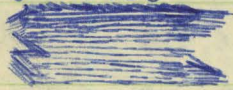


DISEASES :-



MOVED THAT :- In view of ~~containing~~ the recognised but so far unmeasured incidence of infectious abortion among breeding ewe flocks in Nova Scotia, and considering unresolved problems with infectious peritonitis or respiratory diseases, including P.A. the directors of S.P.A.N.S. have decided to cancel the 1981 sale of breeding ewes, to ~~be~~ have been held this Labour Day Weekend. The Sheep Fair and other related activities will be held as planned.

MOVED THAT

Considering the recognised existence of infectious abortions among breeding ewe flocks in N.S., and unresolved problems with infectious respiratory diseases, including P.A., the directors of S.P.A.N.S. recommends to the membership that this years breeding stock sale not be held, and that a simple questionnaire be sent immediately to the membership, requesting a "Yes" or "No" response to this ~~same~~ recommendation by no later than July 1. /81.

Disease Issue:-

① Request immediate clarification from Director of Livestock Services, as to our request re compensation of Nettleton flock. ✓

② Suggest that Sheep Fair be cancelled, if not
Statement on face sheet of catalogue to the effect that :-

"The sale committee can not guarantee that breeding stock entered in the sale are free of P.A., or Maedi Visna and that stock may have been exposed to E.A.E and Vibrio abortion. ~~Maedi Visna~~

③ Recommend that sale committee not accept sheep from farms where Vibrio or Enzootic Abortion has been reported.

④ Recommend that no export permits be approved for export of ewes or ewe lambs to the U.S.A.

Disease Issue:

• Outline of plan:-

That Health Committee approach the Prov. Govt. to get help in setting up the following program.

- 1) Compulsory sale restriction on all flocks where P.A. diagnosed
- 2) Compulsory testing for Maedi Visna of all breeding ewes & rams.
- 3) Research - demonstration project to investigate P.A. and other respiratory / pneumonic diseases of economic importance to sheep industry.
- 4) A voluntary health program to include :-
 - a) P.A free certification at end of five years - all carcasses submitted for examination.
 - b) Subsidy on Abortion vaccine, and testing of samples, together with subsidised veterinary advice in face of an outbreak.
 - c) Footrot eradication program
 - d) Pre-emptive vaccination program, under veterinary advice, against clostridial diseases.
 - e) Parasite control program (internal & external)

f) A flock health record and certification scheme.

g) Ewe pregnancy testing and ram fertility testing

h) To implement an effective Health program, the health committee uses the hiring or training of a suitably qualified or experienced Sheep Specialist to assist farmers and liaise with veterinarians in private practice

②
P. A. Spee lambs.

Finally have premises near Sackville. - Never had sheep near this.

Agriculture Canada along with N.S. Dept. of Agric. + Devco, Devco + Prov. have arranged purchase of flock.

Open to criticism because it looks like drop in bucket.

Budget only \$20,000 year.

Rent	2400	145 ⁺
Salary	7250	50
	10,000	7 ²⁵ °

(What about other \$10,000.)

Peter Rogers - Good opportunity to expand scope of research.

Stephenson This project only one of several, but scope limited.

However research into Maedi testing worth continue.

Sanders We need direct help, not academic help.

In this flock are some very valuable breeding stock. In cleaning up this flock, we lose this valuable genetic pool.

Fri Morning

Minutes

Dr Bert Stephenson, Dr. Dale Duplessis, Roy MacKenzie.

Roy MacKenzie, Lloyd MacEwan, N.B. rep Can Sheep Council

Richard Ducharme, Tremaine Finlay, Brewster,

John, Peter Rogers, Gmy Sanders.

Woolfitt introduced meeting :-

Asked for compensation for 'importation of diseases.

Asked for clarification of P.A. research project.

Bert Stephenson -

Problem of using midwifery - no serological test.

Can lambs taken by Caesarian section be P.A. free.

Theory that if lambs are kept out of contact with dams.

100-150 adult animals.

^{only} 1 flock with high incidence of 10%. therefore much higher level of sub-clinical incidence.

Will kill ewe, remove lamb from uterus, isolate

To get 30 lambs from P.A. infected ewes. Keep for

3 years to see if they have P.A.

If they do, evidence that this is not method of getting



Research should be directed as much as possible to work which farmers could use.

Stephenson - Makes more sense to work on pneumonia and other diseases rather than P.A.

Various branches of Agriculture Canada -

Animal pathology division - funds not that great. Have to deal with all species of animals.

Stephenson - Wants more submission to labs.

Farms near Sackville to volunteer for on farm applications.

Would like to have more resources to expand scope of research at Sackville.

Scandlers - How do we ~~sp~~ go about augmenting funds: - a) Canadian Agriculture Services Co-ordinating Comm

b) New Vet college -

Stephenson - Some progress being made, but not enough.

Much discussion - problem between academic scientific language and getting information across to the layman.

4



Macedonia Visma testing - request to
Dr. John Gowan, asst. deputy minister
Food production & inspection branch.

Strategy for organizing a systematic
submission of blood

Compensation (1)

Intro to issue of compensation by Sanders -

DEVCO impact has had disastrous consequences

for us - confidence destroyed by Fed.

his management:

compensation on per head basis

24,000 sheep - @ \$100

- one issue mentioned: wool sale, lamb consumption due to scare stories, incl. orf, listeriosis, P.A., etc.
- flock dispersals because of high interest among new producers because of high interest rates.
- Does Federal govt. recognise any responsibility in this matter.

Dr. Bulmer - been to Scotland & U.K. - contacted premises chief veterinary officer for Scotland - no evidence of P.A. on premises where sheep were purchased.

Duplessis - not proven that P.A. came in with importation
problem of getting Feds to accept liability.

Compensation.

Presented all issues :-

- a) Diseases
- b) Failure to implement A.D.A. II
- c) Dumping of N-2. lamb.

Nova Scotia



Victoria
General Hospital

Room 4090 A.C.C.

1278 Tower Road
Halifax, Nova Scotia
B3H 2Y9

May 30, 1984

Dear Sir or Madam:

I have obtained your name from the Department of Health as being involved in slaughtering and/or meat processing operations in the province. I would like to invite you and your employees to take part in the study which I will outline in the next few paragraphs.

For the past several years I have been studying Q fever in Nova Scotia. This is a disease which is generally transmitted from animals to man and causes fever or pneumonia. So far we have found that this disease is a common cause of pneumonia in Nova Scotia. We have been unable to find the animals responsible for its transmission to man. In other countries, cattle sheep and goats are the prime reservoirs of this infection, but in Nova Scotia in the animals we have tested to date, we have rarely found such infections.

The reason I am approaching you and your co-workers is, since you are involved in handling a lot of animals, if the infection is present in animals, then you should have antibodies in your blood to Q fever. If you agree to participate in this study we would like you to fill out a questionnaire (I have enclosed a sample copy) and we would draw a blood sample.

Mr. James Fraser, a second year medical student is working with me this summer and he will phone you towards the end of June to see if you would like to participate in this study. If you require further information, or if you wish to tell us that you would like to participate you may write me at the following address:

T. J. Marrie, M.D.
Room 4090 A.C.C.
Victoria General Hospital
1278 Tower Road
Halifax, N.S. B3H 2Y9

Thank you for your help.

Sincerely yours

A handwritten signature in cursive script, appearing to read "T. J. Marrie".

T. J. Marrie, M.D., F.R.C.P.(C)

TJM:ds

Appendix I

Questionnaire for slaughter house works Nova Scotia.

1. Name or initials

2. Age

3. Sex male _____ female _____

4. How long have you worked in this slaughterhouse ? _____ years

5. What is the nature of your job ?

6. What animals do you handle ?

cattle yes _____ no _____

sheep yes _____ no _____

goats yes _____ no _____

pigs yes _____ no _____



NOVA SCOTIA
DEPARTMENT OF AGRICULTURE
AND MARKETING
LIVESTOCK SERVICES BRANCH
-
VETERINARY PATHOLOGY LABORATORY
P.O. Box 550, Truro, Nova Scotia B2N 5E3

April 15, 1983

Mr. Angus Rouse
Secretary
Purebred Sheep Breeders Assoc. of N.S.
Harlow Institute
NSDAM, Truro, N.S.

Dear Mr. Rouse;

Post Mortems on Sheep

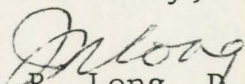
At their meeting of April 14, 1983 the Livestock Health Services Advisory Body approved your request that the Livestock Health Services Program (LHSP) pay for the post mortem of sheep when done by practicing veterinarians.

When the carcass is taken to a clinic (you can use the clinic of your choice, as with any clinic call) the producer would pay the regular in - clinic fee of \$3.00 (\$8.00 after hours). The LHSP would pay the remaining fees. However, the producer would be responsible for removing the carcass, since most clinics have no facilities for disposing of carcasses. Also, producers would be responsible for the cost of packaging and transporting specimens to the veterinary pathology laboratory.

In a flock problem, where post mortems may need to be done on the farm, the owner would pay the regular call fee and post mortem charges would be covered by the LHSP.

This program will become effective for all sheep producers in the province, May 1, 1983.

Yours truly,


J. R. Long, D.V.M., Ph.D.
Associate Director
Animal Health

JRL:sw
cc Mr. John Mildon
Secretary, SPANS

MONTAGUE VETERINARY CLINIC (1978) INC.

P. O. BOX 100
MONTAGUE, PRINCE EDWARD ISLAND COA 1R0

As Dewco's crap has now
been picked up by the press I
will defend my own ^{professional} reputation though
would be grateful for any support.
Also at stake: _____

- 1/ the Reputation of the Scottish Blackface
- 2/ " " N.S. Sheep in general.
- 3/ " " N.S. Vet association
for failing their responsibilities, even
though this matter has been brought
to their attention.
- 4/ The reputation of Provincial &
Fed Veterinarian in whom
we should be able to trust over
matters of livestock health.

Will ~~do~~ what you like
with this.

B.

DEPARTMENT OF AGRICULTURE & FORESTRY



PRINCE EDWARD ISLAND

Veterinary Pathology Laboratory
P.O. Box 1600, University Ave.
Charlottetown, P.E.I.
C1A 7N3

June 12, 1980

Dr. R.G. Stevenson
Director,
Atlantic Area Laboratory
Animal Pathology Division
P.O. Box 1410,
Sackville, New Brunswick

Dear Bert:

Enclosed are H & E sections and a copy of the report of our second lab case (and first island case) of Jaagsiekte (O-1895-80.)

Mr. Bates bought a dozen or so lambs from Devco last fall and apparently there was no clinical problem. This lamb was sent for slaughter locally, was in good flesh and passed meat inspection. The lung lesions were picked up by Dr. David Lister in the process and were submitted to us formalized.

As discussed over the phone, we will be watching for good clinical cases and if found, we will notify you so that you can arrange to purchase these live at market prices.

Regards.

Yours sincerely,

Ab

A.J. Rehmtulla,
Pathologist.

The Canadian Veterinary Journal

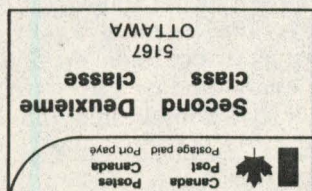
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CONVENTION 1981 CONGRÈS
JULY 5-8 JUILLET — WINNIPEG, MANITOBA



The Veterinary Practitioner and Diseases Exotic to Canada

T. W. DUKES

Agriculture Canada, Animal Diseases Research Institute, NEPEAN, P.O. Box 11300, Station H, Nepean, Ontario, Canada K2H 8P9

SUMMARY

Veterinarians, in clinical practice, regulatory field work, laboratory diagnosis or research, must work together as a team, each within his area of expertise in order to protect the livestock industry of Canada from exotic diseases. This freedom from many of the serious animal plagues has allowed the development of intensive animal production units with increased vulnerability to disease and in which the impact of disease outbreaks may be more serious.

In differential diagnoses one should think not only of the classical exotic diseases such as vesicular diseases, swine fever and rinderpest in today's world, but one should constantly be on the outlook for any disease outbreak that does not quite fit the picture of the domestic diseases. From this standpoint the large animal practitioner is the very important "first line of defense" since, in all likelihood, he will be the first to see a disease exotic to Canada should that disease gain entry.

RÉSUMÉ

Le praticien vétérinaire et les maladies exotiques

Les vétérinaires qui oeuvrent dans la pratique, dans la médecine réglementée ou dans un laboratoire de diagnostic ou de recherche, doivent former un équipe, tout en travaillant dans leur domaine respectif, de façon à protéger le cheptel canadien contre les maladies exotiques. Le fait que notre cheptel en soit exempt, a permis le développement de grands troupeaux qui présentent une vulnérabilité particulière à ces maladies, lesquelles y prendraient des proportions désastreuses.

Lorsqu'un vétérinaire pose un diagnostic différentiel, il ne doit pas penser uniquement aux maladies exotiques classiques telles que les maladies vési-

culaires, la peste porcine ou la peste bovine. Il lui faut également se méfier de toute éclosion d'une maladie dont les signes cliniques différeraient de ceux des maladies usuelles. Vu sous cet angle, le praticien des grands animaux représente notre première ligne de défense extrêmement importante, parce qu'il serait vraisemblablement le premier à constater la présence d'une maladie exotique qui pourrait surgir au Canada.

INTRODUCTION

An ill-defined group of diseases — emerging and moving around the globe from areas developing or underdeveloped, where veterinary services are inadequate — constitute a constant threat to Canada's animal population. As world travel becomes quicker and easier the potential for importation of foreign animal diseases increases, a fact attested to by several recent incidents. For example, African swine fever (ASF), originally an African disease, first appeared in Portugal (1957) and was subsequently diagnosed in Spain and France (1964, 1967 and 1974) and in Italy (1967). In 1971 the disease crossed the Atlantic for the first time to Cuba. In 1978 it was found in Brazil and later in the Dominican Republic and Haiti and reappeared in Cuba in 1980. Another disease, Rift Valley fever (RVF), limited to Sub-Saharan Africa prior to 1977, spread to Egypt in that year and now seems to be moving into the Middle East (10). In 1979 it was diagnosed in a woman returning to Canada; a case cited as a potential exposure to Canadian livestock had she returned directly to her rural Canadian home (7).

This paper will attempt to look in general terms at a few examples of diseases exotic to Canada and will consider the role of the practitioner in their diagnosis and control. Would

you, as a practitioner, suspect an exotic disease in your area? Do you include vesicular stomatitis (VS) or rinderpest in your differential diagnosis of virus diarrhea-mucosal disease? Are you aware that in many of the viral exotic diseases the diagnostic clinical signs appear only after a few days of virus excretion or that nasal secretions in rinderpest can be infective two days before the first temperature rise? (11) Early diagnosis is particularly difficult when disease is caused by agents of low virulence, such as the ASF seen in Brazil. This form of ASF may escape detection for a longer time because of the low mortality and the decreased incidence of classical ASF lesions and the virus may remain in clinically recovered animals or meat products (8). In fact, while observing pigs given a mild strain of ASF this author remembered inspecting swine in sales barns while in large animal practice and thought how easily these pigs could have passed through a sale. They had fever but really did not look very sick throughout the clinical course; a striking reminder that obvious illness may not appear even in animals never before exposed to an exotic agent.

BEWARE OF COMPLACENCY

Today, despite advances in animal health and disease control, it is imperative that we maintain a vigilance for exotic diseases in Canadian livestock. Development of trading communities has in some cases resulted in the lifting of international barriers to livestock trade, a fact which may facilitate spread of disease. There is pressure for importation of livestock, semen, and embryos to expand the gene pool of our animals. Livestock moves further, more rapidly and more frequently than it did previously. Animal quarantine measures are not foolproof and complicated zoonotic

patterns may add to the problem. Walker and Callis (14), for example, cited the importation of Q-fever in snakes and a possible Rift Valley fever virus in imported rats. Political instability in many countries leads to maintenance of foci of diseases which would otherwise be controlled. Animals concentrated in larger and larger units of production have closer contact with each other and this is coupled with a trend toward integration of the livestock industry with more contact or movement between farms. As a result of more rapid world transit and increased movement of people around the globe the chances of bringing these foreign diseases to Canadian soil have increased tremendously in recent years. Following searches of luggage at Canadian international airports great masses of meat are confiscated yearly. Another example for the potential for disease spread contributed to by facilitation of transportation is provided by the proposed road link between South and North America. It was interesting that, at the U.S. Animal Health Inspection meeting in the fall of 1979 (10), it was reported that a proposed Panamanian laboratory for the diagnosis of vesicular diseases was delayed. There had been delay in the plan to establish three areas as buffer zones in that portion of Columbia through which the Pan American highway will eventually pass.

These points serve to focus our attention on the importance of continual awareness for the potential emergence of such exotic diseases in Canada. Freedom from these diseases has allowed for efficiency of agricultural production but has also resulted in development of fully susceptible animal populations. This, coupled with rapid international movement of animals, people and various biological products, serves to emphasize the importance of the early diagnosis of such diseases by practitioners, as it is they who will be most probably the first to see such diseases should they occur in Canada.

ECONOMIC SIGNIFICANCE

The direct losses in an outbreak of an exotic disease are obvious. Their

extent will depend on how early the presence of the disease is recognized. These direct losses include animals lost through death, abortion or infertility. However, many other losses can also be attributed to an outbreak of foreign disease. These include such things as wasted feed, labor, retarded maturing, perpetuation of sub-health and lost markets.

In a cost/benefit study to assess the economic impact of an hypothetical assumption that foot and mouth disease (FMD) had become established in the U.S.A., it was concluded that this would result in a US \$13 billion direct loss and US \$36 billion indirect losses over 15 years, not counting any wild-life related losses (9).

Direct costs to the government rose to £35 million during the 1967-68 FMD outbreak in Great Britain (12). Losses suffered by Europe in the panzootic FMD outbreaks of 1951-1952 were estimated at US \$600 million (1). Consider what these losses would be in 1980 dollars worth about half of 1970 dollars.

A FEW CLASSICAL EXAMPLES

Successful eradication of an outbreak of a disease considered exotic to Canada will depend to a large degree on its early recognition. Some exotic viral diseases can practically be considered together since they are impossible to separate in the field. Only a few¹ will be looked at in general terms at this time but many others such as East Coast fever, Nairobi sheep disease, African horse sickness, piroplasmiasis, anaplasmosis, etc. will not be considered. Readers are referred to the books (3,5) and papers (2,4,6,11,13) listed in the references for more detailed information. Many films and other materials are also available in Canada.

Vesicular Diseases — Five diseases can be effectively considered together (4): foot and mouth disease (FMD), vesicular stomatitis (VS), vesicular exanthema (VE) (and its close relative a marine mammal virus) and swine vesicular disease (SVD). This latter disease has been a problem in recent years in Britain. The clinical signs and lesions of these four diseases very closely resemble each other so that a field diagnosis is impossible. It is also

important to remember that some stages of these diseases can resemble other diseases. Signs are classically salivation, lameness, fever, anorexia, decreased milk yield and uneasiness.

One must always check other livestock species present on a farm (horses get VS but are resistant to FMD) paying particular attention to apparently normal animals not just the sick ones, and looking carefully for vesicles (mainly on the tongue, feet, teats or dental pad of ruminants). Initially, there are blanched areas that progress to vesicles which rupture easily leaving an ulceration that heals. In swine, one must look as well for hoof horn separation and lesions on the snout. Severe lameness of sudden onset may be the most apparent sign in affected pigs and sheep. Do not worry about trying to separate this group of viral diseases on clinical terms. Some of the diseases to be considered in a differential diagnosis would be ulcerative diseases, such as bovine virus diarrhea or malignant catarrhal fever.

Rinderpest — Some historians consider rinderpest as contributing to Napoleon's defeat. It has, to date, occurred naturally only once in the western hemisphere (Brazil). Fortunately, the virus tends to not survive for long outside the body of animals.

Clinically there is necrotic stomatitis, lymphoid necrosis and a profuse diarrhea which occurs as the fever subsides. There is a wide variation in signs depending on the virulence of the virus and susceptibility of the host.

Everyone should be aware of the close clinical and pathological similarities of this disease to bovine virus diarrhea. Some further diseases one ought to consider in a differential diagnosis are healing vesicular disease, coccidiosis, and a papular stomatitis associated with helminthosis. The possible resurgence of rinderpest was reported in West Africa where previously optimism for its ultimate control had been expressed. The vaccination program appears to be lagging and losing its momentum (10).

Rift Valley Fever is an emerging disease that appears to be moving north into the Middle East. This is an acute febrile, insect-borne viral disease of ruminants (and man) causing mortal-

¹These were supported by kodachromes of the signs and lesions at the meeting.

ity in young animals and high abortion rates but in many cases the infection can be subclinical. It is an influenza-like disease in man associated in some cases with a retinitis. In animals, lesions are associated with an hepatic necrosis. A differential diagnosis might include enterotoxemia, abortifacients and hepatotoxins. However, would practitioners even consider this in an abortion storm?

Sheep Pox is a disease easily confused with another one that we have as an indigenous disease — Contagious ecthyma (Orf, Sore mouth). Sheep pox, in fully susceptible animals, tends to be a generalized pox disease with fever, lesions on skin and respiratory and upper alimentary tracts. It is the typical pox disease with erythema, papule, vesicle, pustule, exudation, encrustation and scab formation. Caseous, subpleural nodules have been reported in up to 35% of the cases seen in a flock. Contagious ecthyma tends to be more proliferative without the typical pox cycle. Smears might help one differentiate mycotic dermatitis or mange (*Psoroptes*). Photosensitization and bluetongue could be confused with sheep pox.

Hog Cholera and *African Swine Fever* cannot be readily separated in the field. Both have the classic signs of septicemia and must be differentiated from indigenous septicemias of swine such as salmonella and erysipelas. Clinical signs will vary with the virulence of the virus and susceptibility of the host. Initially there is high fever that persists over several days. As the temperature fall, other signs appear such as incoordination, depression and anorexia. Coughing and dyspnea may be evident. Since these viruses attack vascular endothelium, the lesions are associated with edema and hemorrhages in fully susceptible animals. Skin discoloration and enteritis, sometimes with ulceration, may be seen. One must also remember how rapidly these diseases can spread. During the hog cholera outbreak of 1962 there were examples of animals travelling hundreds of miles in hours and passing through several sale barns the same day. Consider also the fact that many of the recent outbreaks of ASF in the Western Hemisphere tended to

have low mortality and comparatively fewer severe gross and microscopic lesions (8). As a result, the disease could escape detection longer.

CONCLUSION

As a result of continued freedom from the exotic diseases discussed, there is pressure on regulatory groups to relax existing strict controls aimed at preventing introduction and spread of these diseases. There are fewer veterinarians with experience in recognizing and handling such diseases. As foreign travel and importation increases, the risk of introducing exotic disease increases. Today, all veterinarians should (a) be able to recognize the classic exotic animal diseases such as FMD, ASF and rinderpest and (b) know what to do if they suspected the presence of such a disease. They must also be constantly on the outlook for ANY outbreak that does not quite fit the picture of our indigenous, domestic diseases. Would many veterinarians in private practice recognize or even consider in a differential diagnosis Nairobi sheep disease, vesicular stomatitis, rinderpest or African horse sickness?

Successful eradication depends on early detection. At a time when the risks are high, the private practitioner is the most important link in early recognition of an exotic disease be it viral, bacterial or parasitic. Should an exotic disease gain entry he is the one most likely to be the first to see it.

The following are some ideas for your consideration. It is important that veterinarians of all disciplines have a good working relationship with one another. Having a plan in mind of how to handle a suspected case of exotic disease in their area will prevent difficulties and lost time for the practitioner and for starting control measures. If one suspects an exotic disease one should promptly notify the local federal veterinarian and not leave the farm or at least not make any further calls until one has discussed the situation with him. The owner must not move either animals or their products, farm implements or vehicles from the premises.

Veterinarians must think about these emerging world diseases and

learn more about them. One must not wait until confronted by a case or worse still, until a case of an exotic disease is missed and has spread. Early recognition will result in prompt eradication. It cannot be emphasized enough that the practitioner is the first line of defence once an exotic disease gains entry into Canada.

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La Revue Vétérinaire Canadienne

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CONVENTION 1981 CONGRÈS
JULY 5-8 JUILLET — WINNIPEG, MANITOBA

DR ROGER ANDREW
MONTAGUE VETERINARY CLINIC
MONTAGUE
PRINCE EDWARD ISLAND
COA IRO

Kidneys from six steers in this herd yielded three leptospiral isolates, two of which were pure cultures. The latter were typed at the Leptospirosis Reference Center at Atlanta, Georgia. Both were identified as *hardjo hardjoprjitno* and they are referred to as Kap strain. They were isolated in Ellinghausen McCullough (EM) medium with 0.2% agar (2) and maintained by

from its tissues. Another two hamsters from the original group, which were asymptomatic, were killed 7 days p.i. and leptospire were isolated from their livers. The two remaining hamsters were moribund 22 days p.i., their sera were positive at 10⁻³ dilution and leptospire were isolated from their kidneys.

Graded doses (0.5, 0.25 and 0.125

the inoculated animals was similar to that in the previous experiment, with animals dying or becoming moribund as early as nine, or as late as 17, days p.i. Serum titers in hamsters that were killed were 10⁻⁴ to 10⁻⁵ and leptospire were isolated from kidneys. Grossly, kidneys appeared greyish and cystic. Histologically two kidneys showed interstitial nephritis and tubulonephrosis with swollen glomeruli

R.G. THOMSON

University of Prince Edward Island
Charlottetown, P.E.I. C1A 4P3

References

1. STEVENSON, R.G. Respiratory diseases of sheep. *Vet. Bull.* 39: 747-759. 1969.
2. WANDERA, J.G. Clinical pulmonary adenomatosis of sheep produced experimentally. *Br. vet. J.* 126: 185. 1970.

P.S. A case of this disease has now been found on P.E.I. and came from a flock which had purchased sheep from Cape Breton. This animal did not die but the lesions were found during meat inspection.

Response to "Comments on Update on Pasteurellosis in Young Cattle"

DEAR SIR:

I concur with my former colleague, Dr. E.V. Langford, that etiological definition of infectious disease processes of the respiratory tract of cattle are much more complicated than the results of experiments conducted to date, may suggest. Nevertheless, experimental data provide a useful starting point in this exercise.

I would like to emphasize that the article was a review and the purpose of this update was to highlight pertinent results of experiments with *P. hemo-*

lytica and *P. multocida* omitting lengthy discussion on less definable issues, e.g. the role of *Mycoplasma*, nutritional, genetic and/or husbandry differences between calves from the two herds studied.

It is unfortunate that Dr. Langford has inferred that vital information is being withheld. In fact, all experiments alluded to in the update are being written up in detail for publication, including the findings relating to *Mycoplasma*.

K.W.F. Jericho
Animal Diseases Research Institute
P.O. Box 640
Lethbridge, Alberta T1J 3Z4

Pulmonary Adenomatosis (Jaagsiekte) in Sheep in Canada

DEAR SIR:

This letter is to report the diagnosis of pulmonary adenomatosis in a ewe from a flock in Nova Scotia and to alert veterinary practitioners and pathologists of the possible occurrence of further cases of the disease.

On December 17, 1979 a 1.5 year-old North County Cheviot ewe from Nova Scotia was presented for post-mortem examination. The history received at the time indicated that the ewe had been gradually losing weight in spite of having a good appetite. There had also been loss of wool and a slight discharge from the vagina. The animal had died suddenly the previous day. A friend of the owner, driving to Prince Edward Island, brought the

sheep to the laboratory at Charlottetown.

Postmortem examination revealed bilateral cranioventral fibropurulent bronchopneumonia and pleuritis. Dark red, firm lesions were confined to the left apical and cardiac lobes and to the right cardiac lobe. The cranioventral portion of the right diaphragmatic lobe was greyish-white and firm.

Some adenomatous foci were present in lesions which contained a concurrent purulent bronchopneumonia. However, many adenomatous lesions were present in otherwise normal lung and occurred in varying degrees from tiny hyperplastic foci to much larger confluent nodules of adenomatous foci. The lesions were entirely characteristic of Jaagsiekte as reported in other countries (1, 2) and could not be confused with other pulmonary lesions of sheep. The lesions were pres-

ent in several slides.

The affected sheep was a first generation descendent of sheep imported from Britain. Since the occurrence of this case, others have been diagnosed in Nova Scotia and detailed investigation is underway. To our knowledge, the disease has not been reported previously in North America.

