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OUTBREAK OF CATTLE RABIES IN THE NORTH WEST REGION OF GUYANA*

by

H.A.C. Reid

Vampire bat transmitted bovine paralytic rabies is known to be endemic in the tropical regions extending from northern Mexico to northern Argentina and on the island of Trinidad off the north coast of South America (World Health Organisation 1984).

Rabies is thought by many to be the zoonosis with the greatest social impact in this hemisphere (Inter-American Institute for Cooperation on Agriculture 1983) and in Latin America in 1979 the economic losses were estimated to be approximately US\$50 million per year (Hubbard 1979). According to Acha and Szyfres (1980), the limited numbers of veterinarians and diagnostic facilities in developing countries result in serious under reporting and failure of confirmation of this disease. Lord (1976) notes that in the American tropics bats surpass even rodents in numbers, and can range from a few to many thousands per roost. Rabies transmitted by vampire and insectivorous bats is almost always of the paralytic type (Mohanty and Dutta 1981).

During January 1985 the Guyanese Ministry of Agriculture's veterinary diagnostic laboratory was requested to investigate a fatal paralytic disease affecting creole (Spanish longhorn cross Santa Gertrudis cross Charolais) beef cattle in Pakera, a village located approximately 200 km from Georgetown.

Observation of the 145-head herd revealed six affected animals ranging from seven months to nine years of age, exhibiting mild intermittent salivation and marked incoordination with swaying of the hindquarters, the latter becoming even more pronounced as they traversed uneven terrain. Aimless

*Reprinted by kind permission of the Author, H.A.C. Reid, Veterinary Diagnostic Laboratory, Ministry of Agriculture, Mon Repos, East Coast Demerara, Guyana.

running was also noted in two heifers that collided with other animals, stood still for a while and then continued.

Both normal and affected animals displayed long streaks of clotted blood on their shoulders, necks and backs. Dilation of the pupils was a common feature in all affected cattle and constipation and frequent urination were signs associated mainly with the terminal stages of the disease. The rectal temperatures of the affected animals varied from 35.7 to 38.6°C. On an average of seven days after the onset of signs they became recumbent, were unresponsive to stimuli in the hindlimbs, and died two to three days later.

Post mortem examinations conducted on four animals revealed lesions including hydropericardium, cerebral oedema and congestion, enlarged gall bladders, terminal pneumonia and the presence of a few lungworms (*Dictyocaulus* species) within the terminal bronchioles.

Tissues fixed in 10% buffered formalin were processed, and 4 µm sections were cut and stained with haematoxylin and eosin.

Microscopically, the lesions noted in the cerebella, spinal cords and cerebra were indicative of a non-suppurative encephalomyelitis. Oval, eosinophilic, intracytoplasmic inclusions (Negri bodies) were seen in the multipolar Purkinje cells of the cerebellar cortices. These inclusions were located mostly in either one or two cerebellar folia in each histological section. Although single intracytoplasmic inclusions predominated, a few Purkinje cells contained smaller, multiple ones.

Mild to marked mononuclear perivascular cuffs were present in the centrally located white and grey matters, of the cerebella and spinal cords, respectively. Moderate haemorrhages and focal areas of malacia were also observed in the spinal cords. The cerebra showed sparse and scattered areas of mild vascular congestion, perivascular cuffs and mononuclear gliosis (Babes' nodules).

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The possibility that Negri bodies may not be seen in rabies has been documented by Jubb and Kennedy (1970).

Based on these findings, a diagnosis of paralytic rabies was made, and 110 head of cattle over three months were each vaccinated intramuscularly with 2 ml of a killed virus, hamster cell line origin, rabies vaccine (Imrab; Pitman Moore).

The vampire bats associated with this outbreak inhabited six large culverts located 6 m below a railway line and about 225 m from the corral that the herd occupied at night. Upon close inspection of these dark culverts, hundreds of bats could be seen attached to the roofs, and the villagers reported that because of constant rainfall during 1984 the culverts were not cleared and cleaned as has been done in previous years. Hall (1977) has also documented the habitation of vampire and other bats in large culverts, simulating the dark, cool environment of caves.

Control methods included the chasing of bats from one end of these culverts into nylon mist nets at the opposite end and the application of the anticoagulant 3 acetonyl bencil 4 hydroxycoumarin (Vamprocid) on to the backs of captured bats. These were in turn released into the culverts so that the other bats in the roost were contaminated. In Mexico, Thompson and others (1972) achieved a 93 per cent reduction in the number of bat bites on beef cattle after injecting another anticoagulant (diphenadione) intraruminally.

With the help of the villagers at Pakera, smoking out the culverts also resulted in a high mortality rate among the bats. Up to the time of documenting this outbreak 65 cattle had died.

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AMBLYOMMA TICK ERADICATION PROJECT*

The IICA financed Amblyomma variegatum tick eradication project continues with daily spraying in the area being carried out by two technicians so as to ensure that each animal receives fortnightly treatments, to eventually break the tick cycle.

