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**NOTES**  
ON  
**CROUP IN THE CITY OF MEXICO,**  
AND PROPHYLACTIC MEASURES AGAINST ITS GROWTH.

IN undertaking the study of Croup and especially that of its prophylaxis, which is the theme and topic of this short paper, it is necessary first to advise, that without having the remotest intention of joining the debate that has been sustained for some time back, on the etiology of diphtheria, or much less to decide whether the etiological unity agrees with the anatomical identity, and without trying to establish a landmark in the field of discussion already sufficiently confused, especially in the German school, I declare, that for my part, on referring to diphtheria and Croup, I do so exclusively to the *infectious, specific* disease, which preferably attacks children and which is characterized by the presence of false membranes that usually invade the amygdalas and the uvula (laryngeal diphtheria) or perhaps they place themselves in different sections of the respiratory wind-pipe, especially in the larynx, constituting then the true Croup or in other words laryngeal diphtheria.

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The historic notes relating to diphtheria date back to remote epochs. In the time of Pythagoras, that is to say 592 years before the christian era, the Indian physician D'hanvantare spoke of an incurable disease that affected the throat, obstructing the aerial canals, and accompanied by febrile symptoms, and which was, according to him, due to a combination of the lymph and blood.

Arathens of Capadocia, in the year 50 after the birth of Jesus Christ, drew with a masterly hand, the symptomatic table of diphtheria and Croup, and Galens in the second century already spoke of pseudo-membraneous expectoration, noting that if these fragments were expelled by coughing the affection was of the larynx, and if they were thrown out by simple expectoration then the illness was localized in the pharynx.

Coelius Aurelianus, treating of the hoarse and opaque sound of the voice and even its complete extinction, also makes reference to noisy respiration, to the livid appearance of the face and to the expulsion of aliment through the nose. According to him Asclepiades, who had made some observations on malignant quinsy, indicated from that time something about tracheotomy.

In the Talmud the word *askara* is often found applied to a disastrous epidemic which reigned from the second to the fourth century and which, from the character assigned to it, can be no other than diphtheria.

Baronius treats of the epidemics that desolated Rome in the years 856 and 1004; Franck de Wörd relates of one that invaded Germany in 1517; Gutierrez de Angulo, who died in 1522 produced many writings, in vain, on quinsy, which proves that such an illness existed in Spain at the beginning of the sixteenth century and Middleton with a collection of data relates the chronicles of the epidemics that invaded New York in the years 1752 and 1755. [\*]

[\*] Francotte.=La diphtérie.



Homme, the noted Scotch physician, wrote a brilliant study on Croup in 1765 and on the appearance of his work the distinction was made between simple, inflammatory Croup and diphtheric Croup. But, in spite of the long series of studies undertaken in previous centuries, Croup has only been well studied in the present century, in which Bretonneau, Blanche, Guerssant and Trousseau have proclaimed and brilliantly sustained the specific character of the disease. To this group of illustrious men succeeded others, who, with the greatest enthusiasm, consecrated themselves to the parasitic study of the illness, among them being Jodin, Buhl, Talamon, Tommasi, Eberth and Letzerich.

In spite of this, Klebs was the first to point out in 1883, a special bacillus of diphtheria, and a little later in 1844 Löffler succeeded in isolating and keeping up this bacillus, reproducing by inoculation the false membranes in pigeons, chickens and rabbits. But the glory of giving an enviable epilogue to such a laborious work was reserved for Roux and Yersin, who were able to show clearly and satisfactorily the active part taken by the only agent in diphtheria, the bacillus of Klebs, thus bringing to light the pathogeny of this illness, so obscure and confused until then. [\*]

The history of diphtheria and Croup roughly sketched, and before referring to the microbic character of both affections, which differ only in point of locality of the false membranes, to deduce afterwards from its own etiology the more treated prophylaxis, let us pass in review the data and reasons that authorize us to suppose that Croup was entirely unknown in Mexico until the unfortunate epoch of the French intervention when it was imported by their soldiers, in the same way that the plague of small pox was introduced into this country by the Spaniards in the terrible days of the conquest.

