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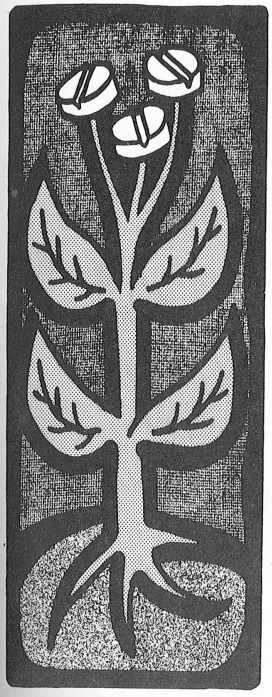

# PACIFIC INFORMATION SERVICE ON STREET-DRUGS

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VOL. TWO NO. 4

Table I - Summary of the Results of Analyses of 295 Alleged Cocaine-Containing Street-Drugs

| Group Reporting Results | Actual Chemistry: Cocaine | Cocaine + Local Anesthetics | Other | No Drug Identified | Number of Samples |
|---|---|---|---|---|---|
| Univ. of the Pacific[1] | 10 | 6 | 4[a] | 6 | 26 |
| PharmChem[2] | 81 | 24 | 12[b] | 9 | 126 |
| LAC-USC[3] | 61 | 30 | 29[c] | 2 | 122 |
| Metro-Drug[4] | 9 | 1 | 8[d] | 3 | 21 |
| Totals | 161 | 61 | 53 | 20 | 295 |

[a]Includes: 1 heroin-amphetamine, 2 procaine, 1 phencyclidine (PCP).

[b]Includes: 4 lidocaine, 3 procaine, 1 benzocaine, 3 amphetamine, 1 PCP-LSD-Cocaine.

[c]Includes: 4 phencyclidine (PCP), 1 heroin, 1 heroin-procaine, 1 heroin-caffeine, 14 local anesthetics, 2 amphetamine, 2 barbiturates, 1 saccharine, 1 tyramine, 1 LSD, 1 caffeine.

[d]Includes: 6 lidocaine, 2 procaine.

[1]Brown, J. K. Unpublished data.

[2]Anon. PharmChem Newsletter,1(2,3,4,5,7):1972. 2(1,2):1973.

[3]Lundberg, G. D. Personal Comm., 1972, 1973.LAC-USC Medical Center, 1200 N. State Street, Los Angeles, CA 90033.

[4]Green, D. Personal Comm., 1973. Drug Awareness, Division of Public Health, City of Minneapolis, 250 South Fourth Street, Minneapolis, Minnesota 55415.

The quantitation and price of alleged cocaine samples has been published in PharmChem Newsletter, 2(2):6 (1973). Some data abstracted from this issue are listed below.

| | | | |
|---|---|---|---|
| Cocaine only | 84% pure | Selling price | $950.00/oz |
| Cocaine only | 6% pure | | 50.00/Gm |
| Cocaine + Lidocaine | 34% + 4% | | 50.00/Gm |
| Amphetamine only | | | 50.00/Gm |

This would suggest that price has no bearing on the amount of cocaine in a sample nor its composition. The one constant factor is the HIGH price.





## IT'S THE REAL ZING!!!!!

What's the common denominator between Sigmund Freud, Sherlock Holmes, the original formula for Coca-Cola, and the film, Easy Rider? The answer is "cocaine." This drug was one of the reasons Freud left medicine for psychoanalytical research and one of the reasons explaining his well documented aversion to drugs in his later years. Although the cocaine addict, Sherlock Holmes, was fictional, his creator knew the medicines of his time quite well and the deductive powers of Holmes were based upon a real-life physician (Dr. Bell). Coca-Cola no longer contains cocaine (caffeine was the replacement), but the nick-name of "coke" lingers on. Cocaine was really a minor drug of abuse in the United States (and generally available in pure form) until the now classic film, Easy Rider, triggered interest in the drug, and created a demand and a street market. Now street cocaine is increasingly adulterated with local anesthetics such as procaine, benzocaine, butacaine, and lidocaine.

Cocaine was the original "speed" drug. But it is really two different drugs in one -- meaning that it has both local anesthetic capacity and a "speed" capacity. This is not an unusual characteristic for a single drug to have two different pharmacologic activities (for example, Pyribenzamine is both an effective local anesthetic and a widely used antihistaminic). It should be apparent that the local anesthetic capacity of cocaine is not related in any way to its "speed" capacity -- otherwise people would be lacing their 7-Up and Coca-Cola with easily available Pyribenzamine.

