# THE SECOND KELYNACK MEMORIAL LECTURE*

# PROBLEMS OF DRUG ADDICTION IN SOUTH AMERICA

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It is not my intention in this paper to refer to every common kind of drug addiction which may be found in South America, as well as elsewhere, nor to describe forms which are seldom observed or which are locally restricted and of minor importance. It will not, therefore, deal with opium smoking by the Chinese population of Peru nor with pulque, chiche, caña, and other strong alcoholic beverages which are extensively used in the different Latin-American countries. It will also not go into the details of the very extensive illicit planting of opium poppy in the northern provinces of Mexico, carried out with the collaboration even of some high provincial authorities, nor with the clandestine heroin production in the same region, also very large: an illicit trade of quite fantastic proportions (this situation, however, recently seems to have improved to a certain degree, thanks to the personal efforts of the present president of Mexico, Lit. Aleman).

The time of one lecture would not nearly be sufficient for explaining these and many other items connected with the subject of drug addiction. Therefore I will specially deal with two problems of great importance today in Latin America—viz., the chewing of coca leaves and the smoking of marihuana.

## The Chewing of Coca Leaves†

It is known that chewing coca leaves is endemic among the indios of Peru and Bolivia, and also practised in some Colombian provinces where plantations exist, whilst the leaves for the chewers in some northern districts of the Argentine are imported mainly from Bolivia. It is, however, less known that this habit is also found among certain Brazilian tribes of the Amazonas, and that, on the other hand, the Ecuadorean indios have given up this habit.

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† The full bibliography is found in a paper which will soon be published.

The coca problem is not only of medical interest, but is also of general importance, particularly as to its social aspect. According to some personal observations which I have been able to make on the spot and from discussions with experienced medical officers of the respective regions, the coca problem must be considered as one of the last links—or the very last one—in a long chain of social and medico-social evils, including poverty, bad housing, insufficient nourishment, poor education, tuberculosis, venereal diseases, and promiscuity.

Historical references, attractive as they are especially in this subject, will not contribute to clear up the coca problem, because accurate criteria for judging the effect of habit-forming drugs have been developed only in the last few decades. Before this audience there is no need to explain that an acceptable definition of drug addiction has been provided only recently, and that we still have no thorough understanding of the process of addiction as it occurs in the body. For all these reasons the question whether the chewing of coca leaves was already known in Peru during the pre-Inca period will contribute nothing to the discussion of the present stage of coca addiction.

Unfortunately in the South American coca problem many prejudices and aims, without a sound basis, have played an unfavourable influence. For a considerable time no progress was made in clearing it up. Coca chewing continued and perhaps even extended to a certain degree. The uncritical book by Mortimer on the "divine plant" (New York, 1901) fortunately seems to have had less influence than was feared. A great literary effort, worthy of a better cause, has been wasted. Many papers and several good books on cocaine effects and on cocainism have appeared, but the coca problem remained almost untouched. The voice of a few articles died away as that of the preacher in the desert.

Suddenly the question has now again become acute, as happens sometimes with a slowly developing process of chronic inflammation. Two items contributed mainly to this new situation, as I see it: (1) The experimental and clinical investigations carried out on modern lines of experimentation and with modern thinking, particularly in Lima by Carlos Gutiérrez Noriega and his collaborators, and (2) the request of the Peruvian Government to send a Commission of Enquiry to Peru at the earliest possible date in order to investigate the effects of chewing coca leaf.

It seems significant that no other country where coca leaves are

chewed has joined the Peruvian request for a visit of the said commission. There may be different reasons for such an attitude. Colombia, for instance, has proceeded for a couple of years in the most active way against coca chewing and coca plantations. In order to avoid serious unrest and even trouble among the indios, the Colombian Government had even to postpone some drastic measures for suppressing the plantations. Its general concept, its attitude, and its aims give no doubt an excellent example of how to proceed. In contrast to this attitude, the opinion, also in learned circles, in Bolivia is not so strongly opposed to coca chewing, only a few clinicians expressing their serious concern over this problem.