R.G. STEVENSON
Agriculture Canada
Animal Pathology Laboratory
Box 1410
Sackville, N.B. E0A 3C0

A.J. REHMTULLA
Veterinary Pathology Laboratory
Veterinary & Dairy Branch
P.E.I. Department of Agriculture & Forestry
P.O. Box 1600
Charlottetown, P.E.I. C1A 7N3

TV show on sheep draws on answer

(The story of sick sheep has continued to dog the Cape Breton Development Corporation as it tries to revive the sheep industry on the island. The corporation maintains it is getting a bad press unfairly, and from time to time replies to media coverage. This latest rebuttal was first published in the corporation newsletter, Mines and Matter.

The corporation was disappointed at the recent coverage by CBC and CBC TV of the sheep importation in 1975.

The preoccupation with disease problems has been damaging to the sheep industry even though, of the many thousands of sheep examined, only about 40 cases of pulmonary ademonotosis (PA) were found. Dogs or hunters are far worse a problem.

A corporation spokesman mentioned three examples of distortion in the recent CBC TV feature on the subject, but added that there were others.

For example:

□ It was stated that only one on the board of Cape Breton Lamb was experienced with sheep farming. In fact, of the board of seven members, four were sheep farmers.

□ One person interviewed told the story of how the federal veterinarian had watched the sheep through binoculars. A principal concern of the quarantine was to prevent the disease of scrapie entering the country. This is a disease of the central nervous system which can be initially recognized only by behavioral symptoms under normal pastoral conditions. When excited or bunched together, sheep do not display the symptoms and the disease could not be detected. This was explained to the media at an earlier press conference, and to the farmer in question. However, we guess it was regarded as just too good a story to let go.

□ CBC concern has emphasized a fatal disease called pulmonary ademonotosis, although they did not mention that despite relentless

search only about 40 cases had been found. Of these, four were in the corporation flock, four were in other flocks and about 32 were in the Nettleton flock. This Nettleton flock was largely composed of Scottish Blackface sheep, the offspring of a substantial importation made by them and others about 1970. At least one of the 32 that died had recently come from a mainland Blackface flock where it had no contact with any other North Cheviot sheep. It was not long enough on Cape Breton to have acquired the disease here and died (the incubation period is about a year). Furthermore, not one of the North Country Cheviots sold by the corporation to the Nettletons was subsequently shown to have died of this fatal disease, even though, in some remarkable way, they are supposed to have infected the Blackface.

The corporation's position in respect of this disease was sent in a letter to more than 100 Cape Breton sheep farmers in the summer of 1981. Apparently CBC TV was able to find only three sheep farmers willing to criticize us on TV for the importation of North Country Cheviots. Of these three, two were large producers of Scottish Blackface sheep.

Ottawa robbli

By W. Roger Vworth

The November budget has created untold hardship for a lot of Canadians, including the one million people seeking jobs.

If that needs re-enforcement, just consider remarks made in a letter received by John Bulloch, president of the 63,000-member Canadian Federation of Independent Business. The note is from a small businessman.

"Because of the budget I have cancelled an order for two more

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Confidential

Some Further Thoughts on a PA Identification/Compensation Scheme

Thinking over our discussion of March 20, I couldn't help but be dissatisfied with our tentative agreed working principle: that sheep from all flocks that have had PA confirmed be purchased for research and for slaughter. It seems to me that we have to accept one of two mutually exclusive propositions. (A) PA might be economically eradicated by a slaughter programme, or (B) There is no conceivably way that PA can be eradicated in this way, at a reasonable cost. If we accept proposition (A), and I think maybe we were ~~too~~ quick in dismissing it (there is reason for hope that PA is restricted to very few premises still, based on the ear tagging + slaughter of animals passing through the Cattle Market), then we should be advocating the purchase of still-to-be confirmed flocks as well as flocks confirmed to date. If we accept proposition (B), then it makes no sense to be buying flocks that have had, say, only one case confirmed, particularly if a neighbouring flock were to come down with more serious incidence a year or two later and be ineligible for any compensation whatsoever.

In the thoughts below, I am going to be concentrating on a programme designed to meet proposition (B) in a more satisfactory and equitable way because it seemed to be the feeling at the meeting that a compulsory slaughter programme was out of the question. Nonetheless, I think it would be a good move on our part to seriously consider recommending a slaughter programme (which we could recommend be scrapped if PA turns out to be too widespread to be economically controlled in this way.) This is, after all, the only chance we will ever have to get an early start on the spread of the disease.

But if we do accept proposition (B), what is the object of a PA compensation programme? (1) to limit the spread of the disease, and to allow producers who are willing to make an extra effort to stay clear of the disease. (2) to compensate, albeit inadequately, producers who through no fault of their own acquired PA, and sustained losses directly (through mortality) or indirectly (through loss of sales, or damage to reputation). The following is the kind of programme that I think we should consider:

- 1) All producers who have had, or will have within 5 years, one or more cases of PA confirmed be compensated by a lump sum, once-and-for-all bonus of, say, \$1500 per hundred ewes in their flock, regardless of how many cases show up. I think that this, alongside the potentially adverse effect on public relations of selling PA to unsuspecting buyers, would get a very significant number of producers to submit all suspect casualties for p.m.
- 2) Sheep from farms with a confirmed history of PA be refused from SPANS sales until such time as they have satisfied the requirements of a PA certification scheme for "PA Tested - Negative" status for two consecutive years.
- 3) that a PA certification scheme be run under the auspices of a flock health programme, whereby participants would be required to submit sheep for necropsy and as a result could advertize their stock as "PA Tested - Negative", (adding the no. of years in which their sheep have been tested).
- 4) that the Nettleton flock be purchased for research purposes, to test for the interrelationship with maedi, and to try to come up with a live test for PA.
- 5) To be eligible for the PA compensation bonus, producers must only buy stock that is "PA Tested". This, of course, would not apply to those who have been hit by PA before the institution of this programme.

\$150-00
per ewe

MARCH 18

DISEASE PROBLEM -
~~PROBLEMS~~

Notes

On Flock Health Program: re P.A.

1. Registration or Identification - tied into R.O.P.?
2. Voluntary, but agree to apply by rules.
Penalty - Forfeit status.
3. Annually, certain percentage of lungs from mature sheep, say 20%, to be collected and examined by vet, or meat inspector for evidence of P.A.
4. Blood test for Maedi Visna.
5. If no evidence of P.A. in 1st year, certificate to the effect that "P.A. has not been diagnosed in this flock, this year."
6. After 5 years, this represents examination of the total flock, whereupon it is certified clean.
7. i) Sheep introduced to the flock, to be purchased only from flocks of similar, or better status.
ii) These sheep to be isolated for ? period.
8. If P.A. is diagnosed, the flock loses its status.
Should such flocks be quarantined / slaughtered with compensation paid?

Incentives to Enroll

- a) Publication of list of certified flocks
- b) Guaranteed price for slaughtered culls at fair market value.
Full market price, with no penalty because of distance from the inspected plant.
- c) Guarantee of yearling value for any positive diagnosis.
- d) Premium for breeding stock.

March 18

2

Notes

Possible volunteers for clean flode program:-

	# sheep.
Mildon	70
L.B.N.	50
James	50
B. Davis.	150
P. Rogers.	50
D. Morrison	100
S. Kennie	90
M. Ammiranti	200
P. deBlanc	125
LeBlanc Bros	200
D. Murphy	50
<u>Others</u>	
A. Forbes	200
A Rouse	50
B Kneen	300
R. Kay	40
G. Brummell	200
R. Mitchell	300
D. Mueller	200
A. Marchbank	100
B. Blacklock	
A. Richardson	
M. Longheed	

DISEASE COMMITTEE - NOTES

Phone calls - March 22/81.

Alex Forbes - Very concerned. Skeptical of Wayne's intentions.

Purchased breeders are getting net from Windsor to examine rams for sale.
Considering blood test for Maedi of all animals admitted to sale.

Some kind of H of A tag - Is that advisable.

Maybe Association between Maedi and P.A. - Must follow this up.

Maedi has been around for a long time.

How do we get Brian and other credible experts involved
Should we call off the sale until more work has been done on this, advise consignors, buyers of the problem?

Bruce Blacklock - Confirmed Alex's comments about ~~the~~ association between Maedi & P.A.

Distrust of Wayne - self-interested.

Claims that Jim Lowe has a report to submit, but was not informed of date of the semi-annual meeting - Why? Was he?

Brian - Very angry, hostile, - sheep producers not doing anything.

Hard to get he and Martha to state what they want. They are defensive.

Everyone accuses them of self-interest, but they are concerned about future of industry. Nobody is taking any notice. Sheep Producers don't want to know. The committee is wishy-washy.

I suggested they contact Wayne, ask for written assurance that something would be done. They did this. Wayne asked them to write him with this request.

They will put their sheep on the market, if nothing happens quickly.

Said they have requested H of A to a) Quarantine the Leicesters

b) Take their flock for research

Submitted blood samples to net. meeting ~~at~~ on Thursday.

Wanted Bounchy to take them to U.K. Feeds would not give clearance. Insisted they go to Sackville.

Sun Mar 22nd/

DISEASE COMMITTEE

To do

Request minutes of Task Force from Stu Albaby.

Write Wayne :- Minutes

Invitation immediately to all producers to submit for next meeting.

Should I get report from Jim Lowe.

Write Brian - re private organising ~~off~~ of other producers.

Get him to send copy of letter to Wayne, to all members of committee, so we can bring it up.

John Mildon,
R.R.2, Upper Stewiacke,
Col Co., N.S.
BON 2PO

Mr. Stuart Allaby, Director,
Livestock Services Branch,
P.O. Box 550, Truro,
N.S. B2N 5E3.

March 24/81

Dear Mr. Allaby,

The committee of S.P.A.NSS which is looking at the
disease problem has asked me to request copies of the
minutes and reports of the Ministerial TaskForce which was
investigating the issue last year.

Since you or a representative of your branch is
participating in the work of the Health committee, I wonder if you
would provide the committee with a copy of the minutes etc.

Thank you very much.

Yours sincerely,

John Mildon, Secretary.

250
 250
 150
400
 1050 - 1000
 1400 1500 MAXIMUM

~~15000~~

Agreed - Recommend purchase of all sheep from flocks infected by P.A.. Selected stock to be used to set up a research and demonstration flock for the intensive study of all pneumonic diseases.

Remainder to be ~~dispo~~ sold for slaughter

~~Dispo~~ Fair market value to be negotiated between the producer and the purchasing agents.

Obtain Complete recommendations and minutes of the task force advisory committee to the Minister.

Committee

✓ Peter Rogers	RR 1	Lockport	BOT	120
✓ Wayne	River	Herbert	RR1	BoL 160
✓ Tremaine	RR4	Amherst	B4H	342
Alex	R.R 1	Debert		

Richard Ducharme

Govt. -

Stewart Alkaby,

Next meeting - approx 15th April,

P.A Compensation
for identified flocks.

Peter Compensation to producers
who have had it identified
Set up "Research Flock".

Tremaine

Compensate anyone for positive ID.
of P.A.

Alec.

Compensation at fair market value
for all sheep submitted for slaughter
for diagnosis.

In favour of compensation for whole
flock slaughter.

John

~~Compens~~

Flock Health

Virus diseases - non-pestable - pestable

E.A.E

Management disease

Dog

Footrot

Peter 1.

Voluntary program for producers to opt into.
Producers take the risk of having diseases
identified, may be beneficial in long term.

Tremaine

Undecided as to nature of a program.

Should come up with some kind of program.

Alec Cases yet to be confirmed of P.A.

~~For next 2 years see compensation for~~

Compensation for next 2 years from date of
identification for all confirmed cases.

Provided funds are there.

In favour of opting in to different flock
health plan schedules suited to your management.

Try and involve all other provinces.

Turn bad thing to advantage.

The atmosphere right now is good and ripe

P.A. compensation

Wayne

If Feds have money to spend and want to set up a research and demonstration flock, let them do so.

OR Show us how to better utilize the tools we have to deal with to control

OR pasteurizer and other pneumatic diseases

Compulsory slaughter of P.A. infected flocks, already identified, with compensation.

OR Federal govt. buy the infected flocks, take what they want for research and butcher the rest.

Health program

Wayne.

Input from couple of top veterinarians into those flocks which there are accurate tests, which are 100% accurate.

E.A.E should be included, because producers would become familiar with the problem.

Same with Fostrot etc.

For Research Flock. $1500 \times 25 = 37,500$
~~\$ 200,000~~ purchase sheep.
income

REQUIREMENTS

- ① Good veterinary input, with practical basis.
- ② Qualified fieldman, to run the program at provincial level. - familiar with feeding and forage systems, and other aspects of health.

John

Not in favour of compulsory slaughter, it does not work.

EITHER Buy ~~the~~ confirmed flocks for research/demonstration at fair market value.

OR Compensate owners for losses already incurred.

Quarantine flock for sale of breeding stock for period, probably 5 years and compensate for difference between slaughter value and breeding stock value for x number of ewe lambs per year.

Health program

Compulsory tagging of flocks.

Submission of certain percentage annually for inspected slaughter, owner to be paid fair market value for ~~the~~ those animals.

Quarantine on recognition of outbreak, and change of status to "infected flock" as per other column.

Other aspects of health program to be voluntary with certification through veterinary inspection etc.

Health Committee

6.30 - 20th March.

Confidential

1. ~~Dept where~~ Wayne's report from Dept of Agriculture.
They are willing to compensate flock owners who have P.A.
Federal Govt. has indicated their willingness to underwrite such a program.
2. The question of openness and reporting of committee proceedings was discussed.
3. Federal govt. may be willing to set up a research unit to study P.A.
(Woolfitt suggested this be extended to include other pneumonic diseases).
Dr. Bulmer, Federal Health of Animals is willing to meet with the committee if we ask for it.
4. Rogers - Appear to be two separate issues
 - ① What to do about specific diseases like P.A.
 - ② Development of a flock health or "certification" program.
5. Discussion about how to implement compensation and the amount.
Cost-benefit ratio.
6. Discussion of general flock health program - i.e. control of all infectious diseases.
7. Wayne compensation is not the effective way of getting where we want to be.
8. Greater awareness of "health" problems will lead to increased consciousness of producers.

ELYSIAN FARMS
RIVER HEBERT
NOVA SCOTIA BOL 1G0

Mar 28 / 81

John Midson, Rec. Sec.,
Health Committee, SPANF.

"
Re: 1st Health Meeting

Dear John:

I am very much in favour of a research centre
being set up for pneumonic diseases of sheep in conj.
with either the Salt Valley, or N.S. A.C. Animals for
this work could be drawn from infected flocks (P.A.).
This unit would help to upgrade producer knowledge
re: control of pneumonia etc.

I am not in favour of compensation unless a) assoc.
with above unit or b) as a one shot deal to get
rid of one high incidence P.A. flock. On b) it

ELYSIAN FARMS
RIVER HEBERT
NOVA SCOTIA BOL 1G0

sets a wrong precedence but may help to slow
the spread of P. A. generally.

Yours very truly,
J. C. Wray

Rock Loaf Farm,
Arichat.
BOE IAO.
March 25, 1981

Dear John,

The enclosed news sheet was sent to Cape Breton producers by Devco. Until now they have relied on a word in the right ear to spread rumours, but now they have put it in print, I think it will be of concern to breeders of Blackface. We did so much work to get the Blackies, the usual meetings, and letters back and forth, and to have Devco personnel insinuate that we imported the problems in '970, is a reflection on the integrity of people Andy Richardson, and doesn't say much for the efficiency of the Pathology Laboratory in Truro.

I really appreciate your support, but as I said on the phone don't stick your neck out, it is not worth it. Brian has some powerful enemies, which includes himself sometimes. I could have predicted last year what would happen, and I urged Stu Allaby to suggest to those in control, that if they wanted to handle the disease situation quietly then they had better arrange a job out of the country for Brian for a spell, until they got it sorted out. I will tell you in the strictest confidence that we have applied to an Overseas Development Agency to work abroad for a couple of years., but even that I can not do unless I can get rid of the sheep. I will certainly come back to Cape Breton, this is where I really want to be, but at the moment the prospect of spending my old age with Brian talking about, what might have been sheep, Government and Devco, is so depressing, I am willing to go elsewhere for a spell so that Brian can get Devco, Cape Breton out of his thoughts, and have other experiences to talk about, because I am getting to the stage that even to think sheep causes me to have all sorts of emotional stress.

You asked what do we want, at this stage it is very simple I want Government to take the sheep, and cover my livestock loan., so that I can get on with planning what we do next. What I would like to see done is for Government to do some ~~work~~ research so that other people will not suffer as we have done.

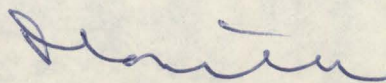
I have been asked why I kept the sheep, if we were so sure that it might be a ~~problem~~ situation similar to Iceland? and that is really difficult to answer, the first thing is Brian is a vet, if we had sold the flock, and other people had our losses then they would not remember the Provincial Vet said it would not be a problem, they would just think or be told, that S.O.B. Nettleton. Aslo Brian's professional credibility had been challenged, so I had to find out what the incidence of P.A. could be under Canadian conditions.

This last year has been a very educational experience for all the Nettletons an indoctrination into canadian politics, I just wish we had paid a little more attention in the previous twenty., but it has been good for the kids to see how the system works, and who governs Canada.

I wish I knew what was going on in the Association, one of our fears last year at this time, was that Brewster might get hold of the Cape Breton situation, and have a political heyday, and so retard any measures that Government might want to institute, but it would appear Brewster's personal motivations overrule his political ones.

If you think Bruce Blacklock might be interested in what Devco is saying about the Blackies and Greyface would you pass it along.

Again many thanks, Love to Helen and make sure you come up for a week-end, and we will make a house rule not to talk sheep,



ENZOOTIC ABORTION AND PULMONARY ADENOMATOSIS

We regret that we should again be compelled to enter the discussion of sheep disease in Cape Breton. However, recent remarks by Dr. Nettleton to the Kiwanis Club in Sydney and perhaps of more significance, derogatory comment in the "Scottish Farmer" by "A veterinarian who wished to remain anonymous since he practices in Nova Scotia", about the sheep imported to Cape Breton cannot be disregarded. Since the matter has now, apparently, taken on a global dimension, we feel that we must at least make some response to the Cape Breton farmers whose interests we try to serve.

ENZOOTIC ABORTION

It has been alleged in some quarters that the Devco importations introduced enzootic abortion to this part of Canada. Certainly some cases were identified in our sheep resulting in the glib assumption that poor lambing percentages should have warned us earlier of its presence. In fact, lambing percentages were, in 1976, in excess of 100% and in 1979 again over 100%. In 1977 and 1978 they were significantly lower.

A few critics seem to have assumed that the poor percentages were caused by enzootic abortion. We believe that there were other more significant factors --principally a decision not to cull any ewes. It was hoped --and perhaps given hindsight-- the decision should have been different; that some of the old and broken-mouthed sheep would produce one more lamb. In fact, they went through the winter empty and had an adverse effect on the overall lambing percentage. In 1978, we culled the worst of these with the consequence that the lambing percentage rose to over 100% again in 1979.

It should be noted that we have made our results public, while others who have been responsible for recent importations have not. We understand that their lambing percentages were similar to ours and possibly for the same reasons. 1

It has been assumed by some that there was no enzootic abortion here until the Devco flock was imported. We suggest that the number of foetuses sent for post-mortem had been so low that the likelihood of finding it was remote. We understand that it has recently been identified in this Province in a flock which has had absolutely no contact with our sheep. This is surely revealing.

PULMONARY ADENOMATOSIS

Here again, a more analytical approach might have better served the industry.

Of the more than thirty diagnosed cases to date, Devco has had only four, two ewes and two rams. As a result, we have taken steps to find out more about the disease. Knowledge is not widespread but it does seem most prevalent in sheep from Scotland. The only case ever identified in Norway, for example, was in a sheep imported from Scotland.

The Moredun Institute in Edinburgh, which is studying the disease, has had some interesting experiences. When deliberate efforts were made to infect sheep under experimental conditions using direct injections of the virus into the trachea, the average time for the resulting lesions to cause death was nine months. They believe that in farm conditions with an in-wintered flock, an infected sheep will not cause death in others until at least a year, probably longer. 11

1. Devco does not realise that other importations were not Government subsidised, that farmers paid for the sheep, with a bit of help with transportation from the Provincial government, so why would they publish lambing %
11. The two key words which will be overlooked are, average, and death. We have not had many sheep die from P.A., we butcher, trying to cut down the spread of infection, and feeding costs.

An expert on the disease has told us that even if a sheep purchased from Cape Breton Lamb had been so riddled with the disease to be at the point of death, the chances of the other sheep succumbing to the PA before a year had passed would be, to say the least, remote. That means that an infected sheep bought in the Fall of 1979, would not cause death in the flock she joined until October 1980, at the very earliest. Yet it has been suggested that sheep from our flock caused the disease to claim victims as soon as April. Surely, it is more likely that the disease was already in the recipient flock. III

A case in point. One of the two sheep which initially died with confirmed cases of PA in the Nettleton flock, was a Scottish Blackface which had been purchased from a mainland flock the previous Fall. It could not have been with North Country Cheviots long enough to have acquired the disease from them and succumbed to it. Incidentally, the Nettletons, who have apparently lost a number of sheep to PA, losses which have been blamed exclusively on North Country Cheviots purchased from Cape Breton Lamb, have not shown that any of the North Countries acquired by them subsequently died of this disease. IV

A more cheerful point. We understand from the Moredun Institute that when a flock becomes infected there is an initial flurry, but that the disease then settles down to lower than 2% on infected farms where it is not regarded as commercially significant.

The cumulative evidence suggests that this is a disease principally of concern to those raising Greyface sheep, the offspring of Scottish Blackface and Leicester; and that while it is insignificant in overall sheep numbers, in individual Greyface flocks it can be a

111/ No mention of the Nettletons buying cheviots at the Super Sheep Sale

1V. One imported Cheviot did have P.A. confirmed.

V. Greyface sheep, Blackface and Leicester, note no mention that a Scottish Greyface has a Border Leicester sire.

real problem for a limited period. In Scotland over the past nine years, the Moredun Institute has examined 223 cases from 38 farms. Of these 48% were Greyface.

Certainly other breeds, Cheviots included, succumb as well; However, the incidence in Scottish Halfbreeds - Leicester and Cheviot - has been less than half the incidence of similarly managed Greyface. Nonetheless, insufficient work has been done to draw any dogmatic conclusion. One can only make cautious assumptions which may have to be modified as understanding grows.

Since the discovery of the disease in this area, every sheep and every lamb sent for slaughter by the Cape Breton Development Corporation has been subjected to federal veterinary inspection. Thus far not a single case has been found. vi

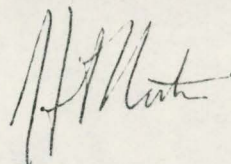
Despite the foregoing evidence, it has been alleged by a few that this disease was introduced with the Devco importations. But given the disproportionately high incidence of the disease in greyface in Scotland, given the recent importations of Hexham Leicesters and Scottish Blackface, given the prevalence and location of the disease in the past year, we find it incomprehensible that it should be assumed it was brought here by North Country Cheviots and not by other importations.

As you are aware, Devco has imported and distributed a vaccine which will, hopefully, assist in the eradication of enzootic abortion in this area. Recognizing that very little information is available on PA - which might be a commentary on its importance - Devco might now consider operating a modestly sized flock to try to establish its

V1. Could it be that the Devco flock had their flurry of P.A. cases while in Quarantine, so have settled down ~~xxxxx~~ liveable level.

incidence and probable commercial impact. We could run this, in quarantine, monitored by government veterinarians and following their suggested practices, try to establish which breeds or their crosses are most vulnerable in this part of the world.

This information is sent to you, not with the intent of escalating a discussion which has already lasted too long and gone too far, but to provide you with information on which a fair opinion may be based.



Hal Norton
Director of Operations

DEVCO FARMING OPERATIONS
R R No. 4 MABOU
NOVA SCOTIA, BOE 1X0

— Wayne
RR 2 River the Desert
NS. BOL 1 GO

— Peter R
RR 1 Lockport
BOT 1 LO.

→ Tremaine Fulley
RR 4 Amherst B4H 372.

Alex
RR 1 Desert

— Richard Dudrone

Is Alex on disease
count?

Should copies go to
Ray Long + Roy Mac(?)

23

View of basement walls
being built

11 from presentation 1.

The basement walls of our energy efficient house look much like those of any house, but they are thicker?, to bear the weight of the heavier walls.

24

#12 from presentation 1.

Then they are insulated on the outside with sheets of ___" styrofoam. These have a high insulation value of R15. By doing it this way, the walls warm up and store a certain amount of heat which is released into the house at night, or when the furnace stops running.



NOVA SCOTIA
DEPARTMENT OF AGRICULTURE
AND MARKETING
LIVESTOCK SERVICES BRANCH

Truro, N. S., B2N 5E3
April 2, 1981

Mr. John Mildon,
R.R.#2,
Upper Stewiacke, N.S.
BON 2P0

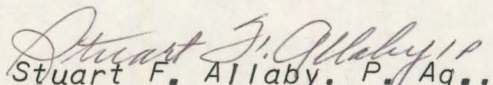
Dear Mr. Mildon:

In response to your letter regarding material from the Task Force investigating PA and EAE. Checking with the Secretary of this Committee, Roy MacKenzie, rough notes of the discussion papers were taken and these embodied in the Task Force report. I think, therefore, the Task Force report would give you the information you need. In any event, Dr. Long and Roy MacKenzie will be our representatives on the Task Force Committee.

Secondly, there should be a correction noted for the minutes. I have no authority to say that the Department is willing to consider some kind of compensation program and if I have been interpreted as saying it, I am sorry.

I did say that I see the disease issue; (1) those that have flocks that have had PA diagnosed and, (2) those flocks that are supposedly clean; and these two situations have to be dealt with separately. It may involve compensation but I have not the authority to suggest compensation be paid.

Yours very truly,


Stuart F. Allaby, P. Ag.,
Director,
Livestock Services

SFA/gp
c.c. - Wayne Woolfitt

Revised 22/1/81

THE HERPESVIRUS OF SHEEP PULMONARY ADENOMATOSIS

W. B. MARTIN, K. W. ANGUS, G. W. ROBINSON and F. M. M. SCOTT

Moredu Research Institute, 408 Colinton Road, Edinburgh, EH17 7JH, Scotland

Abstract—Sheep pulmonary adenomatosis is a contagious tumour of the lungs, which was first recognised in South Africa. The disease has now been reported in sheep from many parts of the world, affecting a wide variety of breeds and both sexes.

Mortality may be heavy when the infection is introduced into flocks. Clinical signs are mainly those of chronic respiratory disease. Affected areas of lung are solid, enlarged and often light grey. On microscopic examination the main change in the tumour areas is that the alveoli are lined with cuboidal or columnar cells.

A herpesvirus has been isolated from these tumours in sheep from four countries. No antigenic relationship to other herpesviruses is known.

The weight of experimental evidence indicates that this virus does not cause disease in small laboratory animals or produce pulmonary adenomatosis in sheep.

Key words: Pulmonary adenomatosis, cuboidal cells, columnar cells, herpesvirus

L'HERPESVIRUS DE L'ADENOMATOSE PULMONAIRE DU MOUTON

Résumé—L'adénomatose pulmonaire du mouton est une tumeur contagieuse des poumons qui fut découverte pour la première fois en Afrique du Sud. Cette maladie a maintenant été détectée chez les moutons de divers pays, atteignant une grande variété de races et les deux sexes.

La mortalité peut être élevée lorsque l'infection est induite dans les troupeaux. Les signes cliniques sont principalement ceux d'une maladie chronique respiratoire. Les zones de poumon atteintes sont dures, larges et souvent d'un gris clair. Après examen au microscope, on constate un changement important dans les zones tumorales: les alvéoles sont soulignées de cellules cuboïdes ou en colonnes.

Un herpesvirus a été isolé de ces tumeurs chez les moutons de quatre pays. Aucune relation antigénique avec les autres herpesvirus n'est établie.

Les importants résultats obtenus par des expériences montrent que ce virus n'est pas capable de provoquer une maladie chez les petits animaux de laboratoire ni d'adénomatose pulmonaire expérimentale chez le mouton.

Mots clefs: Adénomatose pulmonaire, cellules cuboïdes, cellules en colonnes, herpesvirus

INTRODUCTION

Sheep pulmonary adenomatosis (SPA) is a transmissible contagious tumour affecting the lungs of sheep. The first descriptions of the disease came from South Africa where it has been recognised apparently since 1837 [1]. Because the respirations of affected sheep resemble those of animals which have been driven the Afrikaans term jaagsiekte (jaagt = to drive, ziekte = sickness) has been applied to the condition.