Up to the month of April, the tick continued to be found on the holding of one farmer Joseph John Pierre. As a result the more drastic step of pasture spraying of this farmer's holding was undertaken during the months of April and May. It is now four weeks since Amblyomma has been found in this area (or in any part of Bellevue) thereby indicating the beneficial effect of the pasture spraying effort. The spraying programme continues with the hope of eradicating ticks from Bellevue Chopin and constantly monitoring the area for reappearance of the Amblyomma tick.

ILLEGAL IMPORTATION*

On May 22nd it was brought to our attention that a monkey was illegally imported into the island by a French national, Patrick Berg. Because of the tremendous public health implications the matter was immediately investigated, the monkey confiscated at Castle Bruce, and eventually shipped out of the island.

On June 3rd there was an attempt to illegally land a cow from Guadeloupe. This was thwarted and the cow returned to the port of origin.

*Taken from "Report of Animal Health Section for Quarter - April to June, 1985", Commonwealth of Dominica, prepared by Dr. W. Christian.

RABIES

<u>Country</u>	<u>Species</u>	<u>No. of Cases/ Quarter</u>	<u>Cumulative Total</u>	<u>No. Vaccinated/ Quarter</u>	<u>Cumulative Total</u>
Grenada	Canine	-	-	57	71
	Feline	-	-	-	2
Guyana	Bovine	-	23	-	-
Trinidad & Tobago	Bovine	4	12	512	2417
	Buffalo	-	1	15	167
	Equine	-	-	1	23
	Sheep	-	-	-	42
	Goat	-	-	-	268

TETANUS

<u>Country</u>	<u>Bovine</u>		<u>Caprine</u>		<u>Equine</u>		<u>Ovine</u>		<u>Porcine</u>		<u>Total</u>	
	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C
Dominica	-	-	1	1	-	-	-	-	-	-	1	1
Grenada	-	-	5	8	-	-	2	5	7	10	14	23
Jamaica	-	-	16	21	0	3	0	6	7	21	23	51
Trinidad & Tobago	2	2	10	19	0	1	6	8	-	-	18	30

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HAEMOPARASITES

<u>Country</u>	<u>Species</u>	<u>Anaplasmosis</u>		<u>Piroplasmosis</u>		<u>Dirofilariasis</u>		<u>Trypanosomiasis</u>	
		Q	C	Q	C	Q	C	Q	C
Dominica	Bovine	2	18	-	-	-	-	-	-
Grenada	Bovine	5	7	-	-	-	-	-	-
	Canine	-	-	-	-	3	15	-	-
Jamaica	Bovine	3	9	-	-	-	-	-	-
	Canine	-	-	-	-	27	38	-	-
Guyana	Bovine	1	1	-	-	-	-	-	-
	Canine	-	-	-	-	1	2	-	-
	Ovine	-	-	-	-	-	-	0	46
Trinidad & Tobago	Bovine	99	239	27	38	-	-	-	-

LEPTOSPIROSIS

<u>Country</u>	<u>Species</u>	<u>Quarterly Totals</u>		<u>Cumulative Totals</u>	
		<u>No. Tested</u>	<u>No. Positive</u>	<u>No. Tested</u>	<u>No. Positive</u>
Dominica	Canine	-	-	1	1
Grenada	Canine	-	-	1	1
Guyana	Canine	1	1	1	1
	Human	-	1	1	1
Jamaica	Bovine	-	709	-	1124
	Ovine	107	72	107	72
	Caprine	244	164	280	188
	Equine	-	-	2	2
	Porcine	1	0	4	0
	Canine	43	19	76	32
Trinidad & Tobago	Human	41	13	323	156
	Buffalo	0	0	25	-

BRUCELLOSIS

<u>Country</u>	<u>Species</u>	<u>Quarterly Totals</u>			<u>Cumulative Totals</u>	
		<u>No. Tested</u>	<u>No. Farms</u>	<u>No. Pos.</u>	<u>No. Tested</u>	<u>No. Pos.</u>
Jamaica	Buffalo	14037	581	29	25405	73
Trinidad & Tobago	Buffalo	0	-	-	101	-

TUBERCULOSIS

<u>Country</u>	<u>Species</u>	<u>Quarterly Totals</u>			<u>Cumulative Totals</u>	
		<u>No. Tested</u>	<u>No. Farms</u>	<u>No. Pos.</u>	<u>No. Tested</u>	<u>No. Pos.</u>
Jamaica	Bovine	4197	680	-	9808	2
Trinidad & Tobago	Bovine	38	-	-	208	19
	Buffalo	0	-	-	101	-
	Caprine	12	-	-	15	-
	Ovine	0	-	-	2	-
	Porcine	38	-	-	69	-