Important factors to be considered in the continuance of coca addiction are certain articles extolling the "virtues" of the drug. Such papers and pamphlets have been repeatedly published in Bolivia (less frequently in Peru). Even in 1948 the Society of Landowners of Yungas* stated that the classification of coca leaves among the harmful habit-forming drugs is only the consequence of prejudice. In their opinion, the Bolivian coca leaf is rather a *food* (printed in capital letters in the original), and certainly one of the most complete ones. They also state that an analysis of the leaves in a "renowned" laboratory of the U.S.A. (but the name of which was not quoted) gave excellent results, particularly as to the amount of vitamins they contained (figures are not given). Everybody who is only slightly familiar with the subject understands what all these many words really mean. Their sense becomes evident when the authors refer to the "tonification of the National Treasury" and to their wish to export these leaves to European countries "where hunger makes ravages among the inhabitants." In respect to the resistance against a widespread use of the coca leaves, the reader is referred, in the pamphlet, to the great resistance which was "likewise" shown to the potato at the time of its introduction into France. It is certainly tempting to use good historical knowledge. In this case, however, we feel obliged to quote a phrase of Legrain, who said of a similar situation: "They have a pouch of money instead of a heart."

We are here, of course, considering only the chronic use of coca leaves, the coca habit, the coca addiction, and not the

* The humid regions of the forests below the slopes of the Peruvian and Bolivian Andes where the terraces of the coca plantations are found. The chronic chewers of coca leaves are called "coqueros."

occasional administration of the same leaves for alleviating mountain sickness in the Andes (the well-known "soroche" or "puna") which may become very severe, or even fatal, and for which the chewing of coca leaves is considered a quick and reliable remedy which can be used without danger.

It might be emphasized at this point that we must be careful not to exaggerate in painting dangers of habit-forming drugs. It will sharpen our arms if we keep to the narrow path of the scientific truth. The experiences collected in the campaign against alcoholism, much earlier and carried out much more extensively and intensively than that against habit-forming drugs, teaches us that exaggeration leads to nothing but the danger of ridicule; that a good cause will lose through overstatement, that a drop of spirits after an exhausting day's work generally does no harm to a healthy person, and that the famous pharmacologist was right when he said that in the evening the brain might be cleaned with some alcohol. I am quite aware that not everybody will share my opinion, and that the aim of this lecture is not to discuss the alcohol problem; the campaign against alcoholism (as well as help for alcoholics) is certainly the aim of all of us, although the way we go about it may be somewhat diverse. I must therefore ask your pardon for having touched on a problem which, in fact, does not belong to my subject; but it offers a good example of comparative illustration. An occasional drink generally does no harm; neither does the chewing of coca leaves on certain occasions and with a sufficient indication.

With these explanations I do not want to say that coca leaves are an indispensable remedy against mountain sickness. But as far as coca leaves are available, their administration in the above-mentioned case is permissible.

It must be stressed that cocaism (viz., addiction to coca leaves) is not quite the same as cocainism. The phenomena and sequelæ of cocaine addiction are generally known; the addiction *per se* is recognized as such. Cocaism has its own symptomatology; it must be judged from other angles than cocaine addiction. Conditions, circumstances, and consequences are different from those of cocainism.

The symptoms of coca chewing and likewise the reason for using these leaves have been known for a long time—that is, the suppression of the sensation of hunger (cheating the stomach), the increase of corporal strength, a certain euphoria, etc. Under the influence of coca the working disposition of the individual can

reach the limits of frenzy, and his mental state can reach megalomania. But when the effect ends, the indio feels again all his misery. Owing to the coca effect, he lives thus permanently between two extremes.

It will be readily understood, without further explanation, that chewing coca leaves for pleasure and eating regular, normal meals are incompatible. Moreover, the action of coca is much stronger when fasting, and the indio therefore deliberately avoids or postpones eating. The harmful consequences of such a procedure are obvious. Apart from the general effect, the local action of more or less strong alkali taken together with the coca leaves has undoubtedly a noxious influence on the gastric mucosa. It is interesting to note that—as so often happens—the indios found empirically what only recently has been experimentally proved—viz., that vegetable ash increases the solubility of basic cocaine in water.