Therefore it appears most strange that before the year 1863, no medical writing or communication made to the

[\*] Fhoiot. = *Precis de Microbie*.

national, scientific bodies treated of Croup; and it is also noticeable that, treating of such a terrible illness, which justly inspires the greatest terror in families as much for its excessive danger as for its marked contagious character, it is noticeable, I repeat, that not the slightest official or statistic data exist, either in the special Government Offices or in the archives or newspapers of our medical societies. And to this very significant silence must be added, that after that epoch, communications abounded from distinguished professors on the first cases that came under their observation.

Of this nature were the communications made before the Academy of Medicine of Mexico, by Drs. Iglesias and Rodriguez amongst others, for the years 1866 and 1871.

Dr. Lobato, in an extensive study presented to the said Academy in 1872, affirmed that in the State of Guanajuato, where he then practised till the year 1865, laryngeal diphtheria was known to the doctors resident there, only from the tables given by European authors and that its definite introduction took place when the French invasion was at its height, owing principally to the continual arrival of French troops.

In 1874, Dr. Agustin Andrade, who possessed profound learning and was of a grave and severe character, in fact a perfect type of honor and loyalty, on referring to the Academy to a case of Croup observed in his immense practise, said: "As is well known, the croup of children appears to have been recently imported into Mexico, and although from day to day cases of this illness multiply, yet it is still rare, more rare in adults and most rare in old people." [\*]

The eminent Dr. Lucio, who with legitimate pride can be cited as a stamp of honor to the National school of Medicine, said that together with the no less distinguished Dr. Miguel Jimenez, he had been able to observe at that time one of the first cases of Croup that had been known in the city of Mexico, and in his wise and correct oral lectures given in his

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[\*] Gaceta Médica. = Tomos del 1º al 20º.



capacity of Professor of Pathology of the School of Medicine, he frequently repeated that before the year 1865, Croup was entirely unknown here. [\*]

Lately, Dr. José P. Gayon in his lecture, presented to the concourse invoked by the Academy of Medicine, referring to diphtheria, says: "I have thought it advisable to make this short summary on account of the disease being so interesting in many ways, and since 1862, *when it came into the country with the French Invasion*, it has been naturalized amongst us, as is proved by the deaths it causes, and which are registered every year.

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The history of diphtheria faithfully traced since it came to us, shows that in truth, deaths caused by it, are registered every year, but it also shows that in this Capital it has never caused such ravages as in most capitals of Europe and the United States, and that, at least until now, it has not assumed the epidemic character that has repeatedly desolated so many places in both Continents.

To demonstrate the first point we will have recourse to the inflexible logic of figures, supplied by the statistic data of other nations, comparing them at the same time with ours.

Taking the same year, that of 1883, for the Capitals of Europe and the United States of America, we find in the *demographic Statistic and Medical Summary* by Dr. Janssens, whose claim in questions relating to Hygiene is above all praise, the following data on the mortality occasioned by diphtheria and croup combined:

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[\*] Lecciones orales del Profesor de Higiene en la Escuela Nacional de medicina. Curso de 1892.

Brussels.....	158	Naples.....	364
London.....	1,776	St. Petersburg....	1,232
Paris.....	1,916	Madrid.....	1,072
Berlin.....	2,917	New York.....	910
Philadelphia.....	1,487		

In Mexico 60, according to statistic data published by the Superior Board of Health.

For more clearness and again using the data of Dr. Janssens, let us see the mortality from diphtheria in relation to the number of inhabitants.

The figures on the population of each Capital we have taken from the Text and Universal Atlas of Zerolo, edition of 1891.