Cocaine creates the "speed" effect by interfering with the breakdown of the natural adrenaline-like neurohormones in the body and preventing tissue uptake of these adrenaline-like substances. Consequently the body and mind is placed in an adrenaline rich state -- and the individual feels ready to "take on the world." No other local anesthetic has this capacity. (1)

Low blood levels of cocaine are characterized by: alertness, mental excitement, euphoria, increased physical activity, and freedom from fatigue. The pupils of the eye are dilated, but will generally constrict if exposed to bright light (this is one way to distinguish whether a person has taken cocaine or one of the stramonium-like hallucinogens). Higher blood levels of cocaine are associated with anxiety, paranoia, an increase in heart rate, elevation of blood pressure, tremors of the hands and limbs, headache, fever, confusional states, and hallucinations. Even higher blood levels can precipitate convulsions and death can result from respiratory failure. The blood level achieved depends on the purity of the cocaine, the amount taken, and the route of administration. A wide variety of other "speed" drugs and their chemical relatives (for example: dexedrine, methedrine, and the nasal decongestants) will synergize with cocaine so that even a low blood level will produce the effects associated with high, toxic blood concentrations. The fast-acting barbiturates are probably the best antagonists for cocaine-like toxicity. (1)

Although capable of being synthesized, cocaine is still obtained from the leaves of Erythroxylon coca Lamarck [Erythroxylaceae], a

plant growing between 1,500-6,000 feet above sea level in the Peruvian and Bolivian highlands. The chewing of coca leaves (with a bit of ashes) in this area has been documented as far back as 1,000 B.C. The religious and medical uses of coca have been well and fairly summarized by Martin. (2) In 1961, it was estimated that the Peruvians still consumed 9 million kilos of coca leaves per year (equivalent to about 90,000 kilos of pure cocaine). Coca leaves contain 0.6-1.8% of cocaine (benzoylmethylecgonine) and 0.3-0.9% ecgonine plus 0.015-0.02% of vitamin C (ascorbic acid) and significant amounts of vitamin $B_1$ (thiamine) and $B_2$ (riboflavin). (3)

Cocaine was first isolated from the plant in 1855 by Gaedecke; however, this honor is usually credited to Niemann in 1860. B. von Anrep first noted the local anesthetic effect of this alkaloid in 1879, but the credit for its actual introduction into medicine belongs to Koller in 1884. Among the first to document cocaine's mental stimulant activity was Sigmund Freud, who worked with Koller during the summer of 1884 in Stricker's laboratory in Vienna. Freud enthusiastically urged its use for all types of psychological and nervous disorders. He initially considered cocaine to be nonaddictive and without serious side effects. Freud began to take small doses of the drug on a regular basis "against depression and against indigestion." He recommended cocaine to colleagues, acquaintances, and members of his family. He praised it in letters to his fiancee, Martha Bernays ... "I was suffering from migraine, the third attack this week by the way, although I am otherwise in excellent health. I took some cocaine, watched the migraine vanish at once, went on writing my paper as well as a letter to Professor Mendel, but I was so wound up that I had to go on working and writing and couldn't get to sleep before four in the morning." Freud did not seem to be aware of the relationship between his being wound up and his inability to sleep. Zealously, Freud introduced cocaine to Fleischl (a friend medically addicted to morphine) and felt responsible when Fleischl switched from morphine to become a full blown cocaine addict. Freud's interest in drug research quickly paled. (4)

Cocaine was once the active ingredient in Coca-Cola, and the coca leaves are still one of the flavoring ingredients (140,000 kilos imported per year). (3) However, the leaves are now decocainized in Peru before shipping to the United States. It is evident that present-day Coca-Cola is not "the real thing" that the Coca-Cola publicity strives to sell. The centuries of heavy oral use in Peru and its wide spread use in this country in the secret Coca-Cola formula (before the "narcotic" laws embarrassed the company) adds considerable weight to the scientific evidence indicating the the oral consumption of cocaine is only habit forming (cocaism) rather than addicting (cocainism). By this route of administration (vasoconstriction of the blood vessels in the gastrointestinal tract causing slow absorption, plus the very rapid metabolism of cocaine by the liver), it is simply not possible to achieve high blood levels. However, when cocaine "snow" is taken as a snuff (snorting), the psychic "speed" effects are rapid in onset and nearly as great as if the drug had been taken by intravenous injection. When taken via a needle and syringe or by snorting, high blood levels are produced and the drug is





truly addicting. (1) Since the withdrawal syndrome from an addicting drug is always a reversal of the actual symptoms produced by the drug, the withdrawal from cocaine (unlike withdrawal from the barbiturates and the meprobamate-like "tranquilizers") is not dramatic and not life-threatening (apathy, inactivity, plus mental and physical fatigue).

Because of the increased street demand for cocaine, the quality of cocaine in the street market has decreased, especially in the last two years. The prospective cocaine buyer usually checks the quality of the "cocaine" being offered by touching his tongue to the powder. The prompt numbing sensation is due to the local anesthetic capacity of cocaine. Therefore, if cocaine were to be cut with an inert ingredient, the buyer would quickly be aware that he was being hoodwinked. So the producer of the street cocaine cuts the pure cocaine with readily available local anesthetics such as procaine, benzocaine, etc. They numb the tongue nicely, but they do not have the "speed" activity of cocaine itself.