The few authors who are favourable to coca chewing have always insisted on the fact that life, and still more work, is impossible at the altitudes of the Andes without the help which the coca leaf affords. Assertions of this kind are quite deeply rooted in the minds of many people in general and—astonishingly—even in the opinion of a few, a very few investigators of renown in other fields of science. I admit that it is not very easy to come to an objective judgment in this matter. There are, however, some more recent facts which help us to form a sound basis for our opinion.

One of these facts is the result achieved in evangelized colonies among the indios, to which particularly Ricketts refers. It is one of the best examples in so far as it provides control of such observations; for the general conditions of life among the evangelized part of the same tribe have much improved; they do not continue to suffer, physically as well as mentally, from primitive and miserable conditions, and are therefore susceptible to the elimination of coca addiction. Education of the young indios in this sense will certainly lead to complete success.

Another striking example has been quoted in a book recently edited by a Colombian medical officer (Bonilla Iragorri): the members of the same Indian tribe who lived on one bank of a river did chew, but those on the other bank (which belongs to another proprietor) did not; the explanation may be that the latter ones enjoyed a somewhat better economic situation. Thus general conditions are important.

A further proof has been given by the late Argentine physician Angel M. Giménez. In 1911 he had the opportunity to visit some mines in the Argentine Cordillera at 7,500 m. altitude. There the whole personnel, all Chilean natives, worked many hours per day without taking any artificial stimulant, but received good alimentation. The same was the case at the Transandean Railway.

We can refer to many more items which bear out my opinion: the working population of Peru was not allowed to chew coca leaves during the Inca period, where they had to accomplish very heavy corporal tasks; many populations at the same or even higher altitudes in South America and in other continents live and work without coca; not all the inhabitants of the Peruvian altitudes are coqueros; at the same altitude, not all the workers chew, and the best ones are those who do not.

A physician with long experience in the respective regions, Dr. Ortelli of Salta (north of the Argentine), insists that the saying that " it is not possible to travel in the Andean mountains without coca " is nothing but a local saw.

Furthermore, coca chewing is in no way an exclusive medium of adaptation to the high altitudes, but also found, deeply rooted, at the coast.

We do not yet know whether the physiological and pharmacological reactions of the human organism at high altitudes, particularly those of the vegetative nervous system, are different from the usually known ones; absorption can be different, etc. There exist some earlier observations on this subject. Recently, Monge, in Lima, has stated that the reaction to drugs in the hypoxic atmosphere is quite distinct from that at sea-level, that, for example, intravenous doses of atropine, three times as much as those given to the men of the coast, are supported without producing any symptoms of intolerance. Furthermore, recent studies carried out by A. von Muralt and collaborators in Switzerland, showing reactions different from the normal at high altitudes, may be able to throw a new light also on the coca problem, particularly with respect to quantitative effects. There are many open questions, and there exists some justification for the hope that at least some of them will be solved in the near future.

These new lights on an old problem will, however, not alter the fact that coca chewing is harmful, and they cannot influence our conviction that there is no scientific basis for the " necessity " of coca for life at high altitudes (which Cabieses Molina, pupil of

Monge, in vain endeavours to demonstrate; we say "in vain," because new findings may be able to explain facts, but cannot change them).

We believe that the given facts demonstrate more than sufficiently that there is *no* real need for chewing coca leaves at high altitudes.

It is certainly human to look for something beyond bare necessity. If chewing coca leaves is agreeable, why are we fighting as hard as possible against this habit? Because it is absolutely proved to us that the coca chewing is harmful, not only for the individual but also for the race. The only explanation I have for the attitude of the defenders of coca is that they do not recognize facts which in my opinion are decisive.

These "wonderful leaves" do not constitute nourishment, as persons interested in the commerce of them claim. The truth is that the usual food of the indio is not appropriate, that it often causes intestinal colic, meteorism, gastric acidity, and other gastro-intestinal as well as hepatotoxic troubles, producing a high percentage of the so-called "megacolon indigena andina" (Aliaga Suárez). The indio anæsthetizes these troubles with coca, certainly not a reasonable method of cure. The coquero is also less resistant than the normal person to the endemic and epidemic diseases of the mountains. According to Sáenz the suppression of coca chewing would eliminate 90 per cent. of the ailments of the man of the Sierra. The assertion that the coquero is particularly strong and healthy certainly does not correspond to the truth.