The disease was early recognised as being contagious where airborne infection could occur [2] and it was generally thought that a virus might be involved [3, 4]. It was not however, until Mackay [5, 6] isolated a herpesvirus that proof of the presence of virus in the SPA tumour was obtained. Since then evidence for the existence of a retrovirus has been published [7].

This article, however, will deal mainly with information about this ovine herpesvirus and associated work at Moredu Research Institute on SPA.

EPIDEMIOLOGY

Distribution

Since the early descriptions of SPA in South Africa the disease has been recognised in other countries. Dykes and McFadyean [8] described it in Britain and subsequently SPA was reported in Germany [9] and France [10]. The disease has since been described from other areas and continents of the world—South America [11] Israel [12], East Africa [13] and India [14]—and has been recorded now in over 20 countries. Surprisingly the disease has been seen in Australia, New Zealand or Canada and it has been incorrectly reported occurring in the U.S.A. [15] where it was confused with progressive pneumonia. In Iceland the disease caused enormous losses but was eventually eliminated by adopting a slaughter policy.

In Scotland the disease has been recognised in several flocks, particularly in the East of Scotland. Nisbet [16] confirmed its presence in 223 sheep on 38 farms in Scotland over a period of 9 yr, from 1961 to 1970.

Breeds affected

The disease has been recorded in many breeds e.g. Karakul [4], Masai sheep [13], Merino [17], Awassi [18] and Scottish Blackface [19]. Nisbet [16] in his survey noted that, of sheep affected, 48% were Greyface (Border Leicester × Blackface), 22% were Halfbred (Border Leicester × Cheviot), 13% were Cheviot, 7% were Blackface and the remainder Border Leicester or other breeds and crosses. These figures may merely reflect the relative proportions of breeds in the area from which cases were obtained. Tustin [1] found a high incidence in Merino sheep but noted that SPA was present in other breeds in South Africa.

Sex

The disease is not restricted to one sex but males may be more susceptible to the disease according to observations by De Kock [20] and Mackay *et al.* [19]. Tustin [1], however, did not find no difference in incidence between sexes in a survey which he carried out on the disease.

Age

Sheep of all ages are susceptible, but clinical signs are generally seen in mature sheep between 2 and 4 yr old because of the long incubation period. The common age for sheep to show the disease in South Africa was 1.5–3 yr [1]. Clinical disease is seldom seen in sheep under 6 months [19] but Nisbet [16] found a case as young as 5 months and another case as 11 yr.

Animals affected

SPA is a disease of sheep, but not cattle. Doubt exists whether goats become infected naturally. Dungal [4] did not observe the disease in any goat during the outbreak in India. In contrast Dwivedi [21] recorded SPA lesions in 0.13% of 25,467 goats and 0.6% of 100 sheep killed at abattoirs in India. Tustin [1] in his review of ovine jaagsiekte gave

opinion that reports of the disease in goats were erroneous and due to inaccurate histopathological differentiation from other conditions. The authors of this article have never seen the adenomatous lesions in any goats, even those kept for several years in the same general house as sheep.

Mortality

The average annual mortality attributable to SPA on farms in South Africa has been stated as 2% with a range of 0.3–24% [1]. In Kenya in flocks where the disease is endemic annual losses from SPA are stated to be between 1% and 5%, and in Britain as less than 1% [23]. When first introduced into susceptible sheep flocks losses can be much higher and may reach 50–80% [24]. Shirlaw [13] noted losses of 30% in Kenya, when the disease was first described there.

CLINICAL SIGNS

The incubation period following contact with infected sheep or inhalation of an aerosol of infectious droplets may range from 380–1034 days [1]. The authors have found that, on intratracheal inoculation of suspensions prepared from SPA tumour, sheep usually develop clinical signs within 5–12 months.

Sheep affected with SPA are only likely to show clinical signs when tumours become sufficiently large to affect normal lung physiology and function. Signs are those of respiratory distress, with varying degrees of hyperpnoea and tachypnoea and even dyspnoea on exercise. Coughing, though it does occur, is never a prominent sign. On auscultation sounds may be heard on expiration which are as intense as on inspiration and in more advanced cases, sibilant sounds or moist rales may be evident. In severely affected cases respiratory sounds may be audible without the aid of a stethoscope. The disease is not accompanied by fever.

Loss of weight may be marked though sheep continue to eat. Death is the inevitable outcome in all clinically affected animals. Usually clinical signs are present for several weeks before death, which may occur suddenly if acute pneumonic pasteurellosis supervenes.

A feature of SPA is the accumulation of fluid in the respiratory passages and a useful diagnostic test is to hold the sheep so that the head is lower than the chest when the frothy, thin, mucoid fluid will run from the nostrils (Fig. 1).

PATHOLOGY

Necropsy findings

Changes are restricted to the lungs and pulmonary lymph nodes. The appearance of the lungs in the uncomplicated clinical case is vividly recorded by Dungal *et al.* [24]. Lungs are often enormously enlarged, particularly the ventral portion or margins of the lobes (Fig. 2). Affected areas of the lungs are solid and light grey or light purple in colour, and the tissue looks slightly translucent. The lungs are usually very heavy and appear 'waterlogged', but although copious frothy fluid often pours from the bronchial passages on incision, the parenchyma seldom exudes fluid. The cut surface shows numerous small, slightly elevated whitish-grey nodules in section. The lung tissue feels moist and is very friable. The pleura is

THE PRESIDENT'S VIEWPOINT

FLOCK HEALTH

I. PULMONARY ADENOMATOSIS (PA) and the Commercial Producer - a short presentation to the Scrapie Conference at Ottawa.

There now exists a considerable number of small, middle and large-sized flocks that have a considerable investment in their farm units. Over the past few years, time has been spent by these sheep farmers selecting a group of animals that are adaptable to their local conditions. (Sometimes with the time consuming use of ROP).

They have come to grips with the disease problems they initially found.

In many cases it is advisable to utilize new blood from purebred flocks or from other areas to maximize the effects of cross-breeding. This involves the purchase of sheep - probably purebreds. Therefore, the onus is on the pure breeders to ensure that they do not introduce new diseases to these units.

I am of the opinion that if proper care had been taken in the selection of animals in importation, sheep carrying the disease would not have been imported. Once the sheep were imported, it should have been detected in the quarantine phase, especially since it was known that these sheep were brought from areas containing P.A. It will be the producers that will bear the bulk of the cost in the years to come.

My final words to the meeting and also to the Canada Sheep Council were: That the sheep industry is on the upswing. There must be more input by producers into provincial and federal bodies concerning animal health. The meeting in Ottawa on Scrapie that involved commercial producers, purebred producers, members from the Federal and Provincial Governments in Research, Extension and Teaching and Veterinarians was a very significant first step.

II. DISEASE (HEALTH??) COMMITTEE

At the direction of the producers at the semi-annual meeting on March 7, 1981, a Disease Committee has been set up by the Directors. It consists of Tremaine Finley, Richard Ducharme, Peter Rogers, John Mildon and Wayne Woolfitt and a representative of the N.S.D.A.M. The first meeting was held March 20, 1981 after the talk by Dr. T. Boundy and the Directors' Meeting. Discussions were held under the following: (1) PA (2) Flock Health Program. The Committee solicits written submissions from any individual in the sheep industry on ideas regarding P.A. and/or a flock health program. Please send these in by May 20, 1981 to John Mildon, Recording Secretary of the Committee.

Where can the Federal Government help? They can start by taking a close look at imports of fresh New Zealand lamb that knock hell out of our lamb market at key times of the year. Let us make a dollar and we will build a sheep industry. They should overhaul the regulations concerning importation - NOW - Farmers work long hours - it is their turn if they desire to be part of the industry. Let's get the job done - NOW. The Federal Department of Agriculture should set up a board re: inputs into Federal Research on matters related to sheep. We must have a member on that board.

Levies on imported wool and lamb should be returned to the Sheep Industry by the Federal Government.

I do not think we need compensation programs - what diseases are you going to compensate for? Who got hurt the most? Those with PA, those with abortion problems or those with other pneumonic problems. Where does compensation end? Where has it got the Scrapie program? We have to clean up the mess - get the best information on how to clean up our flocks and get with it. The time has come to stop pointing fingers at each other and to try to work together to build a sheep industry. In my opinion we can produce lamb in Nova Scotia as cheaply as anywhere else in Canada. Give us some clean stock, the means to keep the flock clean and a chance to make a reasonable living.

FROZEN NEW ZEALAND LAMB

New Zealand lamb is undercutting the price of fresh Canadian lamb at key times of the year. This is occurring at Christmas and Easter. I am sure frozen carcasses are being thawed and sold as fresh Canadian lamb.

Frozen New Zealand lamb is available year round to Canadian consumers through retail outlets. The budget for advertising for Canada alone that was sponsored by the New Zealand Lamb Board was two million dollars in 1980. They have a consistent supply constantly available. This product does not compete directly with fresh Canadian lamb that is available fresh soon after slaughter.

At Easter and Christmas when ethnic demand is keenest, Canada Packers is flying New Zealand lamb into Toronto. Last Christmas 2,000 carcasses weighing 22 pounds were flown in; the previous Easter 50,000 pounds were flown in. This is unfair competition in that their production costs are far lower than ours. The Packers therefore can offer these lambs to retailers at a reduced price, undercutting the market and dropping the price of all lambs at this time. It has been suggested that the tariff on lamb should be increased immediately on carcass weights of up to 32 pounds or live weight up to 65 pounds to \$.25 per pound. (Presently $\frac{1}{2}$ ¢ per pound).

In addition some Packers and individuals are removing the brands off frozen New Zealand lambs. The carcasses are then thawed and sold as fresh Canadian lamb. A more effective branding procedure is needed.

(by Wayne Woolfitt)



NOVA SCOTIA
DEPARTMENT OF AGRICULTURE
AND MARKETING
LIVESTOCK SERVICES BRANCH

Truro, N. S., B2N 5E3
May 25, 1981

Mr. Roy N. Evans,
Secretary-Treasurer,
Sheep Producers Association of N.S.,
R.R.#1, KINGSTON, N. S.
BOP 1R0

Dear Roy:

Re: Resolution Regarding Compensation for PA in Sheep

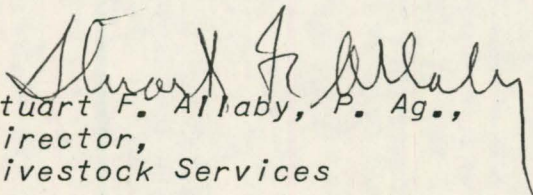
In reply to your resolution passed at your April 24th meeting re the threat of PA from the Nettleton flock and your request for slaughter and compensation.

At the present time, serious negotiations are going on concerning PA research and the possibility that some of the infected sheep from flocks in the area, and particularly the Nettleton flock, will be required as research animals.

In light of this discussion with the Federal Government, Devco, and ourselves, I would not want to jeopardize the anticipated program by recommending slaughter and compensation for the Nettleton flock at this time.

I will keep you advised when further developments take place re the proposed program. The original target date was set for the first part of June. Hopefully, information will be available by that time.

Yours very truly,


Stuart F. Allaby, P. Ag.,
Director,
Livestock Services

SFA/gp
c.c. - Wayne Woolfitt;
J. R. Long
W. V. Grant
→ John Mildon

VACCINATE AGAINST OVINE ABORTION

J. R. LONG, D.V.M.

To April 1 this year, EAE has been found on five (5) farms (not all confirmed as yet) and Vibrio has caused abortion on eight (8) farms. In a few cases both diseases were found in the same flock.

Although our knowledge is limited as to the effectiveness of the vaccines against these two diseases, we strongly suggest you vaccinate all ewes (except ones that have aborted from these diseases) before breeding this fall. The final decision is up to you and your veterinarian.

Both vaccines will be ordered for producers, by Mr. Roy Evans, Secretary, S.P.A.N.S. Because of the lead time required, it is essential that you send your order to Roy Evans not later than May 31, 1981. Use attached order below.

Brief Vaccine Data

<u>Vaccine</u>	<u>Dose</u>	<u>Vaccinate</u>	<u>Cost/Animal</u> *
EAE	1 ml.	Every 3 years	\$2.00
Vibrio	5 ml.	Every year **	50 - 60 cents

* Tentative cost.

** Some recommend vaccinating twice/year (before breeding and again before lambing).

Vaccine Order Form

Name: _____

Address: _____

No. Sheep EAE _____ No. Sheep Vibrio _____

Date: _____ Owners Signature _____

Copy - File

R.R. #2
Upper Stewiacke
Col. Co., N.S. BON 2PO

June 16, 1981

Mrs. Martha Nettleton
Rockloaf Farm
Arichat, Richmond County, N.S.

Dear Martha:

Re: Situation with P.A. and other diseases

This is to advise you of the latest action of S.P.A.N.S. with respect to this problem.

The disease/health committee met on June 11, followed by a meeting of the directors of S.P.A.N.S.

We had received a letter from Stuart Allaby advising us that direct slaughter and compensation could not be considered pending a decision about the setting up of a respiratory disease research program, which might involve the purchase of sheep from infected flocks.

Dr. Long, who had just returned with Stuart Allaby from a meeting in Ottawa with Dr. Bulmer and others, told us that Health of Animals are not enthusiastic about such a program, considering the high cost, and the low importance of the sheep industry! A definite answer should be forthcoming within a week or so, he said.

The directors have decided to write Dr. Bulmer immediately, requesting the Federal government to set up this program, pointing out the already considerable investment of federal funds in the expensive importation program and quarantine, and asking the federal government to deal with the serious problems which subsequently emerged.

Wayne Woolfitt and Roy Evans are also hoping to meet with E. Whelan during his upcoming visit to Nova Scotia.

These developments are obviously not very encouraging for you.

The committee would welcome any suggestions or recommendations you can give to arrive at a satisfactory resolution of the problem.

Yours sincerely,

John Mildon
Recording Secretary/Health Committee

N.S. SHEEP PRODUCERS ASSOCIATION
HEALTH COMMITTEE MEETING

PRESENT

3 p.m. June 11th, Livestock Services Board Room, Truro
Wayne Woolfitt, Dr. Ray Long, Tremaine Finlay, ~~Guy Sanders~~
Peter Rogers, Richard Ducharme, John Mildon.
GUEST- Guy Sanders

Minutes:

Mildon reviewed the minutes of the meeting with representatives of Agriculture Canada, Health of Animals Branch, May 20/81.

Correspondence:

The contents of a letter from Roy Evans to Stuart Allaby, and Mr. Allaby's response were noted and discussed.

Evans informed Allaby of the motion of S.P.A.N.S. directors re: compensation to owners of flocks affected with P.A.

Mr. Allaby advised that pending discussions between the provincial and federal governments re: establishment of a respiratory disease research program, the question of direct slaughter and compensation be left for the time being.

Dr. Long reported on a recent meeting he and Mr. Allaby had in Ottawa with representatives of Health of Animals. He said that Dr. Bulmer stated that long-term investment in such a program was unlikely, because of the high cost, and the low importance of the sheep industry. He explained that such a program, if implemented, would probably be located at Sackville.

Dr. Long also ruled out any possibility of direct compensation by either the federal or provincial governments to producers, but he implied that if the federal government agrees to fund a research program, purchase of sheep from affected flocks was a strong possibility.

After lengthy discussion it was agreed to put pressure on the federal government to implement a research program and purchase sheep from affected flocks.

MOTION --

That the Secretary of S.P.A.N.S. write to Dr. Bulmer, Federal Health of Animals, requesting an immediate and positive decision on the proposed research program for respiratory diseases in sheep. Further, that he be reminded of the extreme importance and urgency

for action to deal with the disease problems which have been identified in Nova Scotia. MOVED Rogers, SECOND Woolfitt.

MOVED --

That the Secretary of S.P.A.N.S. write to Mr. Gordon, President of Canada Sheep Council advising him of the position taken by S.P.A.N.S. re: the respiratory disease program, also of the letter to Dr. Bulmer, and requesting Mr. Gordon to notify Dr. Bulmer of the activities of the disease/health committee established by the Canada Sheep Council. MOVED Woolfitt, SECOND Finlay.

Flock Health Program:

The committee then discussed the implementation of a flock health program, which depends on the availability of funding, either through the A.D.A.II agreement, or out of provincial budgets in 1982.

Agreed that such a program should provide for a given number of veterinary visits to farms each year, with assistance for mileage, call fee and a portion of the consultation.

It was felt that the program should take into account the unique conditions of the sheep industry, and be flexible enough to accommodate widely different management practices. It was suggested the program be voluntary, and include the following:

1. A flock recording mechanism, to detail health problems, and aid the producer in culling and selecting.
2. Flock nutrition.
3. Environment and housing.
4. Respiratory problems.
5. Preventive vaccination.
6. Reproductive and fertility problems.
7. External and Internal parasite control.
8. Footrot control and elimination.

It was also agreed that a qualified and experienced provincial fieldman would be required to co-ordinate the program. Also, that a lot of work would have to be done with veterinarians, to make them familiar with the program, and elicit their support.

Woolfitt suggested that the provincial laboratory, in consultation with other resource people put together a booklet for producers describing diseases which are of economic importance, and suggesting methods of treatment.

Dr. Long said he would look into this.

Mildon raised the question of the implications of the disease situation with respect to the annual breeding stock sale. Discussion of this matter was tabled to the Board Meeting this evening.

Adjournment: Meeting adjourned at 5:30 p.m.

N.S. SHEEP PRODUCERS ASSOCIATION

MINUTES OF BOARD MEETING

7:30 p.m. June 11th, Livestock Service Boardroom, Truro

Present: Wayne Woolfitt (Pres.), John Mildon (recording secretary) Tremaine Finlay, Alex Forbes, Brewster Kneen, Guy Saunders.

Regrets: Roy Evans, Peter Rogers

Minutes: Of Board Meeting of April 24th were amended as follows:
Recommended price of lamb this summer to be \$2.40 instead of \$2.30.
The minutes were approved. MOVED Kneen, SECOND Finlay.

Correspondence: The secretary read the letter sent from Roy Evans to Tom Meredith, President of the Pork Producers Assoc. of Nova Scotia expressing dissatisfaction with the way in which the red meat inspection issue was handled.
(Minutes of the joint livestock Meat Inspection Committee and a copy of the press release issued to the media are on file).

Business from
the Minutes:
Predator Control

Committee: Kneen explained that assistance for boundary fencing with electric fence has now been included under the "Sheep Pasture Improvement Policy". The details of this program are now being prepared. He indicated the policy would include assistance for approved units, wire, insulators, ratchet tightners and springs.

Health Committee: Mildon reported on the discussions of the Health Committee meeting this afternoon. He outlined the plans for a joint federal/provincial research program into respiratory diseases. Any form of compensation to owners of flocks affected by P.A. seems to be out of the question, but there is a possibility sheep from such flocks could be purchased for research purposes. However, the federal government has not yet stated its commitment to such a project.
There was lengthy discussion about this issue. Woolfitt emphasized the importance of keeping pressure on the federal government to take some positive action.

MOTION -- "That, the secretary of S.P.A.N.S. write to Dr. Bulmer, Federal Health of Animals, requesting an immediate and positive decision on the proposed research program for

respiratory diseases in sheep. Further, that he be reminded of the extreme importance and urgency for action to deal with disease problems which have been identified in Nova Scotia." MOVED Mildon, SECOND Kneen.

Carried unanimously.

Agreed that this letter should refer to the great amount of money poured into recent importations by the Federal government, which brought these problems to prominence. Also note that it is on record by Dr. Bulmer himself at a recent meeting in Truro, that respiratory diseases of all kinds are a major cause of mortality in sheep, and the recent discovery of PA and Maedi Visna has aggravated the situation further.

Requested that the Secretary send a copy of this letter to Mr. Gordon of the Canada Sheep Council.

MOTION -- That the Secretary of S.P.A.N.S. send a letter to Mr. Gordon, President, Canada Sheep Council advising him of the position S.P.A.N.S. has taken re: the respiratory disease research program, also of the letter to Dr. Bulmer, and requesting Mr. Gordon to notify Dr. Bulmer of the activities of the disease/health committee established by the Canada Sheep Council.

Carried. MOVED Woolfitt SECOND Forbes.

Woolfitt said that he is trying to arrange a meeting with Federal Minister of Agriculture, E. Whelan, during his visit to Nova Scotia on June 15/16. The disease situation will be discussed with Whelan.

Mildon reported on the outline of a flock health program outlined by the Health Committee. This will be similar in form to the provincial Swine Herd Health program, but adapted to the unique conditions of sheep production. If funding is available under the A.D.A. II agreement, this program could be in place this year. If provincial funding only is used, April 1982 would be the earliest possible start-up date.

Kneen explained that the Northumberland Sheep Producers have sent a request to Stuart Allaby, Director of Livestock Services for help in setting up a flock health program in Pictou County. (Details available from Brewster Kneen).

Sheep Fair:

There was lengthy discussion concerning the Sheep Fair, and problems which might arise.

It was agreed -- That the Directors of S.P.A.N.S. advise the Chairman of the Sale Committee that "In light of information that we have gained in recent months re: communicable diseases, all sheep entered in the breeding stock sale should be certified by the consignors to the best of their knowledge to be free of all communicable diseases, as well as sound in foot, mouth and udder".

NEW BUSINESS: Kneen advised that he has learned that the compounds
External "Korlan 24E" and "Coopertox (Extra)" have been
Parasite withdrawn from the market.
Compounds:

MOTION -- That the Secretary of S.P.A.N.S. write Dr. Ray Long asking for clarification of the situation, and advice as to alternatives to use.
MOVED Forbes, SECOND Kneen.

Import Controls: President Woolfitt distributed information about imports of lamb and mutton to Canada from New Zealand, which constitute about 80% of sheep meat sold in Canada.

He told the meeting that New Zealand wants the rest of the market, and that chilled fresh lamb dumped into Canada before Easter represents a real threat to the Canadian Producer.

The Canada Sheep Council considers this issue an urgent priority, and are recommending an import quota be introduced.

Woolfitt also outlined his reasons that the Canadian sheep industry should not only be protected, but also encouraged to expand. He asked for the support of the Association in dealing with these important issues.

A strategy was discussed for presenting these concerns to Mr. Whelan next week, if a meeting takes place, and of alternative political action failing such a meeting.

Adjournment: Meeting adjourned at 10 p.m.

NOTICE :

Only two members have expressed any interest in obtaining EAE or Vibrio Vaccine. The absolute deadline for ordering this material is July 10th. I must be notified of your intentions prior to this date so that Dr. Long may make the necessary arrangements.

(sgd.) Roy Evans
Secretary-Treasurer

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XXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXX

R.R. #1,
Kingston, N.S.,
BOP IRO
June 22, 1981

Agriculture Canada,
Ottawa, Ont.

ATTENTION: Dr. Bulmer, Health of Animals

Dear Dr. Bulmer:

Our Directors' Meeting of 11 June, 1981 received a recommendation from our Health Committee to the effect that we must request an immediate and positive decision on the proposed research program for respiratory diseases in sheep.

It has been reported that a possibility exists that the Hattleton flock or part thereof may be purchased as a research vehicle. Our Association would have no objection to this procedure. However, we are on record as favoring the complete slaughter of this flock with compensation to the owners. Based on Agriculture Canada's information, this is the only flock that has significant infection. We would like to see this source of infection destroyed.

It is our opinion that the amount of Federal monies poured into this importation of North Country Cheviots was a significant figure. We feel it is only reasonable to expect that funds could now be allocated to bring this very serious disease problem under study and hopefully under control.

Yours truly,

SHEEP PRODUCERS ASSOCIATION OF NOVA SCOTIA,

Original Signed by
R. N. EVANS

Roy H. Evans,
Secretary-Treasurer.

Encl.
C.C.

Mr. Gordon, Canada Sheep Council
Wayne Woolfitt, President,
Sheep Producers Assoc. of N.S.
John Mildon, ~~Chairman~~, Health Committee

Secretary

SHEEP PRODUCERS OF NOVA SCOTIA

NEWSLETTER

FEBRUARY 1981

NO. 1

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R.O.P. HOME TEST PROGRAM
PRODUCER COMMENTS
DATE FOR SEMI ANNUAL MEETING SET

THIS FIRST ISSUE IS A JOINT PROJECT BETWEEN S.P.A.N.S. AND THE
N.S. DEPARTMENT OF AGRICULTURE AND MARKETING.

__ PRESIDENTS VIEWPOINT - WAYNE WOOLFITT __

I would like to thank those that have supported me in the move to President. I feel that I can make a worthwhile contribution to SPANS and the Nova Scotia Sheep Industry because of my background. We will be going through difficult times in the next year to eighteen months. Prices will be low because of the rapid build up of sheep numbers. It is not that there is too much lamb in Canada but that production has out stripped established traditional markets. A small increase in production over normal supplies has resulted in a drastic dip in prices.

In the short run, producers should think positively, especially those new producers. Now is the time for expansion of your sheep flock to capitalize on better prices in the future and the low price of breeding ewes at present. I predict now is the time for sheep producers to increase their share of the red meat market. Beef and pork will be very high in the months ahead... Consumers faced with continued inflation in the wake of a recession will be very happy to try lamb, especially when we can price it competitively.

Now producers must learn to work together in marketing because of increased marketing costs and in some cases better returns at the central markets. It is my feeling that producers in different areas should try to co-operate in pooling their resources. These groups should familiarize themselves with the market opportunities (at home and in the Montreal/Toronto area) and if necessary, at times sell on the latter market. Quality lambs are not usually hard to market.

It was brought to the attention of the Directors at that last Directors' meeting that the members of SPANS have instructed us to study marketing. We plan to have a report for the semi-annual meeting. From my knowledge of marketing, there are no easy answers - only difficult choices.

Semi-Annual Meeting date set: March 7, 1981, Hancock Building (Animal Path Lab), N.S.A.C. at 11:00 A.M.

— COPING WITH COYOTES —

by

Art Patton
Dept. of Lands and Forests

Despite extensive eradication attempts, including shooting and chasing with everything from snowmobiles to helicopters, to massive indiscriminate poisoning campaigns, the coyote is one of the few animals in North America that is not only holding its own but expanding its range in the face of human development.

Not long ago the coyote was associated with the west. It has now spread and established populations on the eastern seaboard from Georgia to Nova Scotia.

Our first confirmed coyote was one killed at Country Harbour in 1977 but it seems very likely that coyotes had been present and dispersing in the Province for some time prior to that. It is unlikely that a single coyote would enter the province probably from New Brunswick and travel all the way to Guysborough County if unlimited territories were available all along the way. Studies suggest that nearly all dispersal movement is in a coyote's first year of life. He leaves the family and established his own territory which he generally retains for life. Maximum distances of 100 miles have been suggested for these first year dispersals but 10-25 miles is the average. With hindsight a number of people are recalling incidents which, at the time, they pass off as wild dogs, but now realize could well have been coyote contacts in the early 1970's. It is probable that the coyote is established throughout at least the mainland portion of the province since coyotes have been killed in areas from Yarmouth to Antigonish Counties.

Our coyote history shows the typical pattern of successful colonization and it is almost identical to the coyote history in New Brunswick. Establishment of new populations in an area frequently start with a scattered few. There is a gradual build-up over several years followed by a boom when the population expands rapidly at its full reproductive potential. At present we haven't hit the boom phase but we have reports of about 12 coyotes killed in the province in 1980 compared to five in 1979 and two each in 1977 and 1978. The trend has started.

So far, of the 21 coyotes taken in the province, only one was killed as a result of direct conflict with man. This pattern holds true in most populations. Very few coyotes actually conflict with man's interests by preying upon his livestock but those which learn to depend on this good supply can become very proficient at it. With any animal, it is easier to keep them from learning "bad habits" than to break these habits once they are established. A few factors in the natural history of coyotes may be used to advantage to minimize the conflicts between this new addition to our fauna and man's livestock.

The coyote is considered an "opportunistic omnivore", that is he will eat almost anything digestible and easily obtainable. Rodents and rabbits are the mainstay, but if it takes little effort to get it they will eat it. This is the most important clue to reducing depredation. Make your stock harder to get than other food sources and don't leave food (dead livestock) where they can get an easy meal.

Stock protection can be improved by using information on the coyote's annual activity cycle. The breeding season is from late January to early March but an individual female can only successfully breed for a two to five day period once per year. Her mate remains with her for the next seven to eight months to help raise their young. During the 63 day gestation period the female selects and prepares a den where five to seven pups are born between early April and mid May. Litter sizes depend upon coyote density and the available food supply. Abundant food at mating and while nursing tends to increase conception and survival of the young.

