

PRODUCTION OF ANIMAL VACCINE VIRUS. DOUBLE COLLECTION

DR. V. DE LA GUARDIA

Director of the General Vaccine Institute, Havana

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The General Vaccine Institute of the Republic of Cuba was founded in 1901, during the first American occupation of Cuba, being governor of the country, General Leonard Wood, who had as his Secretary of the Interior Dr. Diego Tamayo under whose department Institute was a dependence.

The establishment of the Institute, as well as the propagation of the vaccine over the Cuban territory, all that, was due to the initiative and energies of Col. Valery Havard a worthy sanitary chief of the Army Occupation.

The introduction of the vaccine in the island of Cuba was due to a most illustrious man of sciences, a true sage in all senses and particularly for that time, Dr. Tomas Romay. The event took place in the early days of February, 1804. From that time small-pox vaccination in our territory has been known and propagated.

The propagation of the vaccine was under the patronage of the Cuban Economical Society and among its advocates, besides Dr. Romay, the names of Drs. Cozar, Perez Delgado and Messrs. Sanchez Rubio, Bernal Castellanos, Rolland, Navarro, Parra, Perez, Carrillo, Lezama, Gorin, Joaquin Navarro and Leon Valdes should be mentioned. Sometime afterwards, Drs. Rafael Hondares and Tomas Mateo Govantes as well as Dr. Angel Cowley, professor of the Therapeutics of Havana University and secretary of the Board of Health deserve equal praise.

To the Academy of Sciences of Havana undoubtedly is due in great measure, the propagation of small-pox vaccination, especially to the never-forgotten president, Dr. Nicolas J. Gutierrez, who with Dr. Zambrana, Dr. Mestre and the respected and beloved Dr. Ambrosio Gonzalez del Valle then, and in more recent times, Drs. Joaquin de Zayas, Luis de la Calle, Felipe Rodriguez, Luis Cowley, Pantaleon Machado, Jose Beato, Ramon L. Miranda, Gabriel Maria Garcia, Miguel Riva, Vicente Benito Valdes and others, all of whom were members of said academy.

The academy has at present a Vaccinating Commission which works with usual regularity. The work until recently was carried out by Dr. Gustavo Lopez, but today Dr. Jorge Le Roy is in charge of it.

The establishment in Cuba of an animal vaccine institution took place

in 1868; being its founder, Dr. Vicente Luis Ferrer, who on his own private initiatives and personal effort, put it in working order.

The Provincial Board of Health formed in 1878, approved warmly the creation of a Provincial Institute for vaccine and on the 28th of June, 1880, the equipment of said institute took place, due in part to the perseverance of Dr. Luis Cowley, the professor of Hygiene of Havana University. Since that time until 1901, when the General Vaccine Institute of the Island of Cuba was established, I have been the director of the same.

Until a short time before the end of Spanish rule in Cuba, vaccination was carried on regularly, once a week in the interior of our churches.

In the City of Havana there have existed some private institutes of animal vaccine; Matanzas and Santiago de Cuba also have had such institutions.

Presently, and since 1901, the General Animal Vaccine Institute supply vaccine virus, free, to all the Municipal districts of the Republic of Cuba, and at the Institute itself not only is vaccination carried on, but vaccine virus is supplied to all who applied for it.

The principal object of this contribution is to inform you of the production of vaccine virus since the foundation of the Institute.

All the details relative to this matter will be found in the accompanying table.

In the production of the virus, the Institute follows the method of Professor Degive, of the Brussels Veterinary School, director of the Vaccine Institute, which consists in the double collection from the same animal; the method is somewhat novel, it being used only in Havana and Brussels; but it is exceedingly simple. The first collection is made on the fifth day (five times in twenty-four hours); the second, takes place on the seventh day (forty-eight hours after the first collection), and the vaccine virus in so short a time, that is with reference to the interval between the first and second collection, germinates almost always in greater amount.

The average amount obtained formerly when only one collection was made, fluctuated between 60'14 grams as a maximum and 39'64 grams as a minimum for each animal.

With the double collection method the average amount fluctuates between 116'71 grams as a maximum and 81'50 grams as a minimum for each animal.

The beneficial qualities of our vaccine preparations (collection A. and collection B.) have been perfectly proven, in the first place, by daily use since 1906 (second semester) both virus giving satisfactory results; secondly, we have received satisfactory letters from Dr. Rosenau, director of the Laboratory of the United States Public Health and Marine Hospital Service of Washington, Dr. Blaxall of the London Government Lymph Establishments, and finally from Dr. Huddleston of New York's Health Department.

Vaccine Production

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Year	1-2 Year Periods	Animals Inoculated	Average weight of each Animal in Pounds	Average No. of Scarifications per Animal	Total in Grams	From each Animal Max. and Min.	Production of Vaccine—(Grams)			
							1st Collection.		2nd Collection	
							Total	From each Animal Max. and Min.	Total	From each Animal Max. and Min.
1901 ¹	.....	73	.....	.....	3751	51-38				
1902 ²	.....	23	290	.....	917	39-86				
1903	.....	46	275	.....	2036	44-26				
1904	1st	27	247	122	1178	43-62				
	2nd	27	268	115	1102	40-81				
Total		54			2280					
1905	1st	28	318	124	1684	60-14				
	2nd	32	279	81	1776	55-50				
Total		60			3460					
1906	1st	20	272	49	931	46-55	841	40-05	⁵ 90	45-00
	2nd	13	289	63	919	70-69	401	30-84	518	39-84
Total		33			1850		1242		608	
1907	1st	20	287	67	1630	81-50	759	37-95	871	43-55
	2nd	15	287	68	1401	93-40	611	40-73	790	52-66
Total		35			3031		1370		1661	
1908	1st	21	297	63	1916	91-23	818	38-95	1098	52-28
	2nd	15	327	64	1415	94-33	595	39-66	820	54-66
Total		36			3331		1413		1918	
1909	1st	23	318	64	2172	94-43	960	41-73	1212	52-69
	2nd	23	328	70	2315	100-65	1122	48-78	1193	51-86
Total		46			4487		2082		2405	
1910	1st	24	343	75	2423	100-95	1192	49-66	1231	51-29
	2nd	14	342	79	1634	116-71	736	52-57	898	64-14
Total		38			4057		1928		2129	
1911	1st	21	344	69	1883	89-66	883	42-04	1000	47-61

¹ From August to January, 1902.

² From February to December.

³ 31 animals were scarified.

⁴ The Umeno scarifier was used from this time on. Previously the scarifications were made with the point of a bistoury.

⁵ Double collection from the two animals only.