Modern investigations of the coca effect on the mental activity of habituated persons show the following and other symptoms: alterations of the perceptions to an individually different degree; visual, auditory, and cenesthetic illusions; alterations of the perception of time, in graver states fantastic visions; macropsy, micropsy, dysmorphosy, personalization of objects, sensation of having an enemy at the side (where there is nobody); very frequently paraidoly, pseudohallucinations, and fantastic visions; alterations of thought, eidetic representations and obsessions, disordered thinking, automatism of thinking, etc.

The intelligence quotient of chronic coca chewers is very low (Binet-Somon test). The more inveterate coca addicts have the lowest mental ages (varying between 3 and 10 years; not addicted control persons, 12 to 17 years). This is the result of the synergistic actions of several factors, the coca habit being one of the most important among them.

The difference between young and adult indios is characteristic: the youth, not chewing coca leaves, is gay, communicative; the adult, already coquero, has a more introverted mentality which generally is ascribed to the coca effect. It is true that coca plays the major part in it, but there must be added ideas of inferiority, sexual precocity, and chronic hunger for generations, together with abuse of alcohol. This burden has undermined the biology of the aboriginal races. However, the natural biological strength of the Indian race is so great that many years of bad influence have not—or not yet—exhausted their bio-psychic qualities which without this handicap would be splendid.

The indio who does not chew coca leaves is clear-sighted, intelligent, and light-hearted, willing to work, vigorous, and resistant to diseases; the coquero, on the contrary, is abulic, apathetic, lazy, insensitive to his surroundings, his mind is befogged; his emotional reactions are rare and violent, he is morally and intellectually "anæsthetized," socially subdued, almost a slave.

The observation of his automaton-behaviour is confirmed by different authors. Observing two workmen, it is easy to diagnose immediately which of them is a coquero and which is not; for one is behaving like an automaton whilst the other is a conscientious worker.

The children of coqueros are markedly deficient in intelligence; some are unable to learn to read in three or four consecutive years of instruction. They often start already at the age of 8 or 9 years to chew coca leaves, which may constitute an explanation of their retarded development.

Moral degeneration accompanies the physical; lying is one of the outstanding characteristics, probably due to lack of moral equilibrium. Criminality is high, and barbaric forms of homicide can only be explained by a certain moral insensibility.

There is no doubt that the habit of chewing coca leaves is one of the most powerful reasons for the backwardness and misery of the Indian population. Coca is "the tyrannical leaf of the race" (Paz Soldán), and it offers a "tremendous dilemma" between economic interests and public health problems. That is the real truth. For us who have only to deal with public health, there exists no doubt as to the way to be followed—namely, the final suppression of coca chewing. This aim certainly is not a chimera, but a possibility which can be realized; in the prehispanic period, for instance, the real coca habit among the population did not exist.

What would seem to be the most appropriate method of procedure? Certainly not compulsory measures—for example, demolishing the plantations at short notice; this could only lead to a revolt of the indios. Also buying up the plantations is not the best method; the indio would probably spend the money on drink or on new coca plantations.

The remedy of the moment is gradual disintoxication of the native, diminishing the production as well as the consumption of coca by means of a suitable education; by abolishing the superstition of the magic action of coca and the cult of the leaves; by prohibiting initiation of young children in its use; compensation of labourers with coca; and substituting better alimentation by regularizing the work in the camp and in the mines.

Only with skill and patience can coca addiction be abolished, but it can be done.

## The Smoking of Marihuana*

Whilst for chewing coca leaves some more or less reasonable explanation can be found, the smoking of marihuana has to be considered always as a vice in the sense that vices are acquired ways of conduct which are considered immoral or injurious and are characterized by antisocial trends.