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Country	Bovine		Canine		Caprine		Ovine		Porcine		Total		
	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C	
<u>MASRTTIS</u>													
Dominica	25	36	-	-	-	3	-	-	-	-	-	25	39
Grenada	33	59	-	-	27	60	0	5	8	8	13	68	137
Jamaica	525	1371	-	-	34	88	-	-	8	23	567	1482	
Guyana	10	10	-	-	-	-	-	1	-	-	-	10	11
Trinidad & Tobago	199	432	2	2	5	69	1	2	6	7	213	512	
<u>MERRITIS</u>													
Dominica	6	11	-	-	-	3	-	1	3	3	9	18	
Grenada	-	-	-	-	-	-	-	-	11	16	11	16	
Jamaica	39	62	-	-	47	70	2	5	6	9	94	146	
Trinidad & Tobago	75	180	1	1	6	12	-	-	23	38	105	231	
<u>MANGE</u>													
Dominica	1	1	-	-	-	-	47	72	9	20	57	93	
Grenada	-	-	7	24	-	-	-	-	6	10	13	34	
Jamaica	10	26	-	-	-	-	-	-	9	34	19	60	
Cuyana	-	-	-	-	-	-	-	-	2	2	2	2	
Trinidad & Tobago	-	-	3	3	2	12	-	-	-	-	5	15	

FERTILITY EXAMINATIONS AND REPRODUCTION

<u>Country</u>	<u>Bovine</u>		<u>Caprine</u>		<u>Canine</u>		<u>Feline</u>		<u>Ovine</u>		<u>Porcine</u>		<u>Total</u>	
	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C
Dominica	34	-	7	-	-	-	-	-	6	-	2	-	49	-
Grenada	113	239	32	78	29	56	-	3	34	77	26	53	234	506
Guyana	139	18*												
Jamaica	6030	77*	12718	136*										
Trinidad & Tobago	790	2047	Anoestrus		Conception		Failure		Abortion					
			Q	C	Q	C	Q	C	Q	C	Q	C	Q	C
			84	234	64	236	2	18						

* No. of Farms

BOVINE DERMATOPHILOSIS

<u>Country</u>	<u>Quarterly Total</u>	<u>Cumulative Total</u>
Dominica	-	-
Guyana	3	11

BOVINE PAPILLOMATOSIS

<u>Country</u>	<u>Quarterly Total</u>
Dominica	16
Grenada	2
Guyana	1

MISCELLANEOUS REPORTSBLACKLEG

<u>Country</u>	<u>No. Cases</u>		<u>No. Vaccinated</u>	<u>No. Farms</u>	<u>Cumulative Totals</u>	
	<u>Q</u>	<u>C</u>			<u>No. Vaccinated</u>	<u>No. Farms</u>
Jamaica	-	-	7500	906	10947	1206

SWINEERYSIPELAS

<u>Country</u>	<u>No. Cases</u>		<u>No. Vaccinated</u>	<u>No. Farms</u>	<u>No. Vaccinated</u>	<u>No. Farms</u>
	<u>Q</u>	<u>C</u>				
Jamaica	-	-	447	43	3165	151
Trinidad & Tobago	11	32	-	-	-	-

CANINE DISTEMPER

<u>Country</u>	<u>No. Cases/Quarter</u>
Grenada	18
Trinidad & Tobago	4

CANINE PARVOVIRUS

Grenada	5
Trinidad & Tobago	2

EXTERNAL PARASITES

<u>Country</u>	<u>Bovine</u>	<u>Canine</u>	<u>Caprine</u>	<u>Feline</u>	<u>Ovine</u>	<u>Porcine</u>	<u>Total</u>
Grenada	116	45	55	16	10	-	242
Trinidad & Tobago	10	-	-	-	-	-	-

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FOOT ROT

<u>Country</u>	<u>Bovine</u>		<u>Canine</u>		<u>Caprine</u>		<u>Feline</u>		<u>Ovine</u>		<u>Porcine</u>		<u>Total</u>	
	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C
Dominica	-	-	-	-	-	10	-	-	-	24	-	-	-	34
Trinidad & Tobago	11	-	-	25	4	9	-	-	0	2	3	8	18	44

BOVINE LEUCOSIS

<u>Country</u>	<u>No. of Cases</u>		<u>No. Tested</u>		<u>No. Positive</u>
	Q	C	Q	C	
Trinidad & Tobago	5	10	-	35	8

IMPORT INSPECTIONS - TRINIDAD & TOBAGO

<u>Countries of Origin</u>	<u>Species</u>	<u>Quarterly</u>	<u>Cumulative</u>
Guyana) Netherlands) USA) UK) Canada)	Avian	608	10365
Barbados) St. Vincent) Grenada)	Caprine/Ovine	1308	2613
UK, Barbados) USA) St. Vincent)	Canine	58	93
Barbados) Martinique) UK) USA)	Equine	23	30
USA	Rabbits	31	31
Barbados	Bovine	3	3

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EXPORT INSPECTIONS - TRINIDAD & TOBAGO

<u>Destination</u>	<u>Species</u>	<u>Quarterly</u>	<u>Cumulative</u>
England	Avian	-	432
Ecuador) USA) Venezuela)	Buffalo	-	53
Italy) USA)	Canine	-	2
Barbados) USA)	Equine	1	3
Guyana	Feline	2	2

EDITOR'S NOTE

In Vol. V No. 1, data from Trinidad & Tobago was omitted due to misplacement of reports in the IICA - Guyana Office. Sincere apologies are extended to all. That data is reflected in the cumulative data of this report.

The Editor.

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