During the first couple of weeks after birth the male does all of the hunting to feed the female and her pups. The pups come out of the den for short periods at about two weeks of age and extend their range from the den gradually until in June or early July the family leaves the den site completely. The pups are weaned at about eight weeks and are immediately started on a training program to teach them to hunt. By fall, usually about November, the family groups break up and the young disperse in all directions travelling 10-25 miles depending upon suitable home range locations.

These young locate and establish a territory of their own which they designate by scent marking. These territories are usually occupied and defended for life. Males establish home ranges of 10-25 square miles and females 5-15 square miles. Usually coyotes do not breed as yearling, but where food is plentiful a larger percentage of the yearlings will breed.

Now let's use this information to develop a strategy to keep depredation minimal.

There are three periods a year when depredation problems are most likely to develop. 1) Spring when the mated pair is looking for a den site within their home range. One criteria is the availability of an easy food supply. Papa is going to have to feed the whole family from that den site. 2) Summer when the young are being taught to hunt - let's not make lambs the easiest food supply to train those pups on. 3) Fall when the young disperse. They are moving into new areas and trying to keep themselves alive by picking up any easy food. If they find a banquet spread for them they may just settle down.

The fact that coyotes must work on a positive energy regime to survive and that they will eat almost anything is also useful. Positive energy regime means simply that the food they eat must provide more energy than the energy they expend to obtain it. Since they can do well on anything from mice to watermelons, they are generally going to take the easiest food they can get. However, studies have also shown that coyotes respond to flight. They are much less likely to attack an animal that stands its ground or challenges them.

So to reduce coyote depredation:

1) Don't invite them to your farm by spreading a delectable banquet of dead lambs or sheep either left in the field or thrown over the fence. Bury them or in some way make them unavailable. Various food habits studies have shown carrion to be favourite food source, often second only to rabbits.

2) Make you flocks difficult, unpleasant or downright impossible to get. Most animals don't like electric shock. Good electric fences providing a sharp jolt will discourage coyotes from getting into your pasture and sheep from getting out. Alternate live and ground wires close together will provide better shock even in dry weather.

3) Make other food supplies easier to get. Good land use and wildlife habitat development outside your fences can produce an abundance of small animals from mice to rabbits. They are easily available to feed the few coyotes that take up residence around your farm. Better to have mice and rabbit eating coyotes defending the territories around your sheep than to have a wandering "sheep eater" move in.

4) If you are just getting started in sheep or considering changing breeds, consider those breeds which are less flightly. Breeds that tend to bunch tightly and mill around are said to be less susceptible to coyote predation than those that scatter and run.

5) These steps will not prevent all coyote predation on all farms so if you find a coyote is killing your sheep make an all out effort as quickly as possible to get rid of that individual. Don't declare war on all resident coyotes - you may defeat your purpose. Eliminate the individual from the gene pool and the training sessions. This won't always be easy as our very first "sheep-eating coyote" experience proved. But as coyotes increase so will expertise in taking them. Professional trappers, hunters and your local Lands and Forests staff are available to assist you in your efforts toward getting rid of that individual.

The newest addition to our resident fauna will bring with it both its good and bad qualities as does every immigrant to a new land. It will take both the coyote and the present residents who will come in contact with it, some time to adjust to each other. Now is the time to influence the behaviour of the coyote and encourage him to adjust in a way reasonably acceptable to all. If we encourage him to consider livestock too difficult, too dangerous and too energy expensive he may never get a taste for it.

This will require the involvement of all livestock growers. A coyote trained on your flock to kill sheep may take up residence next to your neighbour's flock or vice versa.

...../4

Lands and Forests personnel will be working to control depredations but all their efforts will be of little value if you don't do your part.

Only by working together can we expect to affect the coyote's impact in Nova Scotia.

Sheep and Lambs on Feed Unchanged from Last Year - USDA - On January 1, 1981, an estimated 1.62 million sheep and lambs were on feed for the slaughter market in 24 States, essentially unchanged from a year earlier but 3 percent above January 1, 1979.

Sheep and Lamb Numbers - USDA - Sheep and lamb numbers in the United States on January 1, 1981, totaled 12.9 million head, according to the Crop Reporting Board. This is up 2 percent from the 12.7 million head a year earlier and the second increase in sheep numbers since 1960. The inventory value of all sheep and lambs on January 1, 1981 totaled \$904 million, down 9 percent from a year ago.

The 1980 lamb crop of 8.25 million head increased 3 percent from the crop of 1979. Breeding ewes one year old and older on hand January 1, 1981 were up 2 percent from a year earlier and ewe lambs were up 7 percent. The 1980 lambing rate was 97 lambs per 100 ewes one year old and older, compared with 95 in 1979 and 92 in 1978.

Source: N.S. Market Report

SHEEP PRODUCERS ASSOCIATION OF NOVA SCOTIA

MINUTES FOR ANNUAL MEETING HELD NOVEMBER 8, 1980

The meeting was called to order by Roy Evans with about 35 producers present.

Brewster Kneen gave the financial statement. He then announced his resignation as secretary of the Association.

MOTION: That thanks be expressed to Brewster for his dedication and good work. (Isenor/Lougheed) -carried

Curtis spoke on a question of privilege pertaining to the letter circulated with previous minutes (letter by Rogers).

Followed a discussion re auditing.

MOTION: That Fred Pierce (marketing specialist) be approached re auditing of the books. (Zillig/Nettleton) -carried

The President distributed his report (2 typed pages).

Zillig remarked on the controversial tone of the report, the strong language, thought for discussion ...

MOTION: That the report be accepted as is. (Zillig/Kneen)

Lamb Marketing Project: Isenor passed around a limited number of expense/income sheets pertaining to the project. He and Lougheed commented on the project and answered questions. The project was successful in that it created an environment for lamb sales. The overall failure of the project was attributed to various factors including: the difficulties that the Farmers' Market is having, marketing started too early, lack of funds for extensive advertizing, lamb still considered a luxury meat, general recession etc

In answer to queries, Isenor gave a detailed break-down of the costs per cut etc.

MOTION: That Isenor be thanked for his efforts. (Nettleton/Saunders) - carried

A discussion followed pertaining to the "dumping" of Nappan Lamb in an Amherst store, graded A, but apparently from "mutilated" carcasses.

MOTION: That any research establishment that puts lamb meat on the local market do so with due regard to current market prices.

(Kneen/Nettleton) - carried

As a retiring director Lougheed spoke about the importance of marketing.

MOTION: That it be recognized that marketing is a major concern to sheep producers and that the directors work toward an organized marketing program for 1981. (Lougheed/Nettleton) - carried

(Discussion: Zillig pointed out that this places a great bonus on the directors.)

Feeder Lamb Sale: Brief discussion.

MOTION: That the SPANS not hold a feeder lamb sale in 1981. (Lougheed/Sanders)

Sheep Fair: Following the points raised in the green paper distributed last year by the committee, Zillig commented on various aspects of the Fair.

- it has been recommended that the C.B. Producers and the N.S. Producers look into the direction and future of sales - nothing was done
- that the breeding stock sale follow the same format as the one in 1980
- that a small committee be formed to look into the health questions (with advice from lawyers and health authorities) during the winter and report back at the February meeting.
- ram sales - time consuming, that numbers be limited, that a ram sale committee be formed by the purebred breeders association
- order of sale - went better although the possibility of separating out the purebreds might be considered
- the committee had recommended that a field day be held in August to inform breeders on technical matters - nothing was done about this
- Coordination between the committee and the Sales Chairman should be improved

MOTION: That the Sheep Fair report be adopted as is. (Zillig/Hirtle) -
carried

Discussion: Rogers questioned whether the health issue should be raised only in relation to the Sale or to the industry as a whole. Nettleton stated that she has been waiting for 8 months for the committee.

Milden commented on the absolute necessity of preparing the advertising campaign well in advance in order to meet the deadlines of national press.

Health Matters: Kneen stated that both Dr. Long and Dr. Soehl had been invited to attend the meeting but due to previous engagements they were unable to come.

- Nettleton shared her concerns pertaining to P.A. and E.A. and the serious losses that can be expected as a result of these diseases. In reply to questions relating to the symptoms of P.A., she explained that her observations showed that the sheep would leave the trough early, stand alot, would not respond to antibiotic or other treatment, the infected lungs would be hard and enlarged with solid greyish swelling. She said she preserved lungs in formalin and pointed out the necessity of having them examined.

MOTION: That a meeting be set up with Drs. Stevenson, Soehl and Long and other qualified persons as soon as possible in order to discuss the health issues and that prepared questions be sent to Roy MacKenzie.

(Sanders/Davison) - carried

- a discussion followed re the enforcement of the Quarantine Act.

MOTION: That Dr. Love be appointed to present a report on P.A. at the meeting in Feb. (Murphy/Nettleton) - carried

A brief discussion followed pertaining to the exact numbers of sheep affected by P.A.

In relation to the question of privilege raised earlier in the meeting by Curtis, Rogers stated that he did not fault Kneen for having circulated his letter.

Federation of Agriculture: Mr. Donald Gunn gave a detailed report on the various activities of the federation

Elections: (1) Director to represent the Federation of Agriculture.
nominated: - Forbes (elected)
(nominations closed: Zillig/Sanders)

(2) Delegates for Federation of Ag. meeting.
nominated: - Peterson (elected)
- Burge
- Finley (elected)
(nominations closed: Saunders/Saunders)

(3) Member of Wool Board.
nominated: E. Zillig (elected)
(nominations closed: Hirtle/Sanders)

(4) Directors for 3 yr. term to replace three retiring members.
nominated: - Rogers (elected)
- Peterson
- Hirtle
- G. Sanders (elected on second ballot after tie with Ross)
- Rouse
- Zillig
- Milden (elected)
- Ross (nominations closed: Peterson/Wolfitt)

MOTION: That all ballots be destroyed.
(Forbes/James)

Followed a discussion relating to the administration of the Quarantine Act.

MOTION: Considering the vast cost of administration of Agriculture Canada's Quarantine, both in terms of professional labour, administration and financial loss to importers and considering that the attempts to eradicate scrapie have proven costly and futile (1980 outbreak in Quebec, 2500 slaughtered and buried and \$630,000 compensation paid for the sake of one infected animal) and further considering the proven failure of quarantine to prevent introduction of E.A.E. and P.A., BE IT RESOLVED THAT THE CANADA SHEEP MARKETING COUNCIL REQUEST AGRICULTURE CANADA TO DISCONTINUE THE THREE YEAR QUARANTINE.

(M. Nettleton/Sanders)

Followed a discussion pertaining to the logistics of obtaining the vaccine for E.A. and the effectiveness of said vaccine.

MOTION: That thanks be expressed to out-going president.

(Murphy/Sanders)

MOTION: That the meeting be ajourned.

(Kneen/Sanders)

BOARD OF DIRECTORS: President: Woolfitt (elected), Kneen
Vice-President: Sanders (elected), Kneen
Secretary-Treasurer: Evans (elected)

Causal secretarial duties performed by: Sally Ross



NOVA SCOTIA
DEPARTMENT OF AGRICULTURE
AND MARKETING

LIVESTOCK SERVICES BRANCH

POSSIBLE RESISTANCE OF SHEEP INTESTINAL PARASITE TO ANTHELMINTICS

J.R. LONG, D.V.M.

In an attempt to clarify the problem, I consulted with Dr. Owen Slocombe professor of veterinary parasitology, Ontario Veterinary College, Dr. Phil Lautenslager, veterinary parasitologist, Ontario Ministry of Agriculture and Food, Guelph and Dr. Harry Smith, veterinary parasitologist, Agriculture Canada, Sackville, New Brunswick.

Their comments are outlined below:

1. Resistance to Thiabendazole has been found in sheep parasites in the U.S.A. This resistance is an inherited trait and once present it quickly includes all the benzimidazoles i.e. all the "bendazole family".
2. Although not licensed in Canada, the new "bendazoles" i.e. Albendazole, Oxfendazole, etc., could soon develop resistance. However, they do have the important advantage of being effective against immature forms of the parasites.
3. Because of the small number of sheep in Canada, it is not expected that any of these products will be cleared for use here, in the near future.
4. Resistance to Tramisole (levamisol) has been found only in sheep parasites in Australia.
5. There are no studies being done on resistance in Canada.
6. Neither Drs. Slocombe or Lautenslager have seen evidence of resistance in flocks in Ontario. Dr. Lautenslager, who spoke to producers here last year, works full time on parasite problems. He says resistance is greatly overrated. In every case he has investigated, he has found that the problem is due to not deworming, not deworming at the proper time, not using the proper dosage, or there is a serious management problem.
7. Dr. Smith has not seen evidence of resistance in intestinal parasites of sheep in the Atlantic area.
8. To prevent the development of resistance, the following recommendations are offered:
 - (a) Do not treat using less than the recommended drug level. Some programs have recommended low drug levels but it is thought that resistance develops readily under these conditions.
 - (b) Rotate the anthelmintics used. Use Thiabendazole one year and Tramisole the next year, then go back to Thiabendazole.

ANNUAL MEETING OF CANADIAN SHEEP COUNCIL

By Wayne Woolfitt

The annual meeting was held December 2nd and 3rd, 1980. ALL members were present.

Financial Statement - \$18,000 in council funds. Federal Government has give financial support to special projects such as lamb advertsing. Operating funds come from provincial levies.

Ethnic advertising - to initiate the spending of \$25,000 on advertising Easter Lamb.

Lamb Marketing - Lambco (Alta.) at times marketed lamb at distress prices (\$1.50 +). Albertan representatives defended their policy because of over-supply at times. Some stated that they doubted dropping price increased sales significantly. It tended to set a floor price for the Canada Lamb trade and it became very hard to get the prices back up.

Animal Research Report - Dr. Ainsworth gave a detailed report on the benefits of controlled breeding. It is being tried in Ontario by a number of producers. Lambing can be reduced to a period of a few days. It may have considerable merit in the future.

Diseases - Scrapie - outbreak in Schweitzer Suffolks. The Federal Veterinary Service outlined their program. They are presently scrutinizing the whole slaughter and quarantine program. It will probably be changed, scrapped or altered drastically. The slaughter program has not contained Scrapie nor has the quarantine here contained Pulmonary Adenomotasis or in the past Maedi Visna (Lunger in Sheep). These are all viruses and very difficult to eradicate because they are not detectable in live sheep. The Schweitzer Suffolks because of their value have not been slaughtered and the Vet. Service is trying to weigh the effects of a slaughter program versus the effects on exports. Last year sheep were exported to Brazil from Ontario and to Mexico from Alberta.

Dr. B. Stevenson sent a British reprint on diseases introduced by importing stock into England. We are not the only country with "imported" diseases. The genetic benefits in some cases tend to be offset by increased disease incidence.

The Federal Veterinary Service in my opinion has been lax in their treatment of diseases in the sheep industry probably because it is an insignificant entity in Canadian agriculture. It will not be in the future. Sheep numbers are increasing. Because the sheep is much more efficient than the cow in converting some roughage to meat, it will have an important contribution in the future feeding of Canada's growing population.

Ten years ago, sheep producers, including myself, indicated that Pneumonia was the big killer in sheep. It has not been until "imported diseases" began to crop up that the federal bureaucracy decided to do something about it. I feel that we should have more input into the direction of research at the federal level.

S.P.A.N.S. DIRECTORS MEETING

DECEMBER 6, 1980

Meeting called to order by Wayne Woolfitt at 11:00 a.m.

The following corrections to the minutes of the Annual meeting of November 8, 1980 were noted:

The motion to the Sheep Marketing Council should be shown as "passed".

The motion on the feeder lamb sale should be shown as "passed".
Add to page 3, elections, director to represent SPANS at Federation of Agriculture.

Motion (Kneen/Mildon) that the minutes be circulated with clarifications.
Passed.

NEW BUSINESS:

A letter from the Nova Scotia Designer Craftsmen (Alfrede Budgey) asking for support of their May '81 weavers tour of British Isles.

Motion: (Milden/Finley) that a letter of positive response be given to Nova Scotia Designer Craftsmen.

A letter of resignation was read from Dan Alex MacLeod.
Motion: (Finley/Kneen) that Dan Alex be contacted by the secretary and asked to reconsider his resignation. Passed.

Roy MacKenzie noted that orders for enzootic abortion vaccine must be placed with the exporter by May, 1981. Please contact Roy.

A discussion of marketing took place indicating a need for a survey of marketing techniques and perceived problems. John Mildon and Alex Forbes volunteered to prepare the questionnaire.

Wayne Woolfitt reported on the Canada Sheep Marketing Council.

Meeting adjourned 12:45 p.m.

Present: Wayne Woolfitt, Tremain Finley, John Mildon, Guy Sanders, Alex Forbes, Brewster Kneen, Roy MacKenzie.

Regrets: Roy Evans, Dan Alex MacLeod

MINUTES OF MEETING, SATURDAY DEC.6/80, TO DISCUSS EXOTIC DISEASES OF SHEEP IN NOVA SCOTIA.

About 60 producers from all over the province, met at the Veterinary Pathology Building in Truro, with Dr. Ray Long, veterinarian at the provincial laboratory; Dr. Horst Soehl, veterinarian with the Health of Animals Branch, Federal Department of Agriculture, Truro; Dr. Bert Stevenson, veterinarian at the Federal Pathology Laboratory, Sackville, N.B.

The meeting was at the request of S.P.A.N.S. and president Wayne Woolfitt introduced the speakers. The session began at 1p.m.

FORMAL PRESENTATIONS

Each veterinarian gave a formal presentation about one aspect of the disease issue.

Dr. Long presented a number of charts, giving statistics of the laboratories activities relating to sheep and goats over a ten year period (1970-Nov. 30, 1980).

Highlights include the following:

Submission of foetus and placenta materials totalled 68, in 1980, up from 18 in 1970.

Of the 68, infectious abortion could have been the active agent in the 31 cases diagnosed as "placentitis".

Though the number of samples is still low, in relation to the number of lambs born in Nova Scotia each year, 1980 was the first year in which any incidence of E,A.E. has been reported in the province. There have been outbreaks in recent years in Alberta and Ontario.

Dr. Long was careful not to speculate any conclusions from the figures he gave. He said the outbreaks in other provinces had apparently not been serious, but he was not able to say what course the disease would take here.

He encouraged all producers to submit suspect material to the lab in Truro, for examination.

Dr. Long then showed that the main cause of death at lambing time is starvation and difficult births.

In sheep older than one day, the main cause of death is starvation and pneumonia.

Moving on to P.A.(Pulmonary Adenomatosis), Dr. Long said there had been 15 confirmed cases in Cape Breton to Nov. 30.

Eleven of these were in the flock of Martha Nettleton.

Four came from the DEVCO flock, where the disease was first discovered.

There have been one confirmed case in each of two flocks on mainland Nova Scotia.

One each in the provinces of P.E.I., Newfoundland and Quebec.

In answer to a question from Angus Rouse, Dr. Long replied that all the confirmed cases had been in Hill Sheep Breeds.

MEETING TO DISCUSS DISEASES continued.

Dr. Stevenson showed slides depicting the clinical signs of P.A., a disease called Maedi Visna and other pneumonic lesions which may be found on sheep lungs.

He went on to explain that P.A. is what is known as a slow virus. It is very difficult to isolate, so expensive research would be required to find out very much about it.

There is no blood test. P.A. is impossible to diagnose in the live sheep, and there is no known cure for it.

It is not known how susceptible our sheep would be to the disease.

Producers were shown lungs taken from sheep infected with the disease. Mrs. Nettleton also brought in a live sheep, which she suspected of having P.A. The animal was slaughtered, and P.A. was later confirmed.

There was some discussion about the symptoms of P.A. It can affect sheep of virtually any age. If sheep are stressed or driven hard, affected sheep will pant heavily and fall behind the others. Over a period of time, affected sheep become unthrifty and emaciated, and do not respond to either de-worming, or to anti-biotics. There may be a discharge of fluid from the nostrils, if the sheep is up-ended, but this is not always the case. There is no loss of appetite until close to death.

Dr. Soehl presented figures giving the numbers of sheep imported to Nova Scotia since 1970, and the numbers released at the end of the quarantine period. He pointed out that there was little variation in the performance of the various importations under various managements.

He then discussed all the 'exotic' diseases, which have been discovered in sheep in Canada in recent years. These include Scrapie, which the Federal quarantine program was designed to exclude, and which has been found in flocks in Quebec and Ontario.

Dr. Soehl left the impression that P.A. was not of any great significance. But he pointed out that sheep going through the Truro sale are tagged, and any showing up in federally inspected killing plants are checked for the disease. Spot checks are also done on other sheep in plants across the country.

Dr. soehl also explained that if the disease was introduced by the Devco importation, it would be virtually impossible to check the spread of the disease, as these sheep have been distributed all across Canada.

Dr. Soehl drew particular attention to a tapeworm (*Taenia ovis*), which has caused several carcasses to be condemned at the Truro abattoir in recent weeks. A fact sheet about this problem will be circulated to producers.

Finally, Dr. Long presented control measures for both P.A. and Enzootic Abortion.

These recommendations are contained in the report of the disease task force appointed by the provincial Minister of Agriculture. This information will be circulated to producers, and will be released to the media,

MEETING TO DISCUSS DISEASES continued

A question and discussion period began at 4.45p.m.

Some of the points raised were:

It was stated by Dr. Soehl that sheep affected with P.A. were in contact with sheep imported by DEVCO in 1975 and 1976, and with sheep from that importation which were quarantined on different farms.

QUESTION Why was P.A. not diagnosed before Dec 1979, and then only by accident?

ANSWER It has not been proven that P.A. came in with the DEVCO flock. The labs were sampling material from Devco, but were not specifically looking for P.A.

QUESTION Should sheep farmers stop worrying about P.A.?

ANSWER The outbreak is mainly confined to one farm or two at the moment. It has been found only in the hill breeds.

In Britain, P.A. exists at a low incidence, and is apparently considered economically insignificant.

In Iceland, following an outbreak which started there in the 1930's more than 300,000 sheep had to be slaughtered before

P.A. and other diseases were brought under control.

QUESTION Since little is known about the disease, should not Federal and provincial authorities be doing all they can to study and monitor the disease?

ANSWER The task force report will recommend that the Federal authorities assemble all available research and literature.

QUESTION Should another on farm survey be carried out, now that flocks are in winter quarters?

ANSWER That could be considered.

QUESTION Should compensation be paid to owners who submit samples to the lab, in which P.A. is definitely confirmed?

ANSWER There is no precedent for this with any other form of livestock. This would be a political decision that S.P.A.N.S. would have to pursue

Dr. Long stated there was no possibility that P.A. would be made a "named" disease, requiring compulsory slaughter and compensation.

QUESTION Is meat from animals affected by P.A., safe to eat?

ANSWER Drs. Soehl and Stevenson assured that there was no danger.

MEETING TO DISCUSS DISEASES continued

Questions about Enzootic Abortion were mainly concerned with the effects on the flock. The important answers were as follows.

1. E.A.E. is transmitted by the female, so avoid buying ewes if your flock is clean. As far as is known the disease is not transmitted by the ram.
2. E.A.E. may cause an abortion 'storm', with very high losses, followed by a declining number in subsequent years.
3. Ewes which abort are supposedly immune for three years thereafter, but females who have never lambed can become infected by carrier sheep and abort in their first year.
4. E.A.E. may be present in the flock, and flare up for no apparent reason, in any given year.
5. It is claimed that yearling females may pick up a certain passive immunity by running with the mature flock, after the lambing season has finished.
6. Flock owners should be particularly attentive to their flocks in the period immediately prior to lambing, when abortions are likely to occur. All aborted fetuses should be sent to the lab, and strict cleanliness observed.
7. E.A.E. can cause dead lambs, weak lambs which die shortly after birth, and even apparently healthy lambs, which can be carriers of the disease.
8. Little is known about the response of flocks into which E.A.E. is introduced for the first time.

The session was ajourned at 5.50p.m.

Respectfully submitted,
by John Mildon, recording secretary.



NOVA SCOTIA
DEPARTMENT OF AGRICULTURE
AND MARKETING
LIVESTOCK SERVICES BRANCH

TRURO, Nova Scotia
B2N 5E3

February 11, 1981

Dear Sheep Producer:

RE: RECORD OF PERFORMANCE HOME TEST PROGRAM

A number of you are presently lambing or will be in the near future.

It is time to think about recording information on your ewes and lambs for the R.O.P. Program; to use for selection of ewe lamb replacements and culling out poorer producing ewes.

The information required for this program is:

- (a) Sire, Dam, Lamb Identification.
- (b) Age of Dam.
- (c) Sex of Lamb(s).
- (d) Number Born - Weaned.
- (e) Date of Birth.

The producer can elect to weigh a 50 day weighing and 100 day weighing or just the 100 day weighing.

The 50 day weight on the lambs can give you information on the ewe's milking ability up to this period. This weighing is mostly used by producers lambing early and selling lambs at Easter.

The 100 day weight gives:

- (a) 100 day actual weight.
- (b) 100 day adjusted weight.
- (c) Average daily gain.- birth to 100 days.
- (d) 100 day lamb index.
- (e) Multiple trait index.
- (f) Ewe index.

The age ranges for 50 day weighing - 28-69 days old.
100 day weighing - 69-120 days old.

...../2

Lambs can be weighed within these age limits. All purebred and commercial sheep producers are encouraged to use this program.

Please let me know, when you start lambing and approximately, when you finish so that I can make up a weighing schedule for weighing your lambs.

A number of Sheep Producers have experienced some health problems during the past year. It is recommended that a producer purchase weighing scales, to help reduce the spread of diseases. If you have any questions concerning where to purchase scales, please contact me or your Agricultural Representative.

Also, I have R.O.P. Forms and some barn recording sheets. If you have any further questions, please contact me in Truro.

Yours very truly,

Roy MacKenzie

Roy MacKenzie
Livestock Fieldman
(Sheep)

RMACK*sp

PRODUCER COMMENTS - WAYNE WOOLFITT

I have receive information regarding Brewster Kneen's resignation in The Ram's Horn. (I strongly disagree with Brewster's method of handling his grievances. It was a member of the Press that contacted me stating "That Brewster had made offensive remarkswhat were my comments." At that time I have not seen the Ram's Horn.) Brewster once had the support of most of the sheep producers and of myself, but by utilizing the office of Secretary-Treasurer to further his own personal ambitions, he lost the latter and most of the support of the producers as well.

There are important matters to be attended to and if he had not personally misrepresented the facts in his publication, I had no intention of getting involved. But since he has, I feel that the producers should know the truth regarding his resignation.

Because I felt that I had systematically been excluded from receiving information from the Secretary-Treasurer's office in the fall of '79, I organized a meeting before the annual meeting. Roy Evans, then President, was invited but had no idea of the reason for the meeting; in fact at that time I did not know him personally. Brewster found out about the meeting and decided to skewer Roy in the next set of minutes because he felt Roy had betrayed him by organizing the meeting. This was the reason the Directors attempted to change the format of reporting Minutes.

He has printed some information that is entirely false.

Firstly, I am not a partner in N.E.W.A. and never have been. Dr. Nettleton, Roy Evans and myself discussed the possibility of forming a consulting group. The idea was not originated by me, but I thought it a good one for two reasons: (1) I was interested in doing some consultation. (2) We were in different fields of interest and different geographical areas and could handle projects effectively.

I voted out of joining in June of 1980 because (1) Commitments to Elysian Farms increased. (2) My wife completed her BA and B.Ed. and is now working part-time. (3) I do not have time to do personal things I desire to do. I just do not have the time to contribute effectively to NEWA.

Secondly, it would appear that Brewster feels that I and others are in "cahoots" with some members of the Nova Scotia Department of Agriculture and Marketing, to do what?? Members of the Department have helped us to better our farm unit. The same support is available to other producers. It is high time that the sheep producers realize that the Department is on their side and the that N.S. Dept. of Agriculture & Marketing happens to be one of the best run Departments in Canada. It is time that we as producers bury our differences and try to work for the betterment of the industry and for ourselves. We should enlist the support of the Department because there are members who can, and if given a chance, will make a worthwhile contribution to the industry.

Producers Comments - Wayne Woolfitt cont'd

Thirdly, I personally did not support the issue of securing the Federation for our secretarial duties. We must have a strong organization controlled by sheep producers. All members on the Canada Sheep Council feel that we also need a strong federal organization independent of Ottawa. To accomplish these aims, we then must pay our own bills as do the Canadian Cattlemen. We need a strong producer group controlled by producers. We must work together with each other, with the Federation and with the Nova Scotia Department of Agriculture & Marketing.

The above comments were necessary. Brewster Kneen has made a very significant contribution to the Nova Scotia sheep industry. For me there will be no further discussion of his resignation, and in the future I hope that as sheepmen we can sort out our differences in a more reasonable fashion without involving the Federation, the Department and without splitting producers and Directors into "camps".