It can also be said, with some assurance, that vices are different from and stand in a higher "category" than instincts, emotions, and passions, from which they should be differentiated (although a passion may degenerate into a vice.) I believe we have to make this situation quite clear in order to be able to classify the different habit-forming drugs in the right way. But on the other hand, as physicians, we are aware of the depths of the human soul and must not moralize on the conduct of our neighbour, and in this sense I may quote one of the maxims of La Rochefoucauld which should shield us from a pharisaical attitude and in which he says: "Il semble que la nature ait prescrit à chaque homme dès sa naissance, des bornes pour les vertus et pour les vices."†

The resin of cannabis indica, Indian hemp, has many different names in the different countries where it is used, and also has

* For many details and bibliography see P. O. Wolff, *La Marihuana en la América Latina: La amenaza que constituye*. Buenos Aires, 1948, Ed. El Ateneo. Translation, *Marihuana in Latin America: The Threat it Constitutes*. Published by the Linacre Press, Washington, D.C.

† "It seems as though nature laid down for each man from birth the limits of his virtues and of his vices."

different ways of administration. It is known as hashish, as kif, as bangh, etc., and in both Americas as marihuana (in Brazil, maconha). It is estimated that throughout the world some 200 millions are users of this drug. An amazing figure, indeed, but perhaps less surprising when it is taken into account that it is the only drug of its kind that can be consumed without previous chemical processing and that its price is within the reach of the poorest. Furthermore, while wine is forbidden to Mohammedans, the Prophet has said nothing about hashish, which may explain why, among his believers, there are large numbers of friends of this resin.

Already on earlier occasions I have referred to the threat presented to the South American continent by marihuana, indicating, for example, in 1940 the appalling manner in which since about 1930 its use had become widespread in the United States. The development in some countries, particularly in Brazil, shows that our warning at that time had not been exaggerated. The spread of the use in that country possibly presents the most instructive example for our thesis.

An extensive but almost isolated centre has been known to exist for some time past in the north and north-east of Brazil, in the ancient provinces in which African negroes are numerous. " Poor man's opium," as marihuana is called in those regions, has a magical attraction for many individuals in those parts.

The local names for the drug seem to indicate that the penetration of marihuana into Brazil is due to the negro slaves. Accordingly, the addicts are found more particularly in the lowest strata of the population, among individuals less favoured by fortune, and more among men than among women. But there are also whites—and, of course, mestitos—who smoke maconha. It is not only employed for relieving daily sufferings, but in the country districts also as an household remedy, somewhat like opium in India, as an appetiser, as a digestive, as a general tonic, and as a hypnotic. Mexico is the other big centre for the marihuana " industry."

There are many in Brazil, Mexico, Cuba, etc., who prefer to smoke marihuana collectively, but parties of this kind are not friendly gatherings but rendezvous of the vicious. The friend of marihuana can, therefore, be classified as a " gregarious " addict. Occasionally, the custom of communal smoking is due to religious rites of secret societies which follow a meticulous ceremonial filled with superstitions, magic, and mysticism.

A pipe similar to the Turkish nargile is used, but nowadays large corn-husk cigars are passed among the participants of these "club" meetings; still more in vogue at present are individual cigarettes, not precisely for hygienic reasons but for greater personal convenience.

During these meetings, a scene is often presented typical of the old-time madhouse: men in a complete state of intoxication, delirious hilarity, with all the intermediary stages; flights and pursuits, cries and uproar, indecent songs and bawdy verses, always dedicated to the drug and in which African words are intermingled; some, already in a furious state or in an aggressive attitude, become dangerous; others, in a state of prostration, languish or, exhausted, sleep profoundly.

In the different Latin-American countries where marihuana is smoked there are different customs. In Mexico, for instance, the atmosphere at such gatherings is joyful and replete with the convivial warmth of banquets. Passing the great marihuana cigar to his neighbour, the smoker brings his mouth against his in order to pass on to him also the smoke which he has inhaled. Each of those attending takes a total of thirteen puffs (a religiously significant figure), and at the end of them finds himself as a rule in a state of hallucinatory excitation.

I assume that the general effects produced by marihuana are known; therefore I confine myself to recalling that the psychic phenomena are more accentuated and, in the long run, more important than the corporal ones. Especially evident is a state of euphoria with hyperexcitation, motor inco-ordination and general exaltation, automatism of the cerebral functions, mental instability with psycho-sensorial disturbances. This reaches a point where anxiety appears, innumerable illusions and hallucinations, a subacute state of delirium—depending upon the personality of the individual—and, in some cases, a phase of mental episodic confusion. Furthermore, there is a general loss of notions of time and space to such an extent that minutes appear to be hours and centimetres metres. There are certain schizophrenic aspects, and a weakening of the will-power with noteworthy suggestibility. Under the influence of marihuana the subject reveals his subconscious tendencies and his true instincts.

