tremendous variety of nonliterate societies and literate cultures with immense differences among them tends to rule out cultural and social features as facilitators or determi-nants of tobacco-use innovation. Similarly, in almost all instances, the failure of prohibitions adopted on the grounds of taste, health, religion, or criminal penalty to prevent adoption emphasizes the frailty of social controls when a society is faced with an attractive substance, even if that substance serves no primary physiological need or traditional in-terpersonal function. What remains a question of great interest, as we also noted earlier, is what circumstances allowed a society such as the Formosan Yami or the Libyan Senussi to resist successfully a drug whose initiation and continued use were so compelling for most other societies.

Given the dramatic nature of the epidemic of tobacco use and the evidence for smokers' immediate substitution of other psychoactive substances in its place (opium, cannabis, henbane, datura, for exam-ple), the spread of use of these latter drugs (especially opium and cannabis) appears far less sensational. The principle that emerges is that if new techniques of ingestion are developed, people with an in-terest in psychoactive drugs—and that includes most

human beings in most societies—will try a variety of drugs with that technique. If it happens that the technique itself is psychologically gratifying in a special way, as smoking seems to be, then the method of administra-tion ,takes on considerable independent importance. If it also happens that the method allows the use of a psychoactive substance which has powerful pharmacological effects that are rewarding in the sense that people repeat the experience and which is easily made available (we must not forget that the epidemic of tobacco use could not have oc-curred if the tobacco plant had not been so hardy, so adaptable to new dimates, so easily transported to places it does not grow, and so cheap to process), then we must expect epidemics. An "epidemic" implies a bad thing and, specifically, a disease. Since tobacco use is not a disease in itself, we have put "epidemic" in quotes. That it is causally associated with disease now seems agreed upon, although it is only one of several correlated causative factors. Whether or not the term "epidemic" is deservedly applied to any marked increase in drug use per se or of a particular drug—especially when a good deal of such use has no demonstrable ill-effects and may, in fact, be an effective self-medication or oil for the social machinery—is a matter for the reader to decide.

SUMMARY

Although likely to have been employed quite early for magico-religious use by American Indians, tobacco by the time of its discovery by New World colonizers was used by Indians for medical purposes, including self-medication to allay hunger and for ceremonial occa-sions. Its use was thus controlled and ritualistic. Europeans responded quickly once they learned about Indian tobacco smoldrig in about 1550. Although initial daims for medical benefits were made, private and social use soon predominated. Carried by envoys, sailors, and soldiers throughout Europe, tobacco also spread rapidly throughout Asia and Africa, so that by the early sixteenth century its distribution was world-wide with only few societies resisting its introduction. Nu-merous control efforts were initiated by medical, political, religious, or simply conventional authorities, but in no case did control or prohibi-tion attempts reduce use once it had become popular. In most cases, European governments turned prohibition failure to advantage by heavily taxing sales—a practice carried on today.

A number of factors appear to have accounted for this first major epidemic of drug use. Tobacco itself was easily produced and transported so that availability was no problem; it was also ingestible in many ways—drunk as tincture, sniffed, chewed, or smoked. How-ever, smoking became the paramount means of administration. It seems likely that smoking provided oral satisfactions independent of drug effects, which may account in part for the popularity of that method. On the other hand, the pharmacological efficacy of that ad-ministration and the widespread positive response of users to the ef-fects of the drug itself are obviously of critical importance. As with any drug popularly employed, a great variety of reasons are offered for its use, including tobacco's being self-medicating, tension-relieving, magical, mood-changing, and helpful in facilitating social intercourse. Ritualistic and ceremonial use still occurs in nonliterate societies, not only for medical and magico-religious purposes but especially in con-junction with

status demonstrations.

The reasons for beginning use—a phenomenon dependent upon exposure to those who have prestige and smoke—need not be the same as reasons for continuing or increasing use. Heavy use appears asso-ciated with particular psychological and social features, especially with tension and maladjustment and also with early infant oral gratification. The longer that heavy use has occurred, the more difficult it is for a smoker to stop (McArthur et al., 1958).. Although the tobacco habit in some societies does divert scarce funds from necessities to drug purchases, is compulsive and as such gives evidence of depend-ency (complete with withdrawal symptoms for some), and is now causally linked to disease, its use is rarely termed "drug abuse." In-deed, the initial reactions of political and religious authorities in the sixteenth century were much more intolerant of use than are modern responses by authorities, in spite of the fact that it is the modem evi-dence which indicates the physical danger arising from use. Psycho-logical dangers are not often claimed, although in cultures where smok-ing is done by fast and deep inhalation intoxication and unconsciousness are said to result.

The introduction of smoking as a method of drug administra-tion stands as one of the major discoveries in terms of popularizing drug use. The common practice of substituting one drug for another by any known means of ingestion has led to the smoking of cannabis, opium, datura, henbane, and other substances. One must anticipate that new drugs which are combustible, available in large supply, and enhanced in potency by smoking will be smoked as they become avail-able.

1 In Japan it appears to have been taken in tincture and not smoked—perhaps an example of carry-over of older opium-taking methods; considering its toxicity upon ingestion, one wonders about the effects.