TOTAL SHEEP AND LAMBS

JULY 1

	<u>1980</u>	<u>1979</u>
CANADA	725,200	662,400
NFLD.	3,700	10,700
P.E.I.	7,500	6,200
N.S.	42,000	41,000
N.B.	14,000	12,000
QUE.	73,000	60,000
MAN.	23,000	25,500
SASK.	97,000	96,000
ALB.	200,000	135,000
B.C.	60,000	56,000



MINUTES OF THE GENERAL MEETING OF COUNCIL HELD AT THE
SKYLINE HOTEL, OTTAWA - 3rd December, 1980.-YORK ROOM

1. ROLL CALL Present were : L. Boswall, P. Conway, R. Dow,
R.C. Gordon (Chairman), G. Greenlay, W. Renwick,
W. Verboven, F. Williams, W. Woolfitt.
Ca. Lalonde.

2. AGENDA

MOTION That the Agenda be accepted as listed plus carryover
from the Executive meeting.

Moved - McEwen ; seconded - Conway. Carried.

3. FINANCES

(a) The statements of receipts and disbursements for the
period 1st April, 1979 to 31st March, 1980 are to
follow.

(b) The budget and pro-forma statement for the fiscal
year ending March 31st, 1981 total \$15,000.

(c)
MOTION That the Secretary-Manager invoice the provinces for
the 1980-81 dues and indicate a budget for funds for
1981 for the support of the Canada Sheep Council.

Moved - Renwick ; seconded - Williams. Carried.

The Secretary-Manager to be instructed to send all
provinces a copy of the Council's financial statement.

MOTION That we approach the Marketing branch of the Federal
Government re sponsorship of the June, 1981 Annual
meeting (Dr. Trent.)

Moved - Williams ; seconded - Woolfitt. Carried.

4. GOVERNMENT SPONSORSHIP

MOTION That the Secretary-Manager contact Industry, Trade &
Commerce and/or Agriculture and Food re roll-over
funds (\$64,000) calling on Charles Lalonde for assist-
ance.

Moved Greenlay ; seconded McEwen. Carried.

5. BUSINESS ARISING

(a) Lamb Recipe booklets

MOTION That Council approach Industry, Trade and Commerce of the Provincial governments regarding the reprinting of the Mme Benoit Lamb cookbooks. Council to arrange reprinting and charge same to provinces.

Moved - Renwick ; seconded McEwen. Carried.

MOTION That the Secretary-Manager contact 'Sheep Canada' advising them that Council will use 'Sheep Canada' as their national voice, such publishing based on \$90 per page; that the Secretary-Manager make certain that information be forwarded as soon as possible, such publicity to be prepared with the assistance of the Chairman.

Moved - Williams ; seconded McEwen. Carried.

MOTION That P. Conway approach 'La Terre de Chez Nous' re publishing the same information as soon as possible. (Secretary Manager to supply write-up to Mr Conway.)

Moved - Conway ; seconded - Renwick. Carried.

(b) Ethnic Advertising

MOTION That Council approach the Canadian Dept. of Agriculture, Marketing branch re a project to support an ethnic advertising campaign for Easter, 1981 to be located in Toronto, Hamilton and Montreal, to a maximum of \$25,000. (This will require a brief plus contact with an agency such as Foster Advertising, Toronto).

Moved - Woolfitt ; seconded - McEwen. Carried

Chairman to contact Canadian Sheepbreeders Association regarding assistance towards this ethnic advertising.

(d) Secretary Manager to duplicate the S.I.D.E.C. Programme report to all members plus to the Secretary of the Ontario Sheep Association, Mr Francis Winger, R.R.1. Stevensville.

(e) Secretary-Manager to poll all Provincial Sheep specialists re available sheep information material including predator control and to have same published in 'Sheep Canada'.

6. NEW BUSINESS

MOTION That the Secretary-Manager approach John Duvenaud to request him to obtain 10,000 stick-on 'Lamb Costing Charts' - also 'Lamb Cutting Charts' available from SID, Denver, Colorado.

Moved - Greenlay ; seconded - Williams. Carried.

(c) Speaker Dr. Ainsworth, A.R.I., Ottawa

Dr Ainsworth addressed the meeting on 'Controlled reproduction techniques' and National breeding policy.'

Speaker Dr W. Bulmer, Health of Animals, Sir John Carling Bdg adressed the meeting on topics of Canadian sheep health, in particular government policy on scrapie.

(d) Sheep Showcase

Mr Malcolm MacGregor, Chief of Showcase Herds, Animal Production Division, Dept of Agriculture, Ottawa was present at the meeting.

MOTION That the Secretary-Manager write to the Minister of Agriculture affirming our committment to this project and stating that we are prepared to appoint an advisory body with firm suggestions for its implementation (with reference to the Swine Showcase).

Moved - Williams ; seconded - Boswell. Carried

MOTION That W. Renwick be appointed as Chairman of an advisory body on the Sheep Showcase with power to add.

Moved - Greenlay ; seconded McEwen. Carried.

(e) Metrication

MOTION That Canada Sheep R.O.P. be maintained in metric measure.

Moved - Renwick ; seconded Woolfitt. Carried 6-2
(opposed Boswell and Greenlay)

(f) An audited statement of funds spent on S.I.D.E.C. will be required in order to obtain the \$5,000 holdback. To be requested from Dr. Howell.

An audited statement will be required from Wm Coggins via Mr Dow to obtain the \$60,00 roll-over for the Council funding.

The meeting was adjourned at 6pm.

CANADA SHEEP COUNCIL

BALANCE SHEET AS AT 31 MARCH 1980

	<u>Assets</u>	<u>1980</u>	<u>1979</u>
<u>CURRENT</u>			
Cash		28,201.30	19,141.99
Due from the Government of Canada			
Projects		<u>110,434.00</u>	<u>110,434.00</u>
Total Current Assets		138,635.30	129,575.99

Liabilities

<u>CURRENT</u>			
Accounts Payable			
Projects		50,000.00	52,216.09
Operating		<u>14,811.42</u>	<u>14,811.42</u>
Total Current Liabilities		64,811.42	67,027.51
Deferred Income		60,434.00	60,434.00

SURPLUS (Deficit)

Projects		14,284.03	14,566.78
Operating		<u>894.15</u>	<u>12,452.30</u>
		<u>13,389.88</u>	<u>2,114.48</u>
		138,635.30	129,575.99

STATEMENT OF OPERATING INCOME AND SURPLUS YEAR ENDED 31 MARCH 1980

INCOME

Government of Canada		20,000.00	
Association Grants		10,725.00	14,840.00
Balance of Assessment 1979		860.00	
Interest Earned		<u>1,664.11</u>	
		33,249.11	14,840.00

EXPENDITURES

Secretarial		800.00	4,800.00
Stenographie		306.00	1,371.50
Office Rent		750.00	550.00
Telephone & Telegraph		51.60	66.79
Printing			338.99
Office & Postage		259.76	478.85

STATEMENT OF OPERATING INCOME & SURPLUS YEAR ENDED 31 MARCH, 1980 (Cont)

	1980	1979
<u>EXPENDITURES (Cont)</u>		
Audit	400.00	400.00
Legal	32.52	609.00
Annual Meeting & Filing Fees	30.00	30.00
Grant to Winter Fair	500.00	500.00
Members - Travelling	13,265.67	12,699.04
Per Diem	4,450.00	5,137.50
Travel - Secretary Manager	445.41	1,642.53
Honarium	400.00	
	21,690.96	28,624.20
Excess of Income Over Expenditures	11,558.15	13,784.20
Surplus at beginning of year (deficit)	12,452.30	1,331.90
Surplus at end of year (deficit)	894.15	12,452.30

STATEMENT OF PROJECTS INCOME AND EXPENDITURES YEAR ENDED 31 MARCH, 1980

<u>INCOME</u>	-	-
<u>EXPENDITURES</u>		
Freight on Cook Books	235.00	-
Recipe Books	39.05	69.25
In Store Advertising	8.70	12.05
Advertising Canadian Sheep Industry		77.00
Advertising Lamb in Ethnic Market		2,633.05
EXCESS OF EXPENDITURE OVER INCOME	282.75	2,474.75
SURPLUS AT BEGINNING OF YEAR	14,566.78	12,092.03
SURPLUS AT END OF YEAR	14,284.03	14,566.78

CANADA SHEEP COUNCIL

STATEMENT OF OPERATING INCOME AND SURPLUS 1 APRIL - 31 OCT. 1980

<u>INCOME</u>		Nil	
<u>EXPENDITURES</u>			
Secretarial		-	
Stenographic		125.00	
Office Rent		1,350.00	
Telephone & Telegraph		197.50	
Printing		30.00	
Office and Postage		142.22	
Legal		-	
Audit		-	
Annual Meeting & Filing Fee		280.00	
Grant to Winter Fair		-	
Members - Travelling		3,470.83	
Per Diem		3,970.00	
Sheep Classic 80		2,500.00	12,065.55
Less Interest Earned - Savings		1,100.00	
Interest Earned - Certificate		360.61	1,461.28
Net Expenses			10,604.27
S.I.D.E.C.	\$45,000.00 paid to C.S.C. by Industry Trade & Commerce and forwarded to S.I.D.E.C. by D. Kimber		
	Balance "hold-back" \$5,000.00		

BRIEF

Presented to the ~~West Hants~~ Municipal Council
on the subject of
URANIUM MINING

by the Burlington Women's Institute

March 12, 1981

Part I. Why We Should be Concerned About a Uranium Mine

Uranium mining is far more risky and dangerous than other types of mining because uranium is a radioactive metal. A radioactive substance is one that is spontaneously breaking down or changing into a different substance. In the breakdown process the substance emits energy in the form of alpha and/or beta particles, and/or gamma rays.¹ Exposure of living cells to these high energy particles or rays has been shown to be dangerous for plants, animals, and humans. In the next section of this brief we will explain why.

Uranium is radioactive because its chemical structure is unstable. When an atom of uranium breaks down, it shoots off part of itself (alpha or beta particles), and becomes a different atom, a metal called thorium. Thorium in turn breaks down into radium and so on through radon, polonium, bismuth and lead. In the end a stable (non-radioactive) lead results and no further changes occur naturally.² All these breakdown products in the chain are known as "daughter" products, and all except the final one have unstable atomic structures and emit high energy particles as they change. They are all thus radioactive.

The radioactivity associated with uranium and its daughter products is not a short lived risk. It takes billions of years for any given amount of uranium to be totally transformed into the stable product, lead. The time it takes for a radioactive substance to break down is expressed in terms of its "half-life". This is the amount of time it takes for half the radioactive substance to break

down into its next daughter product. The time figures on Chart 1 indicate the half-life of each of the products in the uranium breakdown chain. Since the thorium, radium, radon, polonium, bismuth, and lead are mined, but are left behind as waste products at the site of the mine, we can see from adding up the half-life figures for each of the breakdown products that the environment around the mine site will be exposed to these radioactive substances for well over 100,000 years.

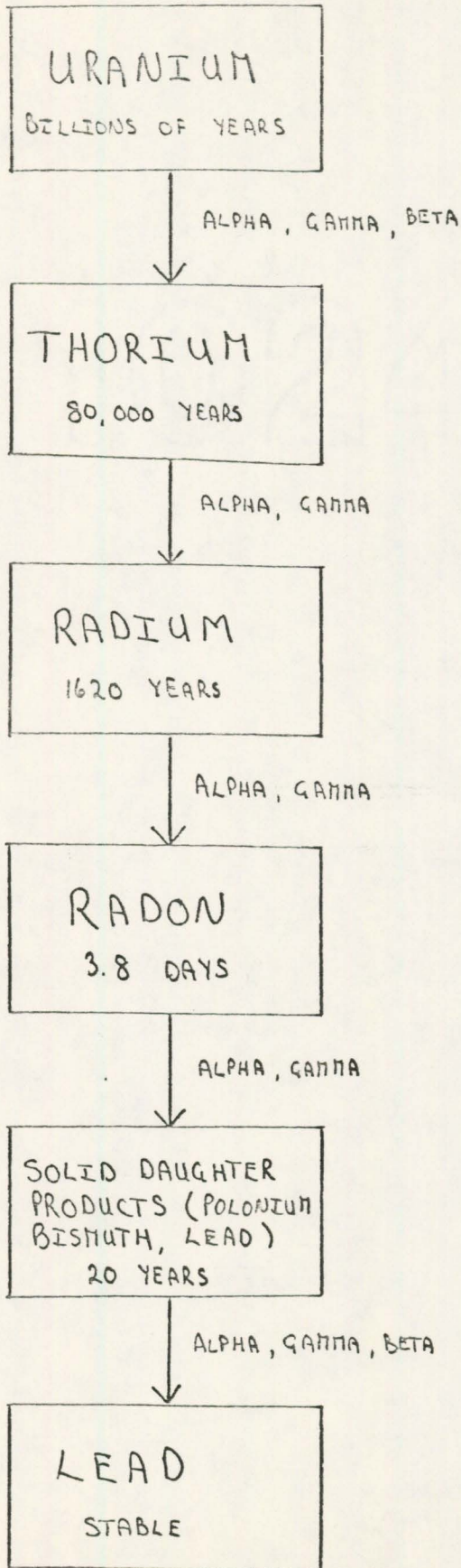
Only 15% of the radioactivity associated with naturally occurring uranium ore is present in the uranium itself. The breakdown products account for the other 85%. Therefore when uranium is mined and milled, only 15% of the radioactive substances is taken away (in the form of uranium). 85%, which is already converted to thorium, radium, radon, etc. is left on the site.³ The radioactivity in natural uranium ore is usually not highly exposed. Ground water may wash (leach) out some, but normally it is contained in the rock and not exposed to air, wind, and rain which can move it around. Mining and milling of the uranium ore however exposes this radiation and allows it to escape and contaminate a much wider area. This problem, as well as the long-lived nature of the radioactivity associated with uranium mine wastes, has horrendous implications when one considers that dumps for radioactive waste products are constantly increasing all over the world. In the past, the radioactive substances released by uranium mining have caused definite harm to living things and to the environment. In this report, we will not describe specific examples of this (although there are many), but rather we will try to show how it happens.

BREAKDOWN

OF

URANIUM

(SIMPLIFIED CHART)



II. How do Radioactive Substances Affect our Health?

A radioactive substance is dangerous to human beings and other living things at the time it breaks down into its daughter product. The damage is done by the high energy particles and the energy rays that are emitted from the atoms. Different types of radiation attack living things differently. Gamma rays may travel several hundred meters, so a person passing nearby the site of uranium exploration or mining may be hit by them. Gamma rays can pass through the skin and body tissue and deposit their energy in the cells, possibly disrupting the biological or chemical structure of the cells and also their normal function. Alpha particles do not travel as far from the source of emission, but they have higher energy than the other types of radiation. They cannot penetrate human skin, so they are most dangerous when they are released inside the body.⁴ This is why it is so dangerous to breathe in or eat radioactive materials. Radon gas is the most dangerous of the uranium breakdown products in the short term because if it is breathed in, it can break down, shooting off an alpha particle inside the lungs. Moreover the next four breakdown products have half-lives ranging from seconds to 20 minutes, which means a little radon produces a lot of radioactivity in a short time.

Any of the particles released by these breakdowns could hit a cell which is in the process of dividing to form new cells, and one of three things could happen to the cell: 1) the cell could be killed, which is not dangerous as long as only a few cells are killed at one time; 2) the cell might be damaged and be able to repair itself; or 3) the cell could be damaged but not repaired. It is this third possibility which is dangerous. If that damaged cell is changed so that it will multiply at an excessive speed, lung cancer could result.

Radiation is shown to cause or contribute to a long list of diseases: cancers of the lung, stomach, breast, liver, kidneys, pancreas, thyroid, gonads, lymph nodes, bones, four types of leukemias, somatic cell damage, general aging effects, germ-line tissue damage which results in future mutations and increased sickness.⁵ Statistics

are beginning to show that people living near uranium mines and mills generally suffer from an increased rate of sickness. Many diseases, especially cancer, do not show up until years after initial exposure to radiation.

Damage done to a person's reproductive cells (male or female) can result in the production of a mentally or physically handicapped baby. "In India, an area where the natural thorium in the ground caused an increase in background radiation counts showed six times the normal rate of severely mentally retarded children per thousand live births and a spontaneous abortion rate of 109 per thousand, compared to 6 per thousand in a similar area in Pakistan that did not have thorium in the ground."⁶ Miscarriages, still births, and infertility rates all increase with increasing exposure to radiation. It is generally established that there is no level of exposure to radiation which is absolutely safe.⁷ Damage to a dividing cell is as likely to occur with the first exposure as with the 100th. The greater exposure, the greater the risk, but any exposure carries some risk.

Radiation is a greater health hazard to humans than to other living things because humans are at the top of the food chain. Radioactive substances can be stored up in the tissues of animals and plants and deposited again in people when they eat the contaminated animals and plants. Humans thus are subject to receiving a larger dose of radiation than could be expected simply by direct exposure.

III. What happens when Uranium is mined?

Uranium is generally found buried in the ground. A covering of rock and soil prevents most of the radiation from contaminating the surrounding air and water, although certainly some radiation escapes from uranium deposits into the environment under normal conditions. When uranium is mined, large quantities of the rock (ore) which contains the uranium is brought to the surface and processed to obtain the uranium. As a result, a much greater surface area of the radioactive substances is exposed to the air, wind and rain, with the result that much greater amounts of radiation are freed to contaminate the surrounding area. It is important to understand that a uranium mine is always accompanied by a uranium mill. The ore must be processed at the site of the mine to remove the uranium, since the uranium content of the ore is usually 2% or less. So there are two main processes to be considered: mining to remove the ore from under the ground, and milling to extract the uranium from the ore.

There are several aspects of mining uranium which are cause for alarm:⁸

If the mine is underground,

1. Ground water flows are disrupted. Ground water seeps or pours into the mine, becomes contaminated with radioactive substances, and is removed to contaminate further the environment outside.
2. Aquifers, or water-bearing zones under the ground, can be permanently damaged.
3. The dumps for waste rock and freshly mined ore can lead to contamination of surface water.
4. Massive quantities of fresh air must be forced through an underground mine to keep the miners from being exposed to high levels of radon gas. This air is then contaminated with radioactive gas (radon) and dust particles, and released to the outside.
5. Air is also directly contaminated by the dust from uranium ore and waste dumps, rock transportation, sorting, and crushing activities. Everyone living downwind from a uranium mine will experience a substantial increase in exposure to

radon gas and radioactive dust particles. These can be breathed in or deposited on the surfaces of leaves, which may then be eaten by animals and people.

If the mine is a strip mine, the environmental impacts are similar to those of underground mines except that the total release of radon gas may be much higher because of the large exposed pit surface and the large quantities of removed ground cover and waste rock which also contain traces of radioactive materials. An underground mine can be sealed off after mining has been completed, thus trapping radon gas in the workings. An open pit will continue to emit radon indefinitely. Attempts to cover such pits to prevent future contamination have not been highly successful.⁹

The processes involved in milling the uranium ore are further cause for alarm. The ore is first sorted and blended to make the batches uniform. It is then crushed and ground until it has a sand-like consistency. This is followed by a chemical treatment to extract the valuable uranium metal from the ore. The chemical process varies from mill to mill, but usually the extraction is accomplished by the use of sulfuric acid and ammonium hydroxide. The final product is an oxide of uranium, called yellowcake, which is dried and packaged in drums for shipment. Meanwhile the leftover ore residue (nearly 98% of the original ore plus added chemicals) are delivered in the form of slimes and slurries, to the tailings ponds where the excess liquids seep away into the ground or evaporate into the air. It is important to understand that the tons and tons of ground up, leftover radioactive ore, called "tailings", are initially in a liquid form, which must be contained in ponds and dammed.¹⁰ In the past this containment had been the greatest problem with respect to uranium mining and milling. Judging by the record of other mining and milling operations, the odds are 2:1 that, over a period of 25 years, a pond or a dam will fail to contain the tailings. The chances that these failures or "ACCIDENTS" will pollute a watercourse are close to 50:50, based on past events¹¹ These accidental spills, serious as they are, represent only a minor part of the threat to ground water. Over time, large quantities of radioactive liquids do seep through the containment structure into the ground ^{and} even can form surface flows into nearby

streams. These problems have not yet been solved. Current proposals include capping and putting soil on top of the tailings to reduce the escape of radon gas, and putting a solid material such as clay or polyethylene to reduce seepage. However, these solutions would only work for a few years, and are expensive to implement. To date they have not worked very well.¹² Another suggested solution is to bury the tailings in concrete cannisters. This is very expensive, and it is estimated that these cannisters will not contain the radioactive wastes for more than 100 years. Considering that billions of tons of tailings from many mines will need to be buried, concrete cannisters do not seem very practical. Hants County uranium is of a low grade. Therefore it is unlikely that a mining company will invest in very expensive solutions to the disposal problem, as it would simply be uneconomical. And even if they would, there is NO SAFE WAY of disposing of the tailings for the necessary length of time.¹³

(continued)

IV. How Might Uranium Mining and Milling Affect Our Environment?

It is impossible for us to say how radioactive substances exposed by a uranium mine would affect the environment of Hants County. The exact mining procedures would need to be known and a great deal of background environmental information would need to be obtained. For example, background radiation levels (radiation already existing in our area) should have been measured before exploration began so that increase in the amount of radioactivity can be monitored. Also, an environmental impact assessment would need to be done. In any case, it is a certainty that some amount of radioactive dust particles and radon gas will be released into the air to spread on surrounding land. There is a lot of productive agricultural land downwind of the proposed mine. Naturally, agricultural crops would be affected. Should miscarriages, stillbirths and deformities increase among the livestock, the implications for livestock produces would be devastating. It is a sure thing that there will be a certain amount of radioactive contamination of ground water and surface water by dissolved and solid radioactive substances. We would need a thorough study of ground water flows to predict areas where wells and municipal drinking water supplies might be contaminated. Surface water contamination is of particular concern because the proposed uranium mine is situated near the headwaters of the Avon River. Radioactive contamination of fish and wildlife could thus be considerable and on a widely extended scale because the tides push the waters back up all the tributaries of the Avon River for miles. The total area that could be contaminated could therefore be immense.

(continued)

V. Benefits and Risks of a Uranium Mine

The main benefit to the local area would be the creation of jobs. However we do not know how many jobs would be created or for how long they would last. Many uranium mines last only for a dozen or two dozen years. We also do not know how many of the available jobs would go to local people.

New miners will learn mining skills. But when the mine closes, to what use will they be put? Perhaps we would be better off trying to develop or attract industries in manufacturing that have longer lives and teach more widely usable skills. Also, there is the problem that miners are exposed to much higher levels of radiation than are considered permissible for the general population. Are the health costs to the workers really worth the jobs?

Canada does not need the uranium that would be mined in Hants County. It already has enough stockpiled to last for the next 20 years,¹⁴ and richer uranium deposits exist in (unpopulated) other parts of Canada. Hants County uranium would most likely be exported, but the problems will remain with us. Should we take such risks when we do not need the uranium?

Nova Scotia will get royalties from the mining. But will they be enough to pay for medical care of illnesses caused by radioactivity for generations after the mine closes? Will they cover agricultural and fisheries losses? It will be hard to make sure they do, for no one now can accurately put a dollar value on what these losses might amount to. Also, will they cover the costs of surveillance (which is complicated and expensive)¹⁵ of the mine tailings for thousands of years, and cleaning up the contamination resulting from inevitable leakages and possible accidental spillage?

So far, those who have responded to the questionnaire on uranium mining which we published in the Hants Journal two weeks ago unanimously do not want to eat food from farms near a uranium

mine. A uranium mine might put the reputation of West Hants agricultural products under a cloud and damage ability to sell farm products, even if they were not contaminated.

It cannot be stated how many people will get lung cancer, how many defective babies will be born, or how many other illnesses will result from uranium mining in Hants County. We would need a thorough understanding of air currents, prevailing winds, and ground water movement, and other environmental factors before attempting to understand potential hazards. And scientists need a better understanding of radiation. It is hard to prove that a particular illness or death was specifically caused by radiation from uranium mining. Perhaps the victim also smoked or drank heavily, or perhaps ^{was} exposed to some other environmental contaminant. It is difficult to determine what effect additional radiation would have on each individual. We only know that there is more illness and death in areas of high radiation exposure. But the lack of specific knowledge about how to predict radiation effects makes uranium mining scary.

Historically, and currently, mining companies and governments have been and are slow to admit hazards. It is very difficult to point to a cancer and say a certain amount of radiation caused this cancer. It has been demonstrated that significantly more than expected cancers, mental retardations and ill health crop up near uranium mine/mill sites, and among miners than among the general population.¹⁶ Despite their reluctance, government and industry have been forced to lower their "maximum permissible dose" several times, even though the formula to determine the "maximum permissible dose" has an economic component. (In other words, a certain amount of damage is "permissible", because it "pays".¹⁷)

Nova Scotia needs more time to assess whether we should allow uranium mining. Extensive uranium exploration should not be taking place before a decision has been made, with public input, about whether the risks would be worth the benefits to Nova Scotia. Currently the Department of Mines and Energy is playing conflicting

roles. On the one hand, it promotes mining, and on the other it is responsible for developing regulations and insisting on safety precautions. There has been talk of guidelines, but there are as yet no guidelines. There are only draft guidelines for exploration, even though extensive exploration has been going on for some time. These guidelines do not contain penalties for lack of compliance. There are no regulations specific to uranium exploration or mining and milling.

As of July 1980, the provincial Department of the Environment did not have the funds to undertake an independent base-line study of existing radiation in the area, but was going to spot-check the company's findings. Nova Scotia should be willing to spend money to study the problem now. This may save money in the long run.

VI. What the Women's Institute Would Like the West Hants Municipal Council to Do

We are asking the Council of the Municipality of West Hants to petition the provincial government to place a moratorium on uranium exploration at least until there has been a public inquiry into the risks and benefits of uranium mining in Nova Scotia.

Footnotes

1. Committee on Mining and the Environment, Gold Hill, Colorado, "A Short Description of Natural Radioactive Decay". Jan. 1979 p.2
2. Ibid. p.3.
3. National Environmental Research Center, Office of Research and Development Report # EPA-660/2-74-038, "State-of-the-Art. Uranium Mining, Milling, and Refining Industry." USEPA June 1974 p.57. Quoted in: Jack Miller, "Uranium Mining and Milling: Environmental and Health Effects", Uranium Information Network, Denver, Colorado.
4. Committee on Mining and the Environment, op. cit. p.2
5. Carl Johnson, M.D. Testimony before a hearing on Proposed Guidance on Dose Limits for Persons Exposed to Transuranium Elements. Broomfield, Colo. Oct. 14, 1978 (Unpublished) quoted from: Miller, Jack, op. cit. p.3
6. N. Kochupillai, I.C. Verma, M.S. Brewal, V. Ramalingaswami, "Down's Syndrome and Related Abnormalities in an Area of High Background Radiation in Coastal Kerala." Nature, Vol. 262, July 1, 1976. pp. 60, 61. quoted from: Jack Miller, op. cit. p.5
7. Federal Register. Vol. 42 N. 230 Wed. Nov. 30, 1977, p. 60957 quoted from: Jack Miller, op. cit. p. 5
8. Committee on Mining and the Environment, op. cit. pp.2-3
9. Ibid. p.4
10. Ibid. p.7
11. Ibid. p.7
12. Jack Miller, op. cit. p. 1, 2

13. Notes from a speech given by Robert F. Woolard, M.D. at a conference on "Health Effects of Radiation from the Nuclear Industry and Uranium Mining." held at the University of Moncton, Feb. 19-21, 1981, attended by two members of Burlington Women's Institute.
14. Community Information Research Group, "Uranium Mining and the Nuclear Industry: A Survey and Some Implications for Canadians" Vancouver, B.C. March, 1980. Report commissioned by Research and Coalitions Office of the Divisions of Missions of the United Church of Canada. p. 32
15. K.E. Hanney, E.I. Jurgens, D.C. Comrie, R.H. Fletcher, "Reclamation Concepts and Practice for Uranium Tailings Impoundments," First International Conference on Uranium Waste Disposal, May 19-21, 1980, Vancouver, B.C.
16. Jack Miller, op. cit. p. 4 & 5.
17. Community Information Research Group, "Uranium Mining and the Nuclear Industry". op. cit. p. 29

- 1) Please pass this booklet on to someone else when you have finished with it.
- 2) Printing and distribution cost us approximately 25 cents per copy. Any contributions to help pay for this will be most welcome.
- 3) An information sheet, "Uranium Mining: What You Can Do About It" is available from C.A.P.E. on request. Alternatively, write Max or phone your M.L.A. today sending him a copy of this booklet.