CAPITALS.	Number of inhabitants.	Deaths.	Died from every 10,000 inhabitants.
Brussels.....	190,000	158	8.31
London.....	4,352,900	1,776	4.08
Paris.....	2,500,000	1,916	7.66
Berlin.....	1,574,500	2,917	18.52
St. Petersburg.....	1,000,000	1,232	12.30
Madrid.....	482,000	1,070	22.21
Naples.....	517,000	364	7.04
New York.....	1,628,000	910	5.59
Philadelphia.....	1,050,000	1,487	14.16
Mexico.....	330,000	60	1.87

Not wishing to limit to one year the proof of what we have asserted on the non-epidemic character of diphtheria in the city of Mexico, we will amplify the statistic data to a period of ten years, and by the following figures it will be seen that we are justified in one assertion. (1)

(1) Memoria del Dr. Demetrio Mejía. Año de 1879.



## DEATHS FROM DIPHTHERIA AND CROUP.

In 1869 . . . . .	29	In 1874 . . . . .	58	} TOTAL 586.
„ 1870 . . . . .	59	„ 1875 . . . . .	50	
„ 1871 . . . . .	48	„ 1876 . . . . .	72	
„ 1872 . . . . .	54	„ 1877 . . . . .	80	
„ 1873 . . . . .	56	„ 1878 . . . . .	100	

In Paris, in the same period of time, according to statistics by Ernest Besnier, the number of deaths amounted to 16,290.

Supposing then that Mexico, like Paris, had 2,500,000 inhabitants, the mortality would have been 4,439, that is to say that the result in favor of the inhabitants of Mexico would have been the considerable number of 11,851 individuals.

As is perfectly well known, age is no safeguard against diphtheria. Washington, the illustrious liberator of the United States of the North, died from croup at the age of 68 years; the martyrdom of foreign doctors, victims to their fidelity to professional duty, is frequent, counting in this number the eminent physician, Valleix.

Fortunately the same does not happen with us, owing to the infrequency of croup in adults.

In 5 years—from 1881 to 1885—in Mexico, according to data of sex and age, only six adults died, divided in the following manner:

	MEN.	WOMEN.	
In 1881 . . . . .	0	1	} 3 MEN.
„ 1882 . . . . .	1	0	
„ 1883 . . . . .	0	0	} 3 WOMEN.
„ 1884 . . . . .	2	1	
„ 1885 . . . . .	0	1	

With regard to the mortality in reference to age, the largest number is embraced between the ages of 1 and 7; with reference to sex, there is very little difference and as to seasons of the year we will say that there are more cases in Spring, and next in Winter, being the same rate in Summer and Autumn.

Calculating, therefore, with due impartiality from the data referring to the increase of diphtheria in Mexico, we cannot but declare, with certain justifiable pride, that if the statistic of deaths from Typhus are terribly discouraging, those from Tuberculosis, on the contrary, are far from being so fatal as in several of the European Capitals, and the data concerning diphtheria and croup can be called flattering.

Considering the not far distant importation of this illness, and that in Mexico it shows no tendency to an epidemic form, that it is mild and rare in adults and that it has not reached the terrible force that it acquires in other countries, it is not over venturous to suppose that with rigorous preventitive measures, energetically carried out, this terrible disease could be, if not altogether extinguished, at least made so rare that its victims would be few.

To this end tend the final conclusions we are about to make, after giving a rapid glance over the theories that today reign, under a microbiologic point of view without reference to diphtheria. Today, as a positive result of the fine and admirable works of Messrs. Roux and Yersin, we are in possession of a most important series of data, which by conscientious and rigorous proofs and experiments have been elevated to the position of scientific axioms. These two clever experimentalists have proved that the bacillus of diphtheria is only found in false membranes, and never in the organs or the blood; they have succeeded, besides, in reproducing false membranes and provoking characteristic paralysis in animals, and what is still more conclusive, they have evidenced the diphtheric poison and proved that when this is injected alone without the living microbes, the animals die quickly from intoxication. This poison, which Thoinot says, they have succeeded in making tangible by means of their filtered breeds in porcelain after the liquids have been 7 days in the oven, is the cause of rapid death in infectious cases and is also the principal factor in immediate or late diphtheric paralysis. In their numerous proofs, these distinguished microbiologists, have shown that it is not by gene-



ralized pullulation that the bacillus works on the organism, for it remains exclusively placed in the false membranes, and consequently its action is from a distance, from poisonous secretion or in one word, from poison.

