LAFFONT (M.)

Erythroxylon Coca ; its Value as a Medicament.

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By MARC LAFFONT, M. D., Paris,

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During the last few years the therapeutic use of coca has been so greatly extended that it may be interesting and useful as a *résumé* to enumerate its many applications.

Although coca has, from its earliest introduction as a pharmaceutical product into France, enjoyed the highest professional recognition, this South American plant can hardly be said to have entered into current therapeutics. It is only since the discovery of the scientific application of the alkaloid of *Erythroxylon coca*, and since the important essays on the drug and the experiments made with it, that physicians generally have studied and recognized its therapeutic value.

It is well remembered how, in former years, the virtues of the salts of quinine were held to entirely supersede those of cinchona; in like manner this inevitable error has arisen with coca, its alkaloid, cocaine, only having been considered by many.

In consequence of the tests made with cocaine, which, from a physiological point, have established the dose and

the limit of its toxic effect, and, from a medical view, have brought to light cases of abuse which have resulted in more or less serious accidents, many have been led to regard the plant coca itself as a dangerous drug.

The proof of the therapeutic value of the coca leaf is clearly shown by the many excellent results obtained in practice with such reliable preparations of the drug as have been furnished the profession by that worthy pharmacist, Mariani.

As to the comparison which many of our *confrères* make between the preparations of cocaine and coca, we do not fear to state that, however sound may be the theory of preferring to administer certain alkaloids to administering a preparation of a plant of which the virtues vary according to where and how it was gathered, the place of its cultivation, its quality, and the constitution and nature of the preparation—we repeat, we do not fear to state that in the majority of cases, as the alkaloid does not contain all the active principles of the plant, it can not be preferred, except in special cases where the particular action of the alkaloid alone is desired.

The fact is well established that the salts of quinine can not replace the extract, the wine, or the powder of cinchona, the tonic principles and the essential oils of which have, without doubt, shown a special therapeutic value; and I need merely cite the indisputable success obtained by Professor Trousseau with the powder of cinchona in checking malarial fevers which had resisted even the largest doses of sulphate of quinine. More especially cocaine can not replace all the active principles and the essential oils of the leaf of *Erythroxylon coca*, as has been proved from the time of the earliest discovery and use of this plant.

In 1887, at the Institute of France (Académie des sciences), and in 1888 at the Académie de médecine, I demonstrated that coca, by virtue of its active principles, had three very distinct separate actions (published in the "Proceedings"):

1. As an anæsthetic, acting upon the protoplasm of the terminations of the sensory nerves, preventing the transmission of painful sensations to the centers or the unconscious sensibility of Bichat.

2. As a nerve tonic, producing functional excitement of the cerebral and spinal nerve centers and increasing the intellectual and muscular activity.

3. As a tonic to the unstriped muscular fibers of the stomach, the intestines and the bladder, producing functional excitement of the constrictor action of the great sympathetic nerve, with consequent functional exaltation of all the smooth muscular fibers or muscles of organic life.

The dissatisfaction produced and the complaints which are made that the plant is wanting in uniformity of quality and is unreliable in producing the desired effects, are due to the varying quality of the preparation.

An essential requisite to produce reliable uniform preparations of coca is a thorough knowledge of the origin of the leaf, its nature and its quality.

Careful study and researches made by Mr. Mariani for many years as to the origin, the nature, the species, the culture of the different leaves of coca, and the care which he gives to his preparations, have been the means of placing at our disposal products uniform in quality and unvarying in their effects in those varied cases where their internal administration is called for.

I will cite but a few names among those of my many

confrères whose recorded experience with the Mariani coca preparations coincide with my own, which I am about to set forth, based upon continued observation in hospital and private practice.

It has long been known that the natives used the coca leaves to lessen fatigue, to keep up the spirits, and to appease the cravings of hunger.

The first and main application of the "vin Mariani" is, therefore, as a general tonic for persons either physically or mentally overworked (Brown-Séquard, Germain Sée, Dujardin-Beaumetz, Ball, Bouchut, A. McLane Hamilton, A. E. Macdonald, A. L. Ranney, L. C. Gray, L. Weber, Carlos F. Macdonald, J. Leonard Corning, H. M. Lyman, I. N. Danforth, P. S. Conner, J. K. Bauduy, C. H. Hughes); in convalescence after lingering wasting diseases, where nourishment is needed and where it would be dangerous to overcharge the stomach; with all whose recovery is tardy from wasting or constitutional weakness; in chlorosis, anæmia, and rhachitis (Ch. Robin, Durand Fardel, Gubler, De Piétra-Santa, Fordyce Barker, Isaac E. Taylor, A. L. Loomis, W. T. Lusk, F. P. Foster, C. C. Lee, J. J. Henna, L. L. McArthur).

It is further used in diseases more specially referable to atony of the smooth muscular fibers, among which we class atony of the stomach. In dyspepsia, in those very common cases where this organ has become weak and torpid, is distended, and fails to secrete gastric juice, coca is well indicated (De Saint-Germain, Cottin, Dieulafoy, Salemi, Companyo, Rabuteau, A. J. C. Skene, P. A. Morrow, T. C. Giroux, Hunter McGuire, E. R. Palmer, O. O. Burgess, J. R. Leaming, Daniel Lewis, T. E. Satterthwaite, W. H. Pancoast, D. F. Woods, J. N. Hyde, LeG. N. Denslow).

It is also serviceable in weakness of the vocal cords,

in the case of ministers, singers, actors, teachers and orators (Ch. Fauvel, Morell Mackenzie, Lennox Browne, Botkine, Cozzolino, Zawerthal, Poyet, Coupard, Fraenkel, Marius Odin, Labus, Massei, Louis Elsberg, R. P. Lincoln, Beverley Robinson, W. C. Jarvis, H. H. Curtis, C. C. Rice, C. E. Sajous, E. Fletcher Ingals, H. Schweig, T. R. French).

It is, moreover, of value in weakness of the vascular organs, with the anæmic, the plethoric, where, principally on the face, the small blood-vessels show enlargement or venous arborescence which points to a similar state in the vessels of the nervous centers. The same vascular weakness is also observed with the varicose, in whom coca is indicated ; likewise with the paraplegic, with whom it regulates the circulation of the nervous centers (Bernard, Bétancès, Landowski, Casenave-Delaroche, Gazeau, Rabuteau, V. P. Gibney, Robert Newman, E. B. Bronson, J. E. Janvrin, B. McE. Emmet, W. O. Moore, W. J. Morton, D. W. Yandell, J. H. Etheridge).

It may be also as a regulator of the nervous centers that the infusion of coca known as Thé Mariani produces such marvelous results in mountain-sickness, in sea-sickness, and in the vomiting of pregnancy. It is well remembered how this preparation sustained the illustrious General Grant during several months (Cuffer, Letellier, Dérrécagaix, Trossat, Bouloumie, Dechambre, Fordyce Barker, G. F. Shrady, J. H. Douglas, H. T. Hanks, G. R. Fowler, J. M. Keating).

From a psychological point of view and from mental pathology it may be stated that coca is the only drug which successfully combats melancholia, low spirits, and all forms of depression of the nervous system, upon which it acts " like fulminate," to use the felicitous expression of Professor Gubler.