C.A.P.E. (Citizen Action to Protect the Environment)
Centre Burlington P.O., Warrs County, N.S. BOX 100

dust particles and radon gas will be released into the air to spread on surrounding land. Radon gas is heavier than air and would tend to settle in low-lying areas. Agricultural crops downwind of a uranium mine could be contaminated. Should miscarriages, stillbirths, and deformities increase among livestock, the implications for producers would be devastating.

There will be some radioactive contamination of ground and surface water by dissolved and solid radioactive substances. Radioactive contamination of fish and wildlife could be considerable. We need a thorough study of ground water flows to predict areas where wells and municipal drinking water supplies might be contaminated.

Can the benefits outweigh the risks?

The main benefit to the local areas would be jobs. However, we do not know how many jobs or how long they would last. Most uranium mines last only 12-15 years. We do not know how many jobs would go to local people. In B.C., before the moratorium, Rexspar Mines would have employed 86 people in a uranium mine, but only 10 were to be local people employed for the operating phase.¹⁴

Federal regulations allow miners to be exposed to 10 times as much radiation as the general population (permissible annual dose for radiation workers = 5,000 millirems; for the general public = 500 millirems). The Canadian population is allowed to be exposed to 20 times as much radiation as the U.S. population.¹⁵ The international scientific community cannot agree on "safe" levels of exposure.

Who needs uranium?

Canada does not. Enough has already been contracted for the next 20 years.¹⁶ Nova Scotia uranium would be exported or stockpiled.

In the end, who pays?

The people of Nova Scotia. When the companies begin to make a profit, the province will eventually get royalties. Public money will have to cover the

medical costs of illnesses caused by radioactivity for generations after the mine closes, for agricultural and fisheries losses, and for the costs of monitoring the mine tailings for thousands of years.¹⁷

Where does the buck stop?

With us. Mining companies and governments have been and still are slow to admit hazards. It is very difficult to point to a cancer and say a particular exposure to radiation caused it. Yet it has been demonstrated that significantly more than the expected number of cancers occur among uranium miners than among the general population.¹⁸ Government and industry have been forced to lower their "maximum permissible dose" several times, even though the formula to determine this dose has an economic component. In other words, a certain amount of damage is "permissible" because it "pays".¹⁹

Who protects us?

Currently, the N.S. Department of Mines and Energy is playing conflicting roles. It promotes mining and yet is responsible for developing regulations and safety precautions. There are only draft guidelines for exploration, even though extensive exploration has been going on since 1976. These guidelines do not contain penalties for lack of compliance and are weak on requirements for protecting the environment. There are **NO REGULATIONS** specific to uranium exploration, mining, or milling. Reports from exploration areas indicate a lack of Department of the Environment monitoring; they only spot-check the companies' findings.

The current federal nuclear regulatory framework in Canada is considered, by many experts, to be inadequate. There have been numerous violations of the Code of Practice but the Atomic Energy Control Board has never laid a charge and may not be capable of it.²⁰

The uranium industry in Canada has a history of destruction of workers' health and massive environmental degradation. The people of B.C. and Labrador have rejected uranium exploration and mining. The people of Nova Scotia have the right to make the same choice.

REMEMBER! Long after the experts and the mining companies have taken their profit and gone, we will be left with the mess and the risks.

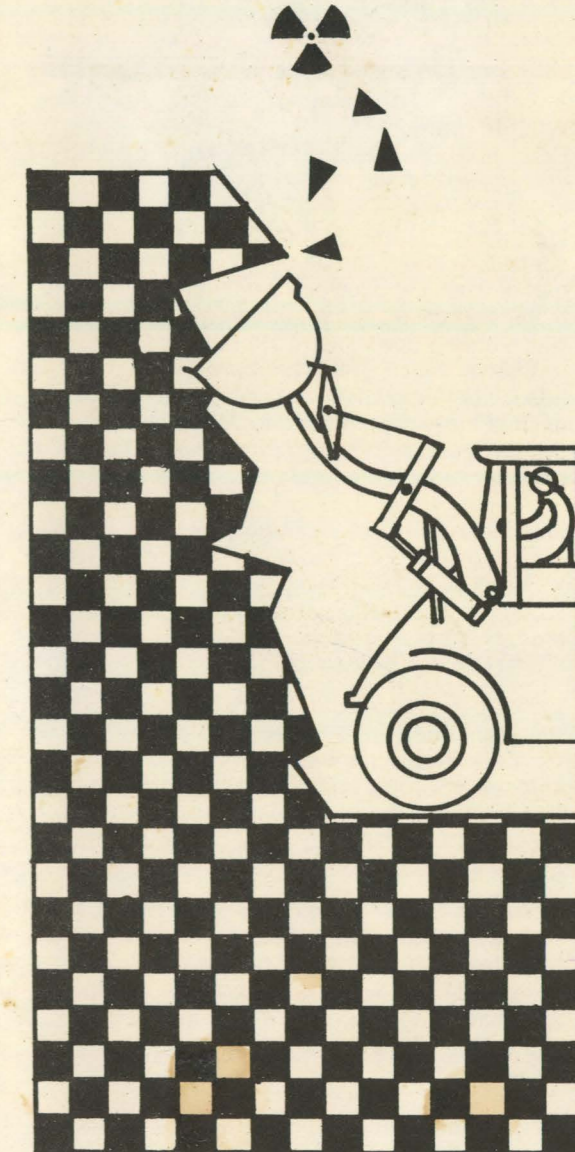
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1. Young, E.R. and Woollard, R.F., *The Health Dangers of Uranium Mining and Jurisdictional Questions*. Environmental Health Committee, British Columbia Medical Association, Aug, 1980, p. 3.
2. National Environmental Research Center, Office of Research and Development Report No. EPA-660/2-74-038. "State of the Art: Uranium Mining, Milling and Refining Industry". USEPA. June 1974, p. 57.
3. Young and Woollard, p. 5.
4. Young and Woollard, p. 109.
5. Young and Woollard, pp. 114-124.
6. "Down's Syndrome and Related Abnormalities in an Area of High Background Radiation in Coastal Kerala", in *Nature*, Vol 262, July 1976. pp. 60-61.
7. Young and Woollard, p. a.
8. Watson, A.P., in *Health Physics*, Vol 37 (6) Pp. 802-3, Dec. 1979.
9. Committee on Mining and the Environment, Gold Hill, Colorado. "A Short Description of Natural Radioactive Decay", Jan. 1979, p. 2.
10. British Columbia. *Royal Commission of Inquiry, Health and Environmental Protection, Uranium Mining. Commissioners Report*. March 1981, Chapter 10.
11. Committee on Mining and the Environment, pp. 2-3.
12. Torrie, Ralph D. "Uranium Mine Tailings — What the Record Shows: A Review of the Evidence Presented to the British Columbia Royal Commission on Uranium Mining". Aug, 1980. p. 6.
13. Torrie, pp. 10-23.
14. Young and Woollard, p. 367.
15. Young and Woollard, p. 18.
16. Young and Woollard, pp. 276-277.
17. Community Information Research Group. "Uranium Mining and the Nuclear Industry: A Survey and Some Implications for Canadians". Vancouver, B.C. March 1980. Report commissioned by Research and Coalitions Office of the Divisions of Missions of the United Church of Canada. p. 32.
18. Hanney, K.E. et al. "Reclamation Concepts and Practice for Uranium Tailings Impoundments", First International Conference on Uranium Waste Disposal, May 19-21, 1980. Vancouver, B.C.
19. Young and Woollard, pp. 176-204.
20. Community Information Research Group, p. 29.
21. Torrie, p. 39.

Uranium mining: is it worth the risk?

An Information Booklet prepared by C.A.P.E.
(Citizen Action to Protect the Environment)

c/o Centre Burlington Post Office
Hants County, Nova Scotia B0N 1E0
757-3220, 757-3352 or 757-2440



A dozen multinational companies are exploring Nova Scotia for uranium. Over 46 communities, including Halifax, almost every town of appreciable size, lie within an approximate ten-mile radius of land claimed for uranium exploration.

What is Uranium?

Uranium is a radioactive, heavy metal found in many parts of Canada and other countries, particularly in granite rock. It is always changing; in this process it gives off radiation or high energy particles and rays. An atom of uranium shoots off part of itself and becomes a different atom called thorium. Thorium, in turn, breaks down into radium which breaks down into radon gas, polonium, bismuth and lead. These are called the "daughter" products of the decay chain. Thus, each of these daughter products is also radioactive and emits high energy particles and rays as it changes into the next product.¹

It takes billions of years for any given amount of uranium to be totally transformed into the final, stable product, lead. Radioactivity is measured by the amount of time it takes for half the radioactive substance to break down into its next daughter product. This is called the "half-life". The half-life of uranium is 4.5 billion years.

Isn't most of the radioactivity taken away with the uranium?

No. Only 15% of the radioactivity associated with naturally occurring uranium ore is present in the uranium itself. The thorium, radium, radon, etc., account for the other 85% left behind as waste products at the mine and mill site.²

If the radioactivity is already here, isn't it fine if they take some of it away?

Uranium is generally found buried in the ground. A covering of rock and soil prevents most of the radiation from contaminating the environment, although under normal conditions, some radiation escapes. However, when uranium is mined, thousands of tons of ore are brought to the surface and crushed and ground. This increases the

volume by one-third. As a result, a much greater surface area of the radioactive substances is exposed to the air, wind and rain, with much greater contamination of the surrounding environment.

Why is radioactivity dangerous?

A radioactive substance is dangerous to living things at the time it breaks down into its daughter product. The damage is done by the high energy particles and rays emitted. Different types of radiation attack living tissue differently. Gamma rays, much like X-rays, may travel several hundred meters. They can pass through skin and body tissue and deposit their energy in the cells, possibly damaging them. Alpha particles do not travel as far from the source of emission, but they have higher energy than the other types of radiation. They cannot penetrate human skin, but are most damaging when they are released inside the body.³

Radon gas is one of the most dangerous of the uranium daughter products. If it is breathed in, it can shoot off alpha particles inside the lungs. Moreover, the next four daughter products have half-lives ranging from seconds to 20 minutes. A little radon produces a lot of radiation in a short time.

This radiation could hit a cell and one of three things could happen: 1) the cell could be killed, which is not dangerous as long as only a few cells are killed at one time; 2) the cell might be damaged and be able to repair itself; 3) the cell could be damaged but not repaired.

This third possibility is the most dangerous. If the damaged cell is changed, cancer or genetic damage could result.⁴

Radiation is a greater health hazard to humans than to other living things because humans are at the top of the food chain. Radioactive substances can be stored in the tissues of animals and plants and deposited in people when they eat the contaminated animals and plants. Humans thus are subjected to receiving a larger dose of radiation than could be expected simply by direct exposure.

What diseases are associated with exposure to low levels of radiation?

Radiation is shown to cause or contribute to cancers of the lung, stomach, breast, liver, kidneys, pancreas, thyroid, gonads, lymph nodes, bones, four types of leukemia, somatic cell damage, general aging effects and germ-line tissue damage which results in future mutations and increased sickness.⁵ Many diseases, especially cancer, do not show up until years after initial exposure to

radiation. To date, very little funding has been made available to study the long-term health of communities exposed to low-level radiation.

Damage to a person's reproductive cells (male or female) can result in the production of a mentally or physically handicapped baby. Severe mental retardation and spontaneous abortions are found to be more frequent in Kerala, India, where background radiation levels are very high.⁶ Miscarriages, still births, and infertility rates all increase with increasing exposure to radiation.

Is there a safe level of exposure to radiation?

It is generally established that there is no level of exposure to radiation which is absolutely safe.⁷ Damage to a dividing cell is as likely to occur with the first exposure as with the 100th. The greater exposure, the greater the risk, but any exposure carries some risk.

What happens when uranium is mined?

A uranium mine is always accompanied by a uranium mill. Mining removes the ore from the ground, and milling removes the uranium from the ore. For every 2,000 pounds of commercially viable uranium ore, there will be only 4 to 40 pounds of uranium, depending on the grade of the ore.

Does a uranium mine create problems?

If a mine is underground, surface and ground water flows can be contaminated. Aquifers, or water-bearing zones under the ground, can be permanently damaged. The miners are exposed to excessive levels of radon gas which must be monitored and controlled by adequate ventilation.

In a strip or open pit mine, the miners are not exposed to such concentrated levels of radon but the total release of radioactive gas may be much higher due to the larger exposed pit surface and the greater quantity of radioactive waste ore exposed to the atmosphere and dumped on the mine and mill site.

In both types of mining, dust is a problem. Radioactive material adsorbs onto dust particles and can be transported to locations downwind from the site. This can result in deposition on plants which may become part of the animal-food-human chain.⁸

An open pit mine will continue to emit radon gas indefinitely. Attempts to cover such pits to prevent future contamination have not been highly successful.⁹

What is involved in the milling process?

The ore is crushed and ground until it has a sand-

like consistency. In the mill, it is processed (usually with sulphuric acid and ammonium hydroxide) to extract the uranium. The final product is an oxide of uranium, called "yellowcake", which is dried and packaged in drums for shipment. Meanwhile the leftover ore residue (over 98% of the original ore plus added chemicals) is delivered, in the form of slimes and slurries, to the tailings ponds where the excess liquids seep away into the ground or evaporate into the air. **MILLIONS OF TONS OF RADIOACTIVE TAILINGS ARE INITIALLY IN A LIQUID STATE AND MUST BE CONTAINED IN PONDS AND DAMMED.**¹⁰

Judging by the record of other mining and milling operations, the odds are 2:1 that, over a period of 25 years, a pond or dam will fail to contain the tailings. The chances that these failures or "accidents" will pollute a watercourse are close to 50:50.¹¹ These accidental spills represent only a minor part of the threat to ground water. Over time, large quantities of radioactive liquids seep through the containment structure into the ground/or surface water systems.

Can technology solve the problem?

Not yet. Uranium industry experts, questioned by the British Columbia Royal Commission of Inquiry into Uranium Mining, admitted that the technology is currently not available to provide permanent disposal of the tailings, with no need for perpetual human management.¹² Current proposals include capping and putting soil on top of the tailings to reduce the escape of radon gas, and putting a solid material underneath such as clay or polyethylene to reduce seepage. However, these solutions would only last a few years and are expensive to implement. To date, they have not worked very well.¹³

THERE IS NO SAFE WAY OF PERMANENTLY DISPOSING OF THE TAILINGS.

Moreover, since the uranium industry is in a slump and Nova Scotia uranium ore is of a low grade, it is unlikely that a mining company would invest in the more expensive but safer solutions to the disposal problems. It would simply be uneconomical.

How would uranium mining and milling affect the environment?

This question cannot be adequately answered unless the government conducts an environmental impact assessment study for each site. At the present time, there is no indication that such studies will be done.

We know, in advance, that some radioactive

John Mildon,
Upper Stewiacke,
Col. Co.,
N.S. BON 2PO,
Canada.

Dr. Don Bailey,
248 North West Garden Valley Rd.,
Roseburg,
Oregon,
97470, U.S.A..

Dec 14/81.

Dear Dr. Bailey,

I audio-taped your lectures on flock health during your recent presentation to sheep farmers here in Truro, Nova Scotia,

I have had several requests from producers for edited copies of the tapes. The department of Agriculture, through the office of Mr. Stuart Allaby, has volunteered to distribute copies to farmers through the various Agricultural Extension Offices in the province. This would involve a nominal charge for the blank cassettes, and for handling and packaging.

I have agreed to organise the project, on behalf of the provincial sheep producers association. Would you permit your material to be distributed and used in this way? We feel it would be unethical to circulate it without your knowledge and consent.

Thank you for a thoroughly enjoyable session, at which I learned a lot of useful management tips.

I look forward to hearing from you.

Yours sincerely,

John Mildon.

Priorities of the committee to be:

- Continued monitoring of the P.A. situation and research at Sackville.
- Analysis of abortion problems in 1982.
- Structuring of Maedi Visna blood-testing to achieve a representative sampling of flocks in N.S.
- Preparation of a draft flock health program by early spring 1982 to be circulated to producers before semi-annual meeting.
- Meetings with veterinary association to solicit their co-operation.
- Preparation of health regulations for 1982 Sheep Fair.
- Negotiations with provincial pathology lab to organize blood-sampling of flocks for trace minerals including selenium and improved diagnosing reporting.

John Mildon

John

Sept 181.

REPORT OF THE
DISEASE/HEALTH COMMITTEE OF S.P.A.N.S.

The committee was established in March 1981, pursuant to a motion passed at the semi-annual meeting of S.P.A.N.S., March 7/81, that:

"S.P.A.N.S. directors take the initiative to set up a committee of producers and provincial government representatives to negotiate a control program for flock owners who have PA and other diseases, the objective being to eliminate the risk of spreading infection throughout flocks in N.S."

It was later moved at this meeting that:

"The disease committee invite the participation of all sheep producers, and other interested parties".

The committee was formed by the Chairman, Wayne Woolfitt, with the following members: Wayne Woolfitt, Tremaine Finlay, Peter Rogers, Richard Ducharme, Roy MacKenzie, Dr. Ray Long, John Mildon (recording secretary).

Some members of the committee held a preliminary meeting on March 20/81, following the seminar given by Dr. Boundy. Discussion was very general, and it was an occasion for committee members to voice their opinions, to try and reach a common starting point for action.

Essentially, it was decided that the two objectives of the committee were:

1. To do something about the situation of flocks where P.A. has been identified. To decide whether some form of compensation would be desirable to owners, and to explore ways of limiting the spread of the disease to other flocks.
2. To develop a flock health program for sheep producers, to enable producers to manage their flocks better and to protect the reputation of those who sell breeding stock.

On April 24/81, all the directors of S.P.A.N.S., and members of the Disease/Health committee met in Truro with Dr. Bulmer, Dr. Stevenson, Dr. Skinner, Dr. Duplessis and Dr. Soehl.

Together, these men represent every echelon of the Federal Health of Animals Department which has been most closely involved in the importation from Scotland and the P.A. controversy.

Dr. Bulmer made it very clear that his department does not consider P.A. a very serious problem.

Health of Animals does not accept any responsibility for the appearance of the disease in Canada, nor does the Federal Government seem inclined to do anything about the situation.

The main argument seemed to be that P.A. may be widespread in flocks in Canada, but the number of diagnosed cases is low, indicating that the disease will not have the serious economic consequences which some people feared.

Further, since the disease is impossible to diagnose in live animals, it is impossible to control, so any kind of compulsory eradication program would not be effective, even if funds were available to compensate flock owners.

Dr. Bulmer cited the parallel with Scrapie, which has not been eradicated by a compulsory slaughter program, and which, in his opinion, poses a far greater threat to the industry than P.A.

Following this presentation, the directors met, and the disease issue was discussed further. A lot of divergent feelings were expressed, with some directors stating that more emphasis should be placed on preventive flock health, concentrating on diseases which can be identified and treated. It was generally agreed, too, that respiratory diseases of all kinds cause serious economic losses to every producer, and a research program into such diseases is urgently needed. Finally, on the issue of P.A. the following motion was passed:

"The directors of S.P.A.N.S., recognizing the high incidence of P.A. and the threat to other sheep in the province by the Nettleton flock, direct representation be made to the Director of Livestock Services and provincial veterinarians to discuss specifically a program for slaughtering this flock and compensating the owners".

Roy Evans sent a letter outlining this motion to Stuart Allaby, Director of Livestock Services.

On May 25/81, Mr. Allaby replied that negotiations were underway between the provincial government, federal government and DEVCO about the establishment of a research program on P.A., and the purchase for this purpose of sheep from infected flocks. He recommended that compulsory slaughter not be considered, in anticipation of such a program.

The Disease/Health committee met again on June 11/81. Dr. Long reported that negotiations re: a research program were still going on, but that the federal government were not enthusiastic about putting money into research. He suggested that S.P.A.N.S. could exert some pressure on the federal government.

The committee (later supported by the Directors) decided to write Dr. Bulmer urging the setting up of a research program into respiratory diseases, and outlining the need for such a program.

Wayne Woolfitt explained that the Canada Sheep Council have set up a disease committee, so there may be support from that quarter.

Wayne and Roy Evans also had a brief meeting with Eugene Whelan recently, and expressed their concerns to him.

The committee started to outline the ingredients of a flock health program, which could be set up when funds are available.

The Northumberland Sheep Producers are setting up a pilot preventive health scheme involving the vet in their area. This might serve as a model for other areas.

In summary, the issues confronting the committee are as follows:

1. What is the extent of P.A. and does it constitute a serious economic threat to sheep producers?

The opinion of the authorities is that it does not, but evidence either way is scant and inconclusive.

2. The Nettleton flock has been recognized by the membership and the directors of S.P.A.N.S. as a special case.

Is some form of compensation, whether direct, or indirect needed for the Nettletons?

Is this because of the economic losses they have suffered personally, or because of the potential threat which this flock represents to others if those sheep were placed on the open market?

3. What control measures, including slaughter and compensation would be effective if P.A. turns out to be as serious a threat as some claim?
4. Should any agency be held responsible, hence accountable for the introduction of P.A. to Canada?
5. What programs should be implemented to reduce losses from any kind of respiratory disease, which are recognized to be one of the most serious causes of sheep and lamb mortality?
6. What are the ingredients of a useful flock health program, through which producers can learn better how to manage

their flocks, prevent outbreaks of costly diseases,
and control others?

7. How can the committee fulfill its responsibility to have the input of producers in these decisions?

Your comments and suggestions will be appreciated.



John Milton
Secretary
Disease/Health Committee

S.P.A.N.S.

Board Meeting



Diseases

Research Program - Bert Stephenson.


Animals from infected flocks would be purchased.

Kept on farm in Cape Breton, supervised by

Devco & Prov.
from 3 flocks.

200 ewes, synchronised **breeding**, at lambing

1 ewes slaughtered and 2 lambs taken from them.

1 lambs taken to near  Sackville lab, and

80% reared

Ewes checked at slaughter for lung infection, and
progress of disease in lambs.

Program will run for 3 years - if lambs are clean

it will be assumed that P.A. can be cleaned up by

this method.

Budget - \$120,000

Federal budget \$5,000 for three years.

Catalogue

500 copies.

Total cost about \$1,250 + expenses. Phone, mail etc.

Anticipated income from advertising \$1,475.

Disease Meeting

Present - Woolfitt, Ducharme, Mackenzie, Rogers, Mildon, Finlay

Invited - Dr. Ray Long, Nettleton, Stuart Allaby.

Others - Board-members and 8-10 producers.

Total 25 people.

Recognised that this "research" program is a start, but incomplete.

Much discussion about relationship between high-level research, and on farm application.

Need for health committee to stay in existence.

Relationship between ~~the~~ flocks health program and ~~app~~ research.

Nettleton Wanted recorded info re 1970 importation.

Misunderstanding re 1st paragraph of President's viewpoint.

Get copy from Brian -

Diseases - (cont)

(2)



Brewster - Can the President point the way ahead.

Woolfitt - Meeting tomorrow ^(Fri) with Federal people, Canada Sheep Council, + one from P.E.I.

Develop a strategy for coping with diseases.

Continued discussion of Import problem. ①

Wayne reviewed import situation for producers who weren't at meeting earlier in the day.

Mentioned meeting with Whelan, who was supposed to make statement by end of July. - Got to get after him about it.

Cathy Kneen - Does this importation constitute "dumping" legally?

Wayne felt that it did.

Blacklock - ~~the~~ UK. cut imports from N.Z. by 30% last year, so N.Z. turning to Canada.

Allaby - U.S. also cutting imports, so spill-over into Canada.

Cathy Kneen - Deliberately cultivated policy of N.Z.

Question of supply-management.

Allaby - Problem with supply management is it would be based on 1970-5 production, as base period.

Supply management would limit expansion.

Alternative would be something like "single-desk" selling, or price support system.

What kind of trade-offs can Sheep Producers afford to make.

Discussion of Cheap Food Policy, and political unacceptability of it.

Imports

(2)

Kneen - If price is too low, then future supply is jeopardised.

Allaby - Maybe we should be talking to Industry, Trade & Commerce instead of Agriculture.

Blacklock - Pointed out that other provinces very concerned about this same problem. Should work together with them.

Sheep Council rep from N.B. Same problems.

Need for co-operation. We need 10 times more sheep.

than we now have, to develop cloud.



of Canada Sheep Council

Gernot Zittig - What happened to original plan to limit import of chilled lamb through licenses to importers?

Licenses could be revoked at Christmas and Easter.

Wayne - Not decided what method to use. That was just one of several.

Cathy Kneen Agreed that all provinces agreed on need to limit imports. Federal govt. unresponsive.

Need to develop strategy to cope with this.

Small in numbers, but we need to be imaginative.

IMPORTS

③

Possible strategies :-

1. Get Federation of Agriculture involved in amendments to C.46.
re. sheep meat.

Co-operate with other red meat producers.

2. Get Sheep Council to act on our behalf., and through Canadian Federation of Agriculture.

③ Suitable press release re. this 2 day meeting.

4.

Wayne Pleased to see number who turned out for meeting.

(1)

When will this be mailed.

Many of current sheep producers are unaware of the recent history of sheep importation into N.S. Considering recent ~~concern~~ concern voiced ~~over~~ over irregularities of quarantine administration and particularly due to a reference to ~~the~~ ~~use~~ ^{the use} of the Sale barn to hold quarantine sheep, I would like to clarify certain facts: -

In Oct 1970 approximately 1250 Scottish Blackface ewes and rams 40 North County Cheviot ewes, 40 Clun Forest ewes and various "Exotic" rams. These sheep were quarantined together in Scotland for 4 weeks. Crossed the Atlantic in a cattle boat, quarantined for 1 month at Lewis and distributed to importing farmers as follows: -
The Scottish Blackface to 8 N.S. farmers;
The Clun Forest to RAK Turner; ~~and~~
The NCC to the NSAC; and the exotic rams to the Central Experimental Farm Ottawa.

All the SBF sheep were split at random to the 8 importers. Approximately half the SBF were delivered & sorted at the McMur Sale Barn

W. J. D. M.
SF.
AR.
P. H.
AC.
Thompson
NSAC.
T. T.
Fed

Subsequently the Wethers and Mopins sheep were ~~examined~~ underwent routine examination. (Ear tagging, counts etc) in the MCM barn with the knowledge ^{request} & approval of the local Federal N.I.A. Veterinarian.

Subsequent to ~~these~~ these handlings the sale barn was cleaned and disinfected ~~at my~~ and at my request the local N.I.A. Vet inspected the ~~premises~~ to the disinfected premises.

[Signature]

Negative vs Positive approach.

Office of The General Council

85 St. Clair Ave. East, Toronto, Ontario M4T 1M8
Telephone (416) 925-5931

November 12, 1981

Mr. Brewster Kneen,
R.R.#3,
Scotsburn, N.S.
BOK 1R0

The Agriculture & Food Resources Committee of The United Church of Canada, at its meeting in Toronto, November 5-8, 1981, considered Bill C-46, "An Act to Regulate the Importation into Canada of Fresh, Chilled and Frozen Meat".

This Committee wishes to express its concern with the legislation as drafted. Our concerns centre around the following:

1. The bill defines "meat" as only fresh, frozen or chilled beef and veal and does not include live animals.
2. The bill does not include other meat imports such as lamb and mutton.
3. The level of imports allowed in the bill makes it virtually a bill to licence imports rather than control imports.
4. The bill places absolute restrictions on availability of information on imports, including sources, amounts, agents, etc.
5. The bill grants so much discretionary power to the Minister of Agriculture and the Minister of Industry, Trade and Commerce as to make any other provisions of the bill meaningless.
6. The bill, as drafted, appears to serve the interests of the packing industry rather than the primary producers.

The Committee feels the need for much greater consideration of domestic meat production, self-sufficiency, and the role of international trade in light of its stated commitment to the family farm as the basic productive unit in Canadian agriculture. The Committee recognizes the need for inclusive meat import controls and urges thorough re-drafting of Bill C-46 in light of the above considerations.

Sincerely yours,

Morris O. Bartlett

Morris O. Bartlett

c.c. The Hon. Eugene Whelan, Minister of Agriculture
The Hon. Herbert Gray, Minister of Industry, Trade & Commerce
Mr. Maurice Bossy, Chairman, Standing Committee on Agriculture,
House of Commons

P.O. Box 1415
Antigonish
Nova Scotia B2G 2L7
October 27, 1981

Mr. Arnold Rovers
Secretary
Nova Scotia Farm Loan Board
P.O. Box 550
Truro
Nova Scotia B2N 5E3

Dear Mr. Rovers;

I was surprised to learn from your letter of September 28, 1981 that my request to meet with the Nova Scotia Farm Loan Board had been refused.