What is the result of this adulteration? If the diluted street cocaine were to be taken orally, there would be a much reduced euphoric and anti-fatigue effect -- with the price of street cocaine today, nobody utilizes this rather inefficient route of administration. Taking pure cocaine as a snuff is about as economical (amount-wise) as injecting it intravenously, and this route produces a "rush" effect quite comparable to mainlining. One benefit of snorting pure cocaine is that one does not have to have needles and syringes and make some attempts for sterility. If the diluted street cocaine is taken as a snuff, there is a reduced "speed" effect on the brain, with the reduction in effect being proportional to the amount of the dilution. Snorting pure cocaine anesthetizes the sinuses and causes them to become dry and irritated and prone to infection. With continued use, this leads to ulceration and eventual perforation of the nasal septum. This effect is not diminished with street cocaine even though the "speed" effect has been reduced. If street cocaine is injected intravenously, there is a reduced "speed" effect, once again proportional to the actual dilution. However, the adulterated street cocaine will be more lethal than pure cocaine. It is impossible to find valid comparative data for the intravenous toxicity of cocaine, procaine, and other local anesthetics in humans, but their intravenous lethality is considered to parallel their local anesthetic potency since their local anesthetic capability is the actual cause of death. The intravenous lethal dose in mice is reputed to be a good measure of the local anesthetic capability in man, and this information has been established with great precision (for example: procaine = 52 mg/kg; cocaine = 19 mg/kg; tetracaine = 7.3 mg/kg; lidocaine = 20 mg/kg; etc.). (5) This means that cocaine and lidocaine have about the same toxicity, that cocaine is 2.7 times the toxicity of procaine, and that tetracaine is 7.1 times the toxicity of procaine and 2.6 times the toxicity of cocaine. One must now remember that the street person injecting street cocaine doses himself to achieve a certain level of euphoric effect -- yet procaine, tetracaine, and lidocaine do not have the "speed" effect of cocaine, while they definitely possess the local anesthetic capacity or the lethal capacity. This means that as the street person injects more of the adulterated street cocaine to get his desired "speed" blood level,

his chances for a toxic reaction increase. If the adulterant was tetracaine, he would undoubtedly be dead before he felt even a taste of euphoria. His chances are best if the adulterant is procaine, but the chance for a toxic reaction is considerably more than if pure cocaine were used. Benzocaine frequently has been reported to be an adulterant for cocaine. Benzocaine is so poorly soluble that it should never be injected. If injected, there is a high chance of blood clots forming in the blood stream, lodging in the heart and provoking a heart attack. The average street person and his drug dealer do not know what is in the street cocaine being sold. Only the "manufacturer" of that street cocaine and an analytical chemist can know the composition of street cocaine with reasonable certainty. Therefore, if street cocaine must be consumed, the only reasonably safe route is as a snuff since the oral route is rarely ever used and mainlining is equivalent to Russian roulette.

May 12, 1973

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References

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(2) Martin, R. T., Econ. Bot., 24, 422-438 (1970).
(3) Cabieses, F., Psychopharmacol. Serv. Cent. Bull., Jan. 1961, pp. 22-24.
(4) Lennard, H. L., Univ. Calif., San Francisco
(5) Luduena, F. P., Hoppe, J. O. and Borland, J. K., J. Pharmacol. Exptl. Therap., 123, 269-277 (1958)

-*Erythroxylon Coca*.

-Coca leaf: under side, usual size.

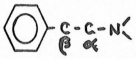




The Editors are pleased to print the following communication. Correct chemical nomenclature is essential for a complete understanding of the chemical structures being discussed.

Re: Chemical Nomenclature of Drugs

On reading Pacific Information Service on Street-Drugs, 2, No. 2 (1972) I noticed the following errors in the chemical nomenclature for amphetamine-like drugs:

1.) For the β-phenylethylamine structure  the trivial name of phenethylamine has been established and this name is being used in the official compendia as the stem for naming simple derivatives of this compound. The name phenethylamine is recognized by the IUPAC Committee on the Nomenclature for Organic Compounds as an established trivial name for β-phenylethylamine (or 2-phenylethylamine).

2.) The chemical name which you have given for (±)-amphetamine (Benzedrine, SKF) of 1-phenyl-2-aminopropane is not consistent with the currently prescribed rules for chemical nomenclature. It is true that one may find this name in the older literature, but it is not the preferred nomenclature. Racemic amphetamine should be named as (±)-α-methylphenethylamine.

3.) The chemical name which you have given to Methamphetamine is also incorrect, according to current IUPAC rules. The chemical name for Methamphetamine should be (+)-N,α-dimethylphenethylamine, which is the chemical name which appears in the U.S.P. monograph for this drug. I am happy to say, incidentally, that our official compendia have finally decided to conform to the internationally prescribed rules for chemical nomenclature. This has not been always true in the past.

4.) The chemical name which you have given for TMA is alright except for the fact that 'amphetamine' has not become an established trivial name to be used as a stem for naming its derivatives. To be correct, TMA should be named chemically as 3,4,5-trimethoxy- α-methylphenethylamine.

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March 28, 1973