Numerous psychologists have demonstrated that suggestion penetrates to the automatic centres of the mind and is independent of the superior powers of self-control; in short, it con-

stitutes, according to the well-chosen expression of Forel, "the subconscious realization of an idea." In intoxication from marihuana, the subconscious centres are in some way freed from the inhibitory influence of the conscious centres. Therefore, the essence of the ecstatic visions of the dreams, and, particularly, of the illusions, hallucinations, and acts performed under the influence of the drug, nearly always corresponds to the real personality of the individual. Now we can explain the differences between the voluptuous dreams of the Orientals and the less happy reactions of some Westerners; the homicidal mania (amok) of some persons and the poetical ecstasy of others; the intimate visions of Théophile Gautier, and the frank confessions of Charles Baudelaire regarding the man who tried to be God but who, because of an inviolable moral law, soon fell beneath the lowest level of his real nature and sold his soul in fragments.

I may be excused if I cannot consider here all the most important and interesting details of a psychic nature (which have been described in my booklet). The point which I want specially to emphasize, and for the consideration of which the foregoing remarks are necessary, is the *criminogenic* influence of marihuana.

It has been known for a long time that marihuana has a provocative action towards the commission of offences or crimes. I refer to previous publications and to my lecture before the Argentine Society for Criminology. With the exception of a very few, all authors agree with this opinion. Auto-observations of physicians confirm these statements. One example may be given: A young Brazilian physician undergoing a clinical experiment with marihuana recognized the high degree of suggestibility in which he found himself, and asked his colleagues not to suggest certain acts to him, such as assaults, because he felt capable of committing them at that instant! This observation shows, furthermore, that the marihuana smoker actually realizes what is happening, but without being able to prevent the succession of events.

The violent reaction manifested which eventually may end in crime, especially by mentally unstable persons, is the frequent consequence of the feeling of insecurity experienced by many marihuana addicts. This may even appear in the form of persecution delirium, reactions of terror (a characteristic attribute to the effects of marihuana), or "defence" against enemies or assailants who exist only in the hallucinated imagination. The supposed "defence" is therefore in effect an attack, and the man

suffering from the hallucination seeks his weapon and uses it, or adopts similar attitudes.

Very many cases of this nature have been observed in Mexico, and also in other countries where marihuana smoking is widespread. The best analysed case, however, has been published by J. Delay in Paris. A young man, living separated from his family (he did not get on with his stepfather), smoked five cigarettes of a "magic herb" which his friends offered him, without really knowing what it was all about. The following day he presented himself at the police station stating that he had killed his stepfather. The police went with him to the home, where the stepfather was lunching quietly. In his dreams the young man had committed a crime of which consciously he never had thought.

This case, and a few more of the same kind, indicate, to my mind, the rôle that marihuana can play not only in executing crimes planned beforehand, but also as a breeder of crime. Marihuana is thus in some cases a *criminogenous* substance.

Brazil, Mexico, Cuba are the Latin-American countries most affected by marihuana addiction, but it appears in lesser or greater degree in other countries such as Colombia, in Central America. In the Argentine only recently instances of imported marihuana cigarettes—and one or two cases of private plantations in gardens—have been discovered. The police of Buenos Aires have immediately taken the necessary steps for suppressing and controlling such abuse. But these cases show that the threat unquestionably exists. The growing extension of marihuana smoking in Brazil during the last four years gives one to think. And yet, in 1941, the competent authorities in Brazil assured me that there was no danger of its spreading. My doubts, expressed at that time, were not so unfounded as they may have appeared. Now it has already spread from the above-mentioned northern provinces to Rio de Janeiro; the competent authorities have recognized that my prophecy and misgivings unfortunately are being fulfilled in Brazil.

It has been impossible for me to present in a lecture a more extensive picture of these forms of addiction; my only aim has been to explain to you that in Latin-America there exist two main problems of this nature: coca chewing and marihuana smoking.