I had already been surprised at your insistence that I meet with your associate the Chairman, a long-standing non-voting Board member, before you would acquiesce in submitting my request to the Board. Apparently by following the course of action you dictated I have made it possible for the Board to become convinced that I have "received adequate consideration".

Please apologize to the Board Members for the demands which I have felt bound to make on their time. I thought that my actions were in accordance with established Board procedures. I was not wishing to argue, only to inform and seek guidance. I do not doubt that the Board has made the only appropriate decisions based upon the information provided by its staff. I would have appreciated the opportunity to satisfy myself that the Board had been fully appraised. Unfortunately, in session with yourself the Board has seen fit to deny me this opportunity.

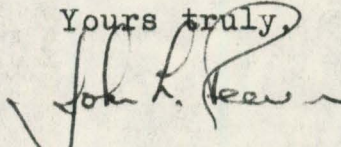
..... 2

I thought that by going directly to the Farm Loan Board I was pursuing the appropriate recourse for a farmer who felt that he had been treated unfairly. I received this, apparently mistaken, belief from statements which you made and which are recorded in The Minutes of the Annual Meeting of the Sheep Producers Association of Nova Scotia: December 2, 1978 asserting that " a farmer could by-pass the staff and go directly to the Farm Loan Board itself if he felt he was not treated fairly ".

I would appreciate hearing from the Board the appropriate procedures which are to be followed when one believes that ones case has been handled unfairly, in an unprofessional or prejudiced manner. I am not aware that any correction has yet been made to the S.P.A.N.S. Minutes.

Thank you for your attention.

Yours truly,



John L. Reeves

P.S. The above mentioned Minutes record your statement that " a farmer could say which of the field staff he was prepared to deal with ". In this regard, I respectfully remind you that I am yet to receive an answer to my letter of May 6, 1981 requesting an explanation of why you have denied me this right.

C.C. Directors S.P.A.N.S.

Mr. Arenburg

Mr. Geense

Board Members

NOVA SCOTIA SHEEP PRODUCERS ASSOCIATION

MINUTES OF DIRECTORS' MEETING

The meeting was convened at 11 a.m., September 24, 1981 by the President, Mr. Wayne Woolfitt, at the Keddy Motor Inn, Truro, N.S.

Present: All Directors were present. Also present were Mr. Stuart Allaby and Mr. Roy MacKenzie of the NSDAM.

Minutes: Minutes of the Directors' meeting of June 11, 1981 were approved as published. Moved: Mildon; Seconded: Rogers.

Correspondence:

A letter from Dr. Bulmer, Agriculture Canada, indicated that the Federal Department in conjunction with the Provincial Department of Agriculture were going to purchase sheep from infected flock and establish a research project in Sackville to study pneumatic diseases of sheep and lamb. Stuart Allaby informed the Directors that he expected the purchase of these animals to be made by the 30th of September and the initial research would determine if lambs removed by cesarean section or separated from their mothers at birth would have these diseases. Further discussion was deferred for the meeting of the Disease Committee.

Some correspondence was received regarding the Sheep Fair and Breeding Stock Sale, but unfortunately due to the mail strike could not be actioned other than by telephone.

A letter was written to Dr. G. Sheehy, Minister of Health, expressing our displeasure over the press release attributed to Dr. Pierre Lavigne, Provincial Epidemiologist. The Federation of Agriculture also wrote a strongly worded letter of protest.

Business Arising from the Minutes: Kneen explained that a flock health pilot program has been set up for twelve farms in Pictou County. It will be patterned after the Swine Health Program and the Veterinary is presently making his preliminary visit to these farms. CORRECTION - It will not be patterned after the ^{Swine} ~~flock~~ health program.

Treasurer's

Report: Treasurer reported that the bank balance of September 22, 1981 was \$1,672.33 in Current Account and \$1,746.07 in Savings Account. However, a buyer's cheque for \$4,090 was returned NSF placing us in an overdraft position. This person was contacted by the Treasurer and he stated that due to circumstances beyond his control this situation had arisen. He would post a cheque that day for \$2,000 and the balance the following week. The Directors accepted this solution. Following considerable discussion on the danger the Association faces with NSF cheques in large amounts, it was moved by Evans and seconded by Forbes that any person or firm intending to buy more than \$1,000 worth of sheep at the Breeding Stock Sale must bring a Letter of Credit to the office prior to purchase of sheep.

Reports of
Committee
Chairpersons
Sheep Fair:

Most Chairpersons handed in written reports and the Secretary will institute values for subsequent Chairpersons that may be passed on year after year. Recommendations from these reports that will be forwarded at our annual meeting were:

- (1) Moved by Forbes; seconded by Finley, that the Sales Committee reconsider the amount of entry fee.
- (2) Sally Ross has volunteered to help promote in the Metro area the Sunday handcraft activities at the Sheep Fair.

John Mildon was commended and given a vote of thanks on the excellent work he did on the Catalogue under extremely trying conditions during the mail strike. Martha Nettleton was commended for the successful youth activities. The canteen showed a profit of \$134.50. Glenys Woolfitt was moved a vote of thanks.

Market Lamb Competition: All lambs should be slick shorn and their live weight displayed. Mrs. Zillig was issued a vote of thanks for her efforts on the fleece competition and her informative report was greatly appreciated.

Shearing Competition and Dog Trials were well attended and well received.

Alex Forbes reported on the Sales Committee outlining some of the problems and concerns. He will give a report at a later date.

The President presented a brief to the Directors outlining his concerns for the industry and the direction we should follow.

The Secretary reported that he attended a meeting on behalf of the Association with the other red meat groups regarding inspection of slaughter facilities and disposal of dead stock. These will be ongoing Committees involving NSDAM, Federation of Agriculture and commodity groups. Brewster Kneen offered to serve as our representative on this Committee.

The meeting was adjourned at 4:30 p.m. on motion by Forbes/Sanders.

An open meeting on diseases and a Disease Committee meeting followed and John Mildon will report on these activities.

(sgd.) Roy N. Evans
Secretary-Treasurer

The annual meeting will be held in the Hancock Building at 11 a.m. on November 21, 1981. Directors' meeting at 10 a.m.

Mr. Don Bailey, DVM, Secretary of the American Association of Sheep and Goat Veterinary Practitioners will be addressing Producers on Tuesday, November 17, 1981 10 - 12 a.m., 1 - 4 p.m. at our Riverview Room, NSAC. Diseases and Management will be the topics under discussion. A more complete breakdown on the subject matter will be sent out by Mr. Roy MacKenzie.

SHEEP PRODUCERS ASSOCIATION OF NOVA SCOTIA

MEETINGS RE: CRITICAL PROBLEMS FACING THE SHEEP INDUSTRY

Minutes of meeting at Keddy's Motor Inn, Truro, N.S. Sept. 24/81 3:30 P.M.

PRESENT: SPANS Health Committee Members - Chairman, W. Woolfitt, R. Ducharme, P. Rogers, T. Finley, Roy MacKerzie, Dr. Ray Long

SPANS Board Members - A. Forbes, G. Sanders, E. Kneen.

Invited Guests: Mr. Stuart Allaby, Lloyd McEwan (N.B. rep to Canada Sheep Council).

Also present were 8 - 10 sheep producers.

This meeting called by SPANS President, Woolfitt, as part of a two day session discussing problems facing the sheep industry.

This meeting was a continuation of sessions held earlier in the day. It was planned as an open forum for producers to air their views, but few attended as written notice of the meeting was not circulated beforehand. There was considerable discussion about the implications of the program negotiated between the Provincial Department of Agriculture, DEVCO and the Federal Government to purchase sheep from flocks with a high incidence of P.A. Dr. Long outlined the role of the Provincial Department in the program. The relationship between the research to be carried out and practical on-the-farm application was dealt with at length. There was consensus on the urgent need for a preventative flock health program. Until the Federal-Provincial Agricultural agreement is in place no funds are available for such a program. However, the Provincial Government is giving financial assistance to a pilot project organised by Northumberland Sheep Producers.

There was a strong consensus that problems and losses created by the discovery of P.A. in flocks in Nova Scotia, together with concerns about Maedia Visna, Enzootic Abortion and various pneumonic diseases have had a serious effect this year, notably on producer confidence and breeding stock prices. Whilst there was strong criticism of the involvement of the Federal Health of Animals branch and their inability or unwillingness to come to grips with the situation, there were no definite conclusions as to what action should be taken by SPANS. However, there was agreement that action was necessary and that the Federal Government should be held accountable.

The second issue introduced by President Woolfitt was the dumping of New Zealand chilled lamb onto the Canadian market at the critical price-selling periods of Christmas and Easter. The Canada Sheep Council attributes much of low market lamb prices this year to the effect of these imports and is attempting to have them restricted. Woolfitt explained that at a meeting with Agriculture Minister Whelan earlier this year, Whelan was made aware of this situation and he promised to deal with it. So far nothing has happened. The question of some kind of supply management as a trade-off for restricting New Zealand imports was raised. Mr. Allaby pointed out that supply management would limit expansion of the sheep industry, but an alternative might be a scheme for "single-desk" selling of lamb, or a formally structured price support system. He wondered what kind of trade-off sheep producers would be willing to make in return for import restrictions. Blacklock said that the problem of imports is a national one and SPANS should co-operate with other provinces to seek a solution. Lloyd McEwan, Canada Sheep Council representative from N.B. endorsed this opinion. C. Kneen felt that all provinces did recognise the problem, but the Federal Government had been totally unresponsive. She said we need to develop a strategy to achieve results. Possible actions suggested were:

- (1) To work through the Federation of Agriculture to obtain appropriate amendments to Bill C 46, a bill to regulate all meat imports to be dealt with during the next session of Parliament. B. Kneen pointed out that this bill does not necessarily restrict imports to the benefit of Canadian farmers, but merely serves as an instrument to further the Federal Government's cheap food policy. He added that all red meat producers must act together.
- (2) To co-operate with the Canada Sheep Council to lobby for action to restrict imports this Christmas.
- (3) To lobby with parliamentarians.
- (4) To use the media to bring the issue to public attention.
- (5) Meet with the Federal Department of Industry, Trade & Commerce to try and have the trade regulations amended.

Woolfitt thanked the meeting for the suggestions and said the Directors would pursue these matters. These issues and others were further discussed by the Directors and guest, Dr. Nettleton, during Thursday evening. Dr. Nettleton asked that his rebuttal of opinions expressed by Woolfitt in a "President's Viewpoint on Disease" be recorded in these Minutes and circulated to members. This rebuttal is appended here:

"Many current sheep producers are unaware of the recent history of sheep importations into N.S. Considering concern voiced over irregularities of quarantine administration and particularly due to a reference to the use of Maritime Cattle Market to hold quarantine sheep, I would like to clarify certain facts:

In October, 1970, approximately 1,250 Scottish Blackface ewes and rams, 40 N.C. Cheviot, 40 Clun Forest ewes and various "exotic" rams were brought in. These sheep were quarantined together in Scotland for four weeks, crossed the Atlantic in a cattle boat, quarantined one month at Levis, P.Q. and were distributed to importing farmers as follows: The Scottish Blackface to eight Nova Scotia farmers, the Clun Forest to R.A. Turner, The N.C.C. to N.S. Agricultural College and the "exotic" rams to Central Experimental Farm, Ottawa. The S. Blackface were split at random to the eight importers. Approximately half were sorted at the Maritime Cattle Market barn. Subsequently, the Nettleton and Morrison sheep underwent routine examination in those barns with the request and approval of the local Federal Health of Animals Veterinarian. Subsequent to these handlings, the sale barn was cleaned and disinfected and at my request the local Health of Animals Vet inspected the disinfected premises."

(sgd.) John Mildon
per: L.B. Nettleton

Respectfully submitted:

(sgd.) John Mildon

SHEEP PRODUCERS ASSOCIATION OF NOVA SCOTIA

MEETINGS RE: CRITICAL PROBLEMS FACING THE SHEEP INDUSTRY

Minutes of meeting at Keddy's Motor Inn, Truro, N.S. Sept. 25/81 10:00 A.M.

PRESENT: Woolfitt, Finley, B. Kneen, Rogers, Sanders, Forbes, Mildon and Roy MacKenzie.

Invited Guests: R. Ducharme (Health Comm. SPANS), Dr. L.B. Nettleton, Lloyd McEwan (N.B. rep. to Canada Sheep Council), Dr. Bert Stephenson (Director, Federal Pathology Lab., Sackville, N.B.), Dr. Dale Duplessis (Health of Animals, Regional Office, Moncton), Campbell Gunn (Economist with Federal Policy Planning and Economic Branch, Agriculture Canada), Dr. Horst Soehl (Regional Vet., Health of Animals, Truro), Clarie Roberts (Halifax Herald).

Chairman Woolfitt introduced the topic of the meeting - Federal Government action on problems facing the Sheep Industry and compensation to producers for losses suffered through no fault of their own.

He then asked Dr. Stephenson to clarify the details of the proposed P.A. research project. Dr. Stephenson added little to information presented at earlier meetings. Approximately 180 ewes would be purchased by DEVCO and N.S. Government. These ewes, from flocks with an observed incidence of P.A. higher than 10% will be bred this fall, moved to facilities near the lab at Sackville. At full term, all the ewes would be removed to an abattoir, slaughtered and their live lambs removed by Caesarian Section and raised in isolation. It is hoped to get at least 30 live lambs from ewes with chemically confirmed P.A. At the end of three years, these lambs will be slaughtered and examined for signs of P.A. The purpose of the project is to ascertain if the transmission of P.A. from one generation to the next could be prevented by this method. Dr. Stephenson noted his budget for the project was \$20,000 p.a. for facilities, feed and labour.

To various questions posed by those present, Dr. Stephenson answered as follows:

He acknowledged the scope of the project was limited, but cited lack of funds as the reason why more could not be done. This project is only one of several to be carried out at the lab, and sheep are not as important as other forms of livestock. He said there was no point in duplicating the research of institutes elsewhere who have looked and are looking for the causes of P.A. and a possible treatment. He pointed out the lab's energies should be directed towards research into the various pneumonias and diseases such as Maedia Visna, for which proven tests exist. He asked for more submissions of suspect materials to labs and assistance from farmers near Sackville for on farm research. Several Directors queried how more submissions could be encouraged when farmers who admit to having P.A. in their flocks are penalised in the market place? Others present also criticised the limited scope of the research project and pointed out that potentially valuable breeding stock are being lost (S. Blackface and Hexham Leicesters). They wanted to know if some way of protecting this gene pool could be found. No specific assurance was given.

There was lengthy discussion about the gap between pure research in labs like Sackville and practical on farm application. Several ways of improving communication were discussed - More reports by scientists to the

media in layman's language and regular meetings and interpretations to sheep producers direct.

Discussion then turned to Maedia Visna. Dr. Stephenson explained that a reliable serological test has now been developed. He said the lab in Sackville could test about 100 blood samples per week, if a strategy for collecting systematic submissions can be developed. He advised producers to take the matter up with Dr. John McGowan, Asst. Deputy Minister, Food Production and Inspection Branch.

Woolfitt then turned the chair over to Sanders, who introduced the issue of compensation to producers for losses incurred for various reasons this year. He mentioned the following: The disastrous DEVCO importation which inflated breeding stock prices, only to see them collapse two years later; the introduction of diseases; failure of the Federal Government to confront the issue; failure to implement the second A.D.A. agreement; dumping of New Zealand lamb on the Canadian market. These have led to a collapse of producer confidence, bankruptcies, a disorganised and demoralised industry, because of low prices for breeding stock, meat and wool combined with high interest rates, high costs and no encouragement from Government. Sanders said that producers would like to see a \$100 per head compensation to producers for every breeding ewe in Nova Scotia and firm commitments to sustain the sheep industry. Discussion was lengthy, heated and unfruitful. The federal representatives at the meeting were not in a position to respond to producer demands. Dr. Duplessis did state that a definite connection between the DEVCO importation and recent disease discoveries has not been established.

The meeting left producers with little satisfaction, but a definite commitment to pursue further avenues. These include:

- (1) A commitment from the Federal Government to expand the scope of disease intervention and make good past failures.
- (2) Lobbying with the Federation of Agriculture, politicians to push for the implementation of the A.D.A. II agreement.
- (3) Lobbying through the Canada Sheep Council and direct representation to the Dept. of Industry, Trade & Commerce to restrict imports of N.Z. sheep meat.
- (4) Co-operation with other red meat producers to amend Bill C46 to the benefit of Canadian farmers.

The directors of SPANS committed themselves to tackle the issues confronting the industry by whatever means possible, including, as well as this direct lobbying, meetings with the Canadian Agriculture Services Co-ordinating Committee and the Policy Planning and Economics Branch to develop a program for constructive expansion of the industry in Nova Scotia.

Those present outlined the accomplishments of producers themselves over the past ten years despite government help and often in the face of opposition. They said that bureaucrats are there to serve our interests and they were fed up with being pushed around.

The request for some amount of direct compensation for losses incurred in 1981 was reaffirmed.

The substance of these meetings will be collated, and a strategy for action proposed by a committee of the board.

Woolfitt thanked the guests for attending. Meeting adjourned at 1 P.M.

Respectfully submitted:

(sgd.) John Mildon

R.R.#1,
Kingston, N.S.,
BOP IRO
May 11, 1981

Director of Livestock Services,
Nova Scotia Department of Agriculture & Marketing,
Truro, N.S.

Dear Stu:

Please be advised that the Directors of SPANS passed the following resolution at their meeting on April 24, 1981:

"That the Directors of SPANS recognizing the high incidence of PA and the threat to other sheep in the province by the Nettleton flock direct representation of the Health Committee approach the Director of Livestock Services and Provincial Veterinarians to discuss specifically a program for slaughtering this flock and compensating the owners."

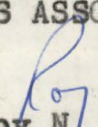
Moved: Mildon. Seconded: Forbes. Passed unanimously.

We urge your immediate attention to this very serious matter that has festered for too long. The Sheep Industry of Nova Scotia needs positive action to resolve this issue and attempt to restore confidence in our flock as potential breeders.

Thank you for your attention.

Yours truly,

SHEEP PRODUCERS ASSOCIATION OF NOVA SCOTIA,


Roy N. Evans,
Secretary-Treasurer.

c.c. W. Woolfitt
Dr. R. Long
J. Mildon

N.S. SHEEP PRODUCERS - HEALTH COMMITTEE

Minutes of preliminary meeting, held March 20/81, Truro.

PRESENT: Wayne Woolfitt, chairman; Tremaine Finlay; Peter Rogers;
Alec Forbes; John Mildon, recording secretary.

Regrets: Stuart Allaby, N.S.D.A.M.

The chairman conveyed the following message from Mr. Allaby,
Director of Livestock Services, N.S. D.A.M.

The department are willing to consider some kind of compensation
program for the owners of flocks where P.A. has been diagnosed.
The Federal government through Agriculture Canada has indicated a
willingness to underwrite such a program, but has not stated how
much money would be involved.

Agriculture Canada may be willing to establish a research
unit to study P.A., and this may be extended to include other
pneumonic diseases. Dr. Bulmer, Health of Animals, wants to
meet with the committee around the middle of April,

Discussion for the rest of the meeting was about the two
distinct but related aspects of the disease/health question.

1. Whether compensation should be paid to owners of flocks with
confirmed P.A.

What kind of effective program could be implemented.

How could it be administered, and made to work.

It was agreed as a working principle that all sheep from flocks
affected with P.A. be purchased by government agents.

Selected stock from these flocks would be used to set up a
research and demonstration flock for the intensive study of
all pneumonic diseases.

The remainder to be sold for slaughter.

Fair market value to be negotiated between the owner and
the purchasing agents.

The implications of such a move are very complex, as was
reflected in the discussion which ensued.

a) Since there is no diagnosis of P.A. in the living animal,
it is impossible to eradicate the disease.

Compulsory slaughter does not work, as has been proven
with Scrapie.

A research and demonstration flock may help us find out
more about the disease, but what if it starts to show up
in a lot of sheep within the next few months?

This situation could change if a positive connection is
established between Maedi Visna and P.A.

b) If compensation is paid for the complete slaughter of
flocks where P.A. has been identified, how do you get
the cooperation of that farmer?

How do you build in an incentive for producers to
submit samples for examination.

c) If compensation is paid only for those animals in which
the disease is confirmed in those animals submitted annually

Minutes of preliminary Health Committee meeting:

for inspected slaughter to monitor the spread of P.A., what is to be done with those flocks where it is discovered?
Is there any alternative to compulsory slaughter, such as a quarantine on all sales of breeding stock, and direct slaughter of all lambs and cull ewes in an inspected killing plant?

How can any producer be adequately compensated for loss of breeding stock sales and loss of reputation.
It was agreed that the committee, on behalf of S.P.A.N.S. has to come up with a definite set of recommendations, before we sit down with the government representatives.

- 2) Concensus on the matter of establishing a flock health program was easier to get.
It was agreed that a program should be implemented quickly, to demonstrate that N.S. Producers are taking an initiative to protect their reputations as breeders and sellers of quality sheep.

The program should be voluntary, and tailored to individual needs.

Any or all diseases for which either accurate diagnosis and proven methods of treatment or eradication exist to be included.

A list of such diseases to be obtained through consultation with qualified veterinary experts.

The practical details of this program to be worked out with producers and qualified people.

The program to be administered by trained personnell of N.S.D.A.M., similar to the Swine Herd Health Program.

The program would give producers some kind of certification.

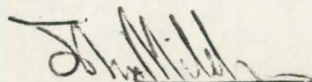
It was suggested that:

- a. The committee familiarise themselves with the Swine Herd Health Program.
- b. The committee obtain all the minutes of the disease Task Force.
- c. Try and interest other provinces in a Flock Health Program/

The cost/benefit of any program has to be carefully evaluated.

Please let me know if your opinions were not accurately reflected in this summary.

I will keep on file all your individual statements, as noted at the meeting, in case you wish to check them.



INFO on SHEEP DISEASES
To FILE



Category 403-

John Muldon

Dr. Miller - ~~XXXXXXXXXX~~ 231-4301.

Veterinary Inspection -

In certification program

P.A. not discussed as disease entity.
Veterinary Service in UK.

P.A. Federal govt. continue monitoring.
review importation policy.
Asked Jeds to carry out E.A.E tests for vaccine.

Health Management Program.

Stein Allaby - Task Force.

At request of sheep producers.

E.A.E. and P.A. each confirmed in 4 flocks.

Attempt to gain information task force met with Watson and Bundy from UK.

{ Leguyer, Morrissey, Bulmer, Ottawa
Dylessis (Monter), Stevenson (Sackville)

Monitoring of research and lit by Ag Canada.

Set aside research funds

Education program with vets.

Research efficacy of E.A.E vaccine.

Flock Health program.

Review Import Regulations.

Monday 15 Dec.

Dr. Ray honey

~~Dr. Ray honey~~ (Devco) - 539-6300

At present stage of knowledge ~~has~~ from vets involved in labs in Alberta and Ont 76, 78, outbreaks don't seem to persist. This information dependent on submissions to lab.

Confirmed on four properties last year, that is all we know.

Whether more extensive in 80, or whether more foetuses submitted

Too much publicity, some of it not balanced. Task force report Conning, been approved and back.

Looking for E.A.E. - only 18 foetuses submitted in 1979. These included ones from Devco.

P.A. - Lab wasn't looking, but would have picked it up, because of characteristics of long lesion.

Prov Dept. not involved with importation before '75. When animals came in, were ~~under Health of Animals Act~~ under Health of Animals Act at

Sackville

No directive to Prov Lab to look for "exotic" diseases.

P.A. Can just report on what's been seen. Lead on mainland properties 11 and 4 on Cape Breton.

Therefore not significant.

May show up in winter because of close confinement.

No-one can tell.

Urge producers to submit material.

Opinion that Fedr watching P.A.

Feel that if that becomes widespread may be open to negotiation on that.

~~Provincial~~

~~Stratford~~ 1-539-6300 - 258-2194

4,005 sheep on Island vaccinated.

Mr. Newton - Cabot House - Hal Norton -

Corporate Affairs

Never heard of disease - don't quote.

Quarantine regulations require British vets that sheep were free of disease, declared and inspected by British Vets.

E.A.E

Request from Cape Breton Sheep Producers.

greater restrictions for sheep, than for other importers. Fed Path Lab. 536-0135. Sackville

Federal Lab - Dr. Bert Stevenson - talk to Bert Stevenson

~~Dr. Anagnostis~~ 388-6570. Spent 10 years in Kenya

Dr. Skinner - Animal health program - possible that Canadian sheep more susceptible than no higher than 2-3%
Whether P.A. was specifically mentioned, farm of origin was mentioned P.A. was mentioned

Worried about scrapie.

Dr. MacEltheran - 613-995-5433.

MacEltheran, Ottawa

No one would think of looking for P.A.

in Kenya - incidence was high during predator cycle - because sheep were kept in.

would jump from 1% - 5%

if you started seeing P.A., knew predators around.

Compensation - would be prov govt responsibility, not Federal govt.

Dr. Skinner - Clean flock program very difficult.

~~Dr. Mac~~ David Newton

Decision to initiate vaccine program

\$ 34,000 included

\$ 5.00 to sheep farmers to compensate farmers for extra work involved in rounding-up and keeping records.

~~monceivable that Tom Kent.~~

~~David Newton -~~

Dr. MacElheran

No indication that quarantine will be dropped. -

Sheep would go into ^{on} farm quarantine until first progeny reach 60 months age. After 30 day quarantine on farm.

Danger of other diseases, not specifically P.A.

Dr Mac

Small ... 44-46

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(1)

Diseases

50-60 people present.

1. Laboratory Submissions - Dr. Long.

No. of submissions to lab - ~~6000~~ 1970 - 89
 (Materials brought in by one producer at one time. (Nov 30) 1980 - 670
 (1979) 539

Reviewed type of ^{pathological} abortion causes in sheep.

Urge producers to submit foetus and placenta to lab.

Foetuses received in 1978 - 18 (1 in 1,000 lambs approx.)

Non-specific abortion (non-infectious) - 6

This indicates abortion not serious problem in sheep.

In 1980 _{abortion} submissions increased to 68

non-specific 16.

Placentitis diagnoses (inflammation of ^{reproductive} placenta organism) 31 - many of these E.A.E

In ALBERTA (1979) TOTAL foetuses submitted 64

specific diagnosis 29 (13 causes - 1 f10 die with E.A.E)

Post mortems in sheep 1 day to 1 year.

	1979	1980 (to Nov 30)
TOTAL	113	179
Emaciation	22	20
Pneumonia	31	68
Lung congestion	5	3
Septicaemia	10	18
Erdiasis	6	12
Parasitism	5	10
Misc.	23	31
Nil	11	17

Cause of deaths in perinatal lambs 196 - (1978)

- Almost 50% die of starvation
- 26.2% die of dystocia (difficult births)
- 5.2% die of exposure

DISEASES (2)
~~Post Mortem~~

Post Mortems on sheep older than 1 year.	1979	1980 (To Nov 30)
Emaciation	9	9
Pneumonia	6	14
lung congestion	7	3

Ovine P.A.		To Nov 30/80	
Prov	Prod	No	
N.S.	C.B.	15	11 - Nettleton 4 - Devero
	Mandan.	2	
P.E.I		1	
Nfld		1	
Que		<u>1</u>	

Dr. Bert Stevenson

Slides on P.A. - lesions on lungs
Maedi Visna
other pneumonic lesions

Dr. Horst Soehl - Health of Animals.

Importation of sheep - Truro District - Eastern Nova Scotia & Cape Breton:

YEAR -	IMPORT.	RELEASED	RATIO.
1970	1316	2548	R1
1973	#	2548	
1974	11		
1975	1465		
1976	1224		
1977	12	88	
1978		2258	
1979		2352	
1980		<u>144</u>	
	<u>4028</u>	<u>7246</u>	

(3)

Dewco importation only was dispersed directly to approximately 180 premises.

Exotic diseases discovered in ~~the~~ Canada in recent years

VIRAL Scrapie, Maedi Visna, Lymphosarcoma, ~~RA~~, ~~Leptos~~ P.A., - Not treatment
Enzootic Abortion -

BACTERIAL Vibriosis, Brucella Ovis, Paratuberculosis. (John's disease). ^{No. cure}

All samples based on lab data, not on field conditions.

Vets urged to send specimens, in fridge, not frozen!

Contact with humans - Scrapie - possibly.
all the others - no.

Endoparasites - a) Liver fluke - present in imported sheep - liver condemned. ^{Not present in N.S.}

b) Toxoplasma

c) Taenia Ovis - Tapeworm - Found in 3 flocks through

slaughterhouse in Truro. Several cases.

Sheep is intermediate host. Dog main carrier. Don't feed raw mutton to ~~sheep~~ dogs.

Diseases are not going to be made reportable!

Control E.A.G.

- 1) Isolate ewes that abort, until discharge ceases.
- 2) Clean pen, burn bedding
- 3) Submit foetus and placenta
- 4) Vaccinate
- 5) Treat other ewes with ^{Long Acting} Tetracycline. (Dr Bounby) - Questionable effects.
- 6) Make sure sheep don't drink ~~contaminated~~ manure contaminated water.

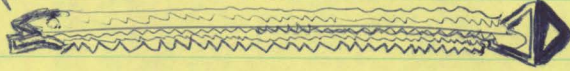
Questions re. health monitoring of Dewco flocks.

E.A.G. diagnosed first time in N.S. in 1980.

Importance of record keeping

Control of P.A.

1. No blood test - difficult to diagnose in living animal
2. Monitoring of sheep lungs in abattoirs by Ag. Canada.
3. Cull thin, poor doing sheep - submit lungs to lab.
4. Spread by nasal-oral discharge
5. No evidence of spread via uterine or colostrum.



a) ~~Disease~~ P.A. not diagnosed in North America before 1976. - Bert Stevenson.

First case Dec 1979. Problem of laboratory diagnoses.

b) Can vets assure us that we can buy sheep, without worrying about P.A.

c) Should compensation be paid to owners who submit materials which turn up positive.

Agreed sheep came from both 75 and 76 ~~spring~~ importations, and number of different farms.

Criticism of Devco importations - why wasn't P.A. identified before 1980 - sheep must have died 76-79.

d) Matthia - Is lamb safe to eat.

Disease will not spread beyond lungs. P.A. is no human health hazard. - Dr. Soehl.



Would eat his meat if he put his stamp on it - Dr. Stevenson.

e) Will there be another survey? Now sheep are inside for the winter.

f) Were there any diagnoses on community pasture.

Why doesn't government take the step to deal with something that may cost more \$ years down road.

Ag Task force report that funds be set aside for P.A. testing for diagnosis.

Possibility that Scrapie will be dropped from ~~name~~ list of named disease.

Recommendation that we stop trade in sheep - closed flocks.

Dr. Bert Stephenson, Director Federal Pathology Lab in Sackville.

Post-graduate thesis - Morden research institute, Edinburgh, under Dr. John Stamp - specialist in pneumonias of domestic animals.

Expert on slow viruses - Scrapie, Maedi Visner, P.A. (long incubation)

Personnel in charge of Devco flock - received instructions not to send material to lab if cause of death known. Instructed to cut off left ear, and send it. (I.E. keep tally of sheep). - Ann Cameron source.
James Sutton Malcolm Parsons.
Jeanie Maclean.
Fraser Hunter.

Fraser Hunter. 7 years experience at Kirkley with Greyfaces in confinement.

Enzootic Abortion

Endemic to Canada. - Previously identified in Alberta, Ontario - Check Ray long Montana. - Dates,

Originated in South East Scotland & North of England.

Prevalent among lowland sheep. Some among upland. Virtually non-existent in Hill Sheep. - Widespread in intensively managed, early lambing sheep.

~~B~~ Bacteria - ~~to~~ the discharged in fluids at time of birth, transmitted by mouth (ingestion)

Affects female sheep - any of any age. Will be dormant until 4th month of pregnancy - organism migrates to uterus.

Many cause abortion, birth of weak lambs, or infected healthy lambs.

Cycle continues. Any female, including new-born lamb can pick up infection, so ^{many} ~~will~~ not show up in flock for two years, and major losses will be in third year.

Diagnosis - Simple through submission of fetal membranes, foetuses to laboratory.

Prevention - Spread by female.

If farmer has clean flock, so do not buy unless from other clean flocks

Hygiene at lambing.

Management at lambing:

~~Case~~ Vaccination of ewe lambs - vaccines should be applied to maiden female before the breeding season. Vaccine available in Britain for 20-25 years. In recent years proven ineffective. Does importing ? doses at ? dose, and paying farmers to vaccinate.

In Britain, vaccine only produces 1% reduction in incidence.
Vaccine cost in Canada - \$3.00 dose. Initially Deves indicated no need for professional involvement, but whole scheme should be administered by professionals to achieve maximum effect.

Effects need to be monitored for 5 years (Nelteter)

According to Allaby 8000 doses ordered, but this cannot be done with this number of sheep.

N.s. could benefit if were vaccinated and quarantined?

DEVCO John Dodge = Director of Operations

Steve Rankin = President

Hal Norton = Finance, "Hummer" Free Vaccine

Fraser Hunter = Manager of Devco Farms.

Export Regulations?

Ovine

Pulmonary Adenomatosis - ~~Contagious lung~~ Contagious lung (cancer) lesions, caused by unknown virus. (Jaagsiekte)

1st identified in South Africa in early 1800's, where given Africans (Jaagsiekte). U.K. in late 180

Introduced to Iceland in 1934 by 1 ram purchased from Germany.

Within 2 years 54% loss in flock. - Source

Within 5 years flocks in Iceland showing range of incidence 5% in resistant breeds, 90% in susceptible breeds.

According to veterinary opinions PA did not exist in N America prior to March 27th - material May 7th 180 announced to public at Farmers meeting in Masbou. Submitted from 2 sheep from flock in Cape Breton

that it had been diagnosed in 75, 26 importation made in December

Diagnosed May 7th 1979, after "the sheep had been under observation for some two or three months" (Fraser Hunter)

Milton's case diagnosed by Provincial Lab.

Sheep from big importation taken to Charlottetown, and diagnosed there (Why not to Truro? Cross-checks!!!) (in December)

How many more diagnoses? And what kind of flocks. (Includes one Devco Ram)

Owner of flock in which disease originally identified denied export permit to states. Has been given no clear information as to when restriction will be lifted.

- Dr. Horst Soehl.
- Dr. Dale Duplessis (Moncton) - 7, 8 yr. involvement.
- Dr. McGowan (Ottawa) -

Manifestations & Disease

- Causing progressive lesions of lung - fatal over given period.
- Long incubation period - up to four years - shows up in older sheep.
- Diagnosis can only be confirmed by autopsy.
- No cure.
- Transmission enhanced by close confinement - Droplet infection.

Involvement of Provincial Vets

- By-passed with 1st case - in Dec.
- Were doing a lot of autopsies on Devco sheep during importation period.
- Were prov. vets responsible for on-farm surveys in May? when Dr. A.R. Ross liked to visit farms. Dr. Ray Long. Ross Main. Stu Allaby.

Minutes of meeting, ^{Saturday} ~~Nov~~ Dec 6/80, ~~held~~ to discuss exotic diseases of sheep in Nova Scotia.

About 60 producers from all over the province met at the Veterinary Pathology Building in Truro, with Dr. Ray Long, veterinarian at the provincial laboratory, Dr. Horst Soehl, veterinarian with the Health of Animals Branch, Federal Dept. of Agriculture, Truro; and Dr. Bert Stevenson, veterinarian at the Federal Pathology Laboratory, Sackville, N.B.

The meeting was chaired by ^{Wayne Woolfitt} Dr. Long. It began at 1 p.m.

- The session consisted of ^{lengthy} formal presentations by each of the three veterinarians;
- b) laboratory examination of sheep lungs, and ^{of a} live sheep with suspected P.A. (later confirmed). ^{infections} ^{enzootic abortion}
 - c) Recommendations on the control of E.A.E. ^{and P.A.} ⁿⁿⁿ and P.A. (Pulmonary Adenomatosis) for farmers.
 - d) An open question period.

FORMAL PRESENTATIONS

Dr. Long presented a number of charts, ~~summarizing~~ giving statistics of the provincial laboratories activities related to sheep and goats over a ten year period. (1970-80).

~~These charts are included here.~~

Highlights include the following:-

To Nov 30/80 submission of foetus and placenta materials totalled 68, up from 18 in 1978

Of the 68, infectious abortion could have been the active agent in the 31 cases diagnosed as "placentitis".

Though the number of samples is still low, in relation to the number of lambs born in N.S. each year, 1980 was the first year in which any incidence of E.A.E. was found in the province.

No figures were presented showing how many flocks were known to have had E.A.E, or ~~at~~ what breeds of sheep it had been found in.

Dr. Long was careful not to speculate any conclusions from the figures he gave, ~~but he did encourage producers to submit samples to the provincial laboratory for diagnosis~~ and admitted that officials were very much in the dark about the possible course the disease would take.

He encouraged producers to submit all suspect material to the lab for examination.

(2)

Dr. Long then presented charts showing that the main cause of death at lambing time is starvation and difficult births. In sheep older than 1 day, the main cause of ~~losses~~^{death} is shown to be starvation and pneumonia.

Moving on to P.A., Dr. Long said there were 15 confirmed cases in ^{Cape Breton} Nova Scotia up to November 30th/80.

Eleven of these were in the flock belonging to Martha Nettleton

Four came from the Devoe flock
There ~~were~~^{had been one} ~~two~~^{each of} confirmed cases in two flocks on Mainland Nova Scotia
One each in the provinces of P.E.I., Newfoundland and Quebec.

In answer to a question from Angus Rouse, Dr. Long replied that all the confirmed cases had been in Hill sheep breeds.

~~Mrs Nettleton pointed out that in her experience, P.A. affected sheep of all ages, from yearlings and up~~

Dr ~~Stevenson~~ Stevenson showed a number of slides depicting the clinical ^{signs} symptoms of P.A., Maedi Visna and other pneumonic lesions which may be found on sheep lungs.

He explained that P.A. is what is known as a "slow" virus.

That it is very difficult to detect and isolate, so expensive research would be required to find out very much about it.

P.A. is impossible to diagnose in the live sheep, and there is ~~now~~^{no} cure for it.

~~Very little research literature exists~~ not

~~It was confirmed that P.A. had never been diagnosed in Nova Scotia before the first case was discovered in a sheep from the Devoe flock in December 1979.~~

~~Dr Stevenson did not commit himself to what course the disease might take now~~

Dr Soehl

Presented figures giving the numbers of sheep imported to Nova Scotia since 1970, and the numbers released after the various quarantine periods. He implied there was little variation in performance of any of the years. He then listed all the exotic diseases which have been discovered in sheep in Canada in recent years.

Dr. Soehl left the impression that he did not consider P.A. of any great significance. He drew particular attention to a tapeworm (taenia ovis) which has ~~led to several~~ ^{several} condemned carcasses caused several carcasses to be condemned at the Truro abattoir in the last two months.

~~Dogs are the primary host of this tapeworm, so producers will be advised producers to not avoid feeding raw mutton to their circulated to dogs. Dogs which are fed raw mutton can be infect sheep with all by ~~damaging~~ in pastures, or in barns where sheep feed. He advised producers to not feed raw mutton to their dogs, and have their dogs wormed regularly.~~ ^{relevant information about it}

Wild predators such as foxes and coyotes could carry the tapeworm, so dead ^{sheep} carcasses should not be put out in the woods for animals to feed on.

Producers were then shown ~~two~~ lungs taken from sheep known to have been infected by P.A.

Mrs Nettleton also brought in a ^{live} sheep, which she suspected had the disease. The animal was slaughtered, and P.A. ^{was} confirmed. There was some discussion about the symptoms of P.A.

It can affect sheep of any age.

If sheep are stressed, or driven hard, affected sheep will pant heavily, and fall behind the flock.

Over a period of time, affected sheep become unthrifty and emaciated and do not respond to either ~~worming~~ ^{de-} ~~medicines~~ ^{worming}, or to antibiotics.

There may be a discharge of fluid from the nostrils if the sheep is up-ended, but this is not always the case.

There is no loss of appetite until close to death.

(4)

Dr. Long then presented control measures for both Pulmonary Adenomatosis and Enzootic Abortion.

These recommendations are contained in the report of the disease task force, requested by S.P.A.N.S and appointed by the provincial minister of Agriculture, and will be circulated to all sheep producers in due course.

(5)

Following the presentations ~~very little time was left for questions and discussion.~~ A question period and discussion period began at 4:45 p.m. There was very little time left for a discussion following the formal presentations.

Some of the ^{points} ~~questions~~ raised were as follows: -

It was stated by Dr. Soehl that ~~of~~ sheep so far affected with P.A. ~~were~~ were in contact with ~~one~~ sheep imported by Devco in both 1975, and 1976, and with sheep which were quarantined on different farms.

a) Why, therefore, was P.A. not diagnosed before December 1979, and then more or less by accident? - No satisfactory answer was given.

b) Should sheep farmers stop worrying about P.A. - No definite answer to that.

In Britain, P.A. exists at ~~an~~ ^{an} ~~incidence~~ of about a low incidence, and is apparently considered economically insignificant. Yet, in Iceland, following an outbreak which started there ^{in the 1930's} ~~in the~~ more than 300,000 sheep ^{out of 700,000} were slaughtered before P.A. and other diseases were eradicated.

c) Since so little is known about P.A., should not the provincial and federal authorities be doing all they can to document and ~~learn as~~ ^{study} ~~much~~ ^{as} much about ~~the spread of~~ the disease ~~as possible~~ ^{as possible} in Nova Scotia?

d) Should there be another on-farm survey carried out, now that flocks are in winter quarters?

e) Should compensation be paid to ~~the~~ owners who submit samples to the lab which prove to ~~per~~ ^{per} have P.A.? Dr. Long stated there was no precedent for this ~~among~~ with any other form of livestock, and that this would be a political decision that S.P.A.I.V.S. would have to pursue.

f) Is meat from animals affected by P.A. safe to eat? Drs Soehl and Stevenson assured the audience that it was.

g)

Significant points about Meeking

- ① Point out there have been suggestions of consumer resistance to ^{sheepmeat} ~~meat~~, because of diseases. Assurance, ~~by~~ that there is no possibility of contamination from either enzootic abortion or P.A.

P.A. is not a human health hazard - Dr. Soehl. (Fed Health of animals) went on to point out that meat is inspected. P.A. only affects the lungs which are discarded anyway. All meat suspect is condemned.

Points raised that reported incidences of these diseases quite insignificant, ~~but~~ and authorities can only take action on known facts.

But producers argue, ~~pro~~ farmers who do submit materials are penalised, because ~~if~~ once diseases have been identified in their flocks, they have trouble selling breeding stock.

Incidences may be greater than is reported.

Profound effect on reputation of

Reiterated by Dr. Ray Long that P.A. will not become a notifiable disease, therefore farmers cannot be paid compensation.

Already present ~~in~~ in too many of flocks in Canada.

However suggested by sheep producers that farmers be paid compensation for animals lost to the disease. This would encourage them to take animals to the lab for post mortem, would perhaps keep tabs on the spread of the disease.

Also stop trade in sheep - keep closed flocks. Implications of that are profound. Kill the breeding stock market in N.S. Limit expansion of new producers.

Besides there are always ways around that!

E.A.E. - Abortion storms can cause losses up to 40% in any one year, then tend to drop off and decline. Problem again that farmers may suffer a very high loss in one year, to put him out of business.

2)

More importantly, it affects sale of breeding stock, since females are the carriers.

Regional
Dr. ~~Riedl~~ Riedl, Veterinary Supervisor, ~~Region~~ ^{for Matamoras}

Tagging done in Truro.

Examination of sheep slaughtered at Federal establishment are inspected.

Inspectors looking for all conditions.

All federal plants ~~asked to~~ This makes trace back easier.

Not sure how long tagging will be in effect.

Justified in paying it cost.

Compensation - decision in Ottawa

(6)

Questions about E.A.E. ^{were} concerned with the ~~history~~ ~~diagnosis~~ ~~spread~~ way the abortion affects the flock. The discussion ^{throughout the afternoon} ~~was~~ ^{revealed} that :-

- a) E.A.E. is transmitted through the female, so avoid buying in female sheep if your flock is clean. As far as is known it is O.K. to purchase rams.
- b) E.A.E. may cause an abortion "storm", that is, a large number of abortions the first year, and a declining number thereafter.
- c) Ewes which abort are supposedly immune for 3 years thereafter, but ~~the~~ females who have never lambed ~~can~~ ^{can} pick up the infection from carrier sheep, and could abort.
- d) E.A.E. may be present in the flock, and flare-up in any given year, for no ~~no~~ apparent reason.
- e) Yearling females may pick up a certain passive immunity by running with the mature flock, after the lambing season has finished.
- f) Little is known about the response of flocks into which E.A.E. is introduced for the first time. Our flocks may be particularly susceptible to the virus.
- g) Flock owners should be especially attentive to their flocks in the period immediately prior to the onset of lambing, when abortions start to occur. Get a laboratory analysis of early aborted foetuses and maintain strict cleanliness.
- h) E.A.E. can cause dead lambs, weak lambs which die very shortly after birth, and even apparently healthy lambs, which if they are female can ~~also~~ be carriers of the disease.

SHEEP DISEASES

It is not easy to ~~to~~ ^{For most} members of the veterinary medical profession to explain their knowledge in a way which the average person can understand. Ask them to tell you what they ~~are~~ ^{is wrong} ~~is~~ ^{with your} side animal ~~is~~, and most of them airily wave their syringe, reel off a string of words that could be Latin blasphemies for all ~~the~~ ^{the} ~~know~~ ^{difference} it makes, and politely ask you to call them again in ~~the~~ ^{the} morning if there is no improvement. The point of this exercise, as the great Dr Bethune once pointed out to his students, is that even if you don't know what the problem is, you give it a name that sounds impressive and ~~that~~ ^{that you know} ~~it~~ ^{will do} with ~~something~~ ^{no harm,} prescribe something ^{and may do} ~~some~~ ^{good}.

The problem at a ~~recent~~ meeting held in Truro, Dec 6th ~~last~~ ^{where} sheep producers gathered to hear veterinarians tell them about certain diseases which many or may not be affecting their flocks, was that there were plenty of impressive sounding names bandied about, but precious little ^{in the} ~~in~~ way of prescriptions, and even less confident knowledge of the problems ^{concerned}.

For three hours, some 60 sheep producers sat and listened patiently to presentations by ~~the~~ ^{vets, representing the provincial and federal levels of government,} capable and ~~knowledgeable~~ ^{veterinarians} about a number of "exotic" diseases which have recently been found to be affecting certain of the sheep in Nova Scotia. Of most concern ~~were two known~~ ^{were} two referred to with cosy familiarity as P.A. and E.A.E., which have received a lot of attention in the media in recent months.

Their full names, Pulmonary Adenomatosis and Enzootic Abortion roll as easily off the tongues of knowing reporters as do the descriptions of psychoneurotic megapaths, applied to hi-jackers, ^{and} ~~or~~ petty dictators, ~~and~~ ^{but} this cosy familiarity with the terms does ~~nothing~~ ^{nothing} to ~~reveal~~ ^{reveal} ~~knowledge~~ ^{nothing} about the ^{thing} ~~phenomenon~~ to which they apply.

~~2~~

①

The report of a task force appointed by provincial minister of agriculture Roger Bacon at the request of the Sheep Producers Association of Nova Scotia, ~~to study~~ ^{make recommendations about} ~~two~~ ^{the} diseases found in sheep flocks in Nova Scotia, has just been made public.

The task force was requested by the Sheep Producers Association of Nova Scotia, after the diseases known as Pulmonary Adenomatosis and Enzootic Abortion were discovered in ~~the~~ and was composed of members of the Association, representatives of the Livestock Services Branch of the Provincial government, and veterinarians from ~~the~~ ^{both the} provincial and federal ~~departments~~ ^{levels}, who have been ~~involved~~ ^{involved} with the diseases since they were discovered last winter.

To prepare the report, the task force met with two visiting veterinarians from the U.K., Drs. Watson and Boundy, with Dr. Bert Stevenson ~~from the~~ ~~school~~ ~~pathologist~~ ~~who~~ ~~has~~ ~~extensive~~ ~~experience~~ who studied pneumonic diseases in sheep ^{in Britain}, and who is now at the Federal pathology laboratory in Sackville, N.B.; with Dr. Duplessis, regional director of the Federal Health of Animals branch, ^{in Moncton, N.B.} and with Drs. Decuyper, Morrissey and Bulmer, all with Agriculture Canada in Ottawa.

Whilst the report does contain a number of recommendations, it will do little to satisfy critics who claim that the true extent of the disease situation ^{has yet to be} ~~investigation~~ ~~of the disease problem~~ ~~have not yet been~~ realised, and who believe that the authorities have been slow in coming to grips with the problem.

In dealing with ~~the~~ Pulmonary Adenomatosis or P.A, which is a chronic wasting disease of sheep caused by a virus which affects the lungs, and for which there is no cure or diagnosis, the report notes that the disease which ^{had not been reported} ~~was~~ ~~unknown~~ in Canada a year ago, has now been confirmed in four flocks in Nova Scotia, one in New Brunswick, P.E.I. and Quebec. So far the disease has only been confirmed in hill breeds, notably

(2)

Chemts and Scottish Blackface. The highest incidence has been recorded in one flock ^{of Scottish Blackface} in Cape Breton, where eleven cases were confirmed to Nov 30, and ~~and~~ four more since then. This represents about 10% of the sheep of that breed in that particular flock.

The report makes no suggestions ~~has~~ as to why ^{reported} cases in other flocks are limited to just one or two.

These figures are based on autopsies conducted at the provincial veterinary laboratory in Truro, and the inspection of lungs taken from sheep butchered at federally inspected abattoirs in the Maritimes and Quebec.

Wayne Woolfitt

- ① Quarantine regulations being reviewed by Federal vets, some changes in the Act, but know what they will be.
- Scrapie in Ontario, in flock of purebred Suffolks, these have not been slaughtered, - compensation would be in excess of \$1,000,000. compensation based on current market prices.
- Did slaughter in Quebec

What effect this would have on export of sheep to other countries, including Mexico and other country.

~~that~~ Situation with US has changed - they have slaughter program.

Formally discussed at Canada Sheep Council.

Sheep Canada - just discussed - initiated by council to find out what was going on.

Diseases in maritimes also discussed. ~~that~~

Newsom's
"Sheep Diseases"

Hadleigh Marsh D.V.M.
Montana Veterinary Research Laboratory

OVINE VIRUS ABORTION
(Enzootic Abortion)

Ovine virus abortion is an infectious disease of the placenta of ewes, caused by a virus of the psittacosis-lymphogranuloma group, and characterized by abortion, usually in the last month of the gestation period.

History. Stamp *et al.* (1950) and Stamp (1951) described the disease and discovered its etiology. This infection is the cause of many of the sheep abortions in Scotland and England. It has been reported in Sardinia (Spanedda and Medda, 1951), Germany (Mitscherlich, 1954), France (Giroud *et al.*, 1956), Hungary (Hajdu *et al.*, 1958), Morocco (Martin *et al.*, 1959), Bulgaria (Ognyanov *et al.*, 1960), Italy (Tozzini, 1960), the Netherlands (Eisma and Terpstra, 1961), Rumania (Sarateanu *et al.*, 1961), and Israel (Tamatin and Landau, 1963).

In the United States ovine virus abortion was first reported in 1958 in Montana (Young *et al.*, 1958). There was no evidence that the infection might have been recently imported, and a serological survey (Younger and Parker, 1961) indicated that it may be quite widely distributed.

Etiology. Stamp *et al.* (1950) found minute bodies in the cotyledons of the placentas of aborting ewes, which stained red with a modified Ziehl-Neelsen acid-fast stain. Studies of the life cycle of the organism represented by these elementary bodies (Stamp, 1951), its antigenic relationships (Mon-sur and Barwell, 1951), and its response to chemotherapeutic agents (Francis, 1952) have classified it as a virus of the psittacosis-lymphogranuloma group.

The elementary bodies are found in smears from the cotyledons and chorion, but not in smears from the fetal organs. They may be seen in smears from the uterine discharges following abortion. Giroud *et al.* (1956) state that smears from the cervical region may be positive up to 6 weeks after abortion.

The virus can be cultivated in the yolk sac of embryonated eggs. It can be cultivated readily from cotyledons but it is difficult to recover the virus from fetal organs. The virus can be demonstrated by intranasal inoculation of mice.

Clinical Signs. The principal sign of the presence of this infection is abortion, usually in the last month of pregnancy. The abortion rate usually does not exceed 5 per cent except where the infection is first introduced, when it may run as high as 30 per cent. The lamb may be carried to full term and born alive but weak. The fetus is usually expelled in fresh condition, but occasionally it may be degenerated, indicating that it has been dead for some time. An aborting ewe may appear sick for some days before abortion, and there may be a discharge from the vagina. For several days

following abortion there is a brown discharge. Retention of the placenta frequently occurs. Mortality in infected ewes is very low.

Lesions. The gross lesions are confined to the placenta. Many of the cotyledons show evidence of degeneration and necrosis. They have lost in varying degree the normal red color. They may have a dull yellowish or gray color and appear dry. Areas of the chorion near the affected cotyledons may have a brown discoloration and a leatherlike appearance. The aborted fetuses may have the subcutaneous sanguineous edema and excess abdominal fluid common to fetuses dying *in utero* from other infections.

Diagnosis. The clinical history is of little value in distinguishing virus abortion from vibronic abortion. The diagnosis is usually based on negative bacteriological findings plus the demonstration of the elementary bodies in smears from the cotyledons or from the exudate in the vagina. A fetus sent to the laboratory without the placenta is of little value for routine diagnosis of virus abortion. A smear diagnosis can be confirmed by inoculation of placental tissue into embryonated eggs or into mice.

The complement fixation test of the serum of aborting ewes is a valuable aid in diagnosis. The virus has common antigens with other viruses of the psittacosis-lymphogranuloma group, but complement fixation in conjunction with the clinical syndrome is significant (Stamp *et al.*, 1952). Giroud, in France, uses a slide agglutination test, with an antigen consisting of a suspension of elementary bodies prepared from yolk-sac cultures.

Epizootiology. Stamp (1956) states that the evidence indicates that the transmission of the infection occurs only at the time when the lambs are being born or aborted. It is known that pregnant ewes can be infected experimentally by the ingestion of infected fetal membranes. It is known that the introduction of infected ewes into a flock does not result in abortions in exposed ewes until the next lambing season. It has also been shown that ewe lambs born in an infected flock and removed from further exposure at weaning may abort during their first pregnancy (McEwen *et al.*, 1951a; McEwen *et al.*, 1951b).

The evidence obtained by investigators in Scotland indicates that the ram is not involved in the transmission of the infection. However, Lafenêtre *et al.* (1958) reported culturing the virus from testicular tissue of three of six rams with a flock of infected ewes, and Seffner (1960) reported positive serological reactions in 29 of 33 rams. Evidence of actual transmission by the ram has not been reported.

Immunization. McEwen and his co-workers developed an effective oil-adjuvant vaccine prepared from cultures in the yolk-sac of embryonated eggs (McEwen *et al.*, 1955; McEwen and Foggie, 1956). In controlled experiments it was shown that ewes inoculated with virus culture 30 months after vaccination, during their third pregnancy after vaccination, were

own discharge. Retention of the placenta in infected ewes is very low.

is confined to the placenta. Many of the lambs show necrosis. They have lost their normal color. They may have a dull yellowish discoloration of the chorion near the affected cotyledons and a leatherlike appearance. The presence of cutaneous sanguineous edema and excesses of virus dying *in utero* from other infections. Virus is of little value in distinguishing virus from other infections. The diagnosis is usually based on negative results from the demonstration of the elementary bodies in the exudate from the placenta or from the exudate in the vagina. A smudge test of the placenta is of little value for routine diagnosis. A smear diagnosis can be confirmed by inoculation into embryonated eggs or into mice.

The serum of aborting ewes is a valuable source of virus. It contains common antigens with other viruses of the group, but complement fixation in common with the virus is significant (Stamp *et al.*, 1952). The agglutination test, with an antigen consistently prepared from yolk-sac cultures. It states that the evidence indicates that the virus occurs only at the time when the lambs are born. It is known that pregnant ewes can be infected with virus from infected fetal membranes. It is known that the introduction of virus into a flock does not result in abortion in the next lambing season. It has also been reported that virus from an infected flock and removed from further contact during their first pregnancy (McEwen 1956b).

Investigations in Scotland indicates that the transmission of the infection. However, Laing (1956) in culturing the virus from testicular tissue of infected ewes, and Seffner (1960) reported that 29 of 33 rams. Evidence of actual transmission reported.

His co-workers developed an effective oil-soluble virus culture in the yolk-sac of embryonated eggs (Stamp, McEwen and Foggie, 1956). In controