Cows and Poliomyelitis

I. What is the origin of the Lansing antibodies in cows? Are they due to infection with polio virus, or some other agent?

II. Is it possible to demonstrate apparent or inapparent infection in calves devoid of antibody, following inoculation of poliomyelitis virus by different routes?

Proposed experimental procedure:

1. Test calves for Lansing antibody. Do this, if possible, prior to purchase. (Consider purchase of bull-calves, which received no colostrum.)

2. Infection with Y-3K virus:
   a) Oral route — 5 calves — 5 cc of 10% suspension, 1/2 x a day for 3 days.
   b) Intramuscular route — 5 calves — 1 cc of 10% suspension.
   c) Intracerebral route — 5 calves — 1 cc of 10% suspension.
   d) Uninoculated controls — 5 calves.

Procedure on all calves:

1. Bleed for preliminary antibody test.
2. Observe for 2 to 3 weeks before inoculation.
3. Inoculation day (ID) — 7:
   a) Begin temperatures
   b) Cisternal puncture for CSF cell count.
4. ID — 3:
   a) Repeat CSF cell count
   b) Begin collection of stool specimens once a day for 3 days.
5. ID:
   a) Bleed all 20 calves again just before inoculation
   b) Inoculate 15 calves as indicated.
6. ID + 1: Collect stools from all calves; feed virus to Group (a).
7. ID + 2: Collect stools from all calves; feed virus to Group (a).
8. ID + 3: Collect stools from all calves.
9. ID + 7:
   a) CSF cell count on all calves
   b) Collect stools from all calves.
10. ID + 8: Collect stools from all calves.
11. ID + 9: Collect stools from all calves.
12. ID + 14:
    a) Bleed all calves
    b) CSF cell count on all calves
    c) Collect stools from all calves.
13. ID +15: Collect stools from all calves.
14. ID +16: Collect stools from all calves.
15. ID +21:
    a) CSF cell count on all calves
    b) Collect stools from all calves.
16. ID +22: Collect stools from all calves.
17. ID +23: Collect stools from all calves.
18. ID +28:
    a) Bleed all calves
    b) CSF cell count on all calves
    c) Collect stools from all calves.
19. ID + 29: Collect stools from all calves.
20. ID + 30: Collect stools from all calves.
21. ID + 56:
   a) Bleed all calves
   b) Collect stools for 3 days.
22. ID + 8h: Bleed all calves.

NOTE: Any calves which exhibit CNS signs will be sacrificed for histologic and virus studies.