Elaborating this class of studies Gamaleia in his recent work on bacterium poisons affirms also that from the moment that the pathogenic agent is seen in certain illnesses like cholera and diphtheria it becomes accentuated in one point of the organism, and in spite of this produces a general affection of the system; it must be agreed that this action can only be explained by the intoxication originated by the septic production of the bacillus. From the study, to which he consecrates himself, of chemical poisons produced by microbes, he infers that today it is possible to obtain a sure and inoffensive vaccine, without the intervention of living bacterias and that the refractory state can be attributed with only the soluble products of the microbes.

Frankel and Bering, seduced by this theory, are at present dedicating themselves, with laudable enthusiasm, to find the vaccine for diphtheria, sterilizing the diphtheric development to 70° or mixing it with trichlorate of iodine; which proceeding has already given some positive results in the hands of Zimmer. It is for the future to decide to what success the scientific attempts of these eminent physicians will lead.

But in the meantime, whilst we cannot count on a sure method of vaccine, considering the infectious and contagious nature of diphtheria and croup, its prevention ought to be deduced from its etiology, confining ourselves for the present with the general precepts pointed out by Hygiene for this kind of illness.

In the following notes, with which I conclude this incorrect study, some are those proposed by Dr. Roux to the International Medical Congress of Berlin, others have been pointed out by the Board of Health to the Medical Sanitary Inspectors and some I have added because I consider them of some use.

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## CONCLUSIONS.

1st. In order to avoid as much as possible the propagation of diphtheria, an examination ought always to be made, for it is important to fix the diagnosis rapidly and precisely.

2nd. The patient must be completely isolated, and on no account must any one be allowed to come near him besides the persons engaged in his assistance. If there are other children in the house they should be removed without loss of time.

3rd. As these children may have already contracted the germ of the disease they must be continually watched and not permitted to assist at school, so that they may not be the means of spreading the illness.

4th. At the entrance of any house where there is a patient suffering from diphtheria, a small red flag should be placed, to serve as a sign of danger to warn mothers not to allow their children to enter, and at the same time to show other persons the danger they run of carrying the germ to their families, and if it is absolutely necessary for any one to enter they must submit to the following preventitive conditions.

5th. Every person who visits a diphtheric patient should change his dress before coming into contact with other children and take great care to disinfect his face and hands.



6th. The persons assisting the patient must try not to have him in their arms, and in the paroxysms of coughing they must avoid receiving on their face or hands any of the false membranes or secretions that are thrown out. Scratches, cuts or any part with the skin off, must be especially kept from such contact.

7th. Coaches, hand chairs or any other piece of furniture that is used to carry the patient must be disinfected, and with much more reason should the rooms, in which patients have been, be subjected to a most scrupulous disinfection.

8th. The articles used in examining the throat of the patient, those used for his food, objects of china glass, metal, &c. all must be disinfected daily in boiling water with bi-carbonate of soda.

9th. Any sponges or rags used for cleaning the mouth or other purposes must be burnt at once.

10th. All clothes used by the patient must be submerged in a solution of carbolic acid of 2% while they are in the sick room, whence they must be taken to the disinfecting stove, into which must also be put the mattresses, sheets, pillows, blankets or anything else that has been used during the sickness.

11th. On sweeping the room of the patient care must be taken to first sprinkle the floor with a solution of bi-chlorate of mercury of one per thousand, to raise as little dust as possible and to throw this into the fire.

12th. The child who recovers must, on no account, come in contact with other children, nor go to school or any other point of re-union, until a period of time has passed, not less than 40 days.

13th. In hospitals for children there should be a ward specially for diphtheria, in order to establish a collective isolation; and the personal physician should be provided with the proper dress for his visits and with all necessary means for the cleanliness of his person and the disinfection of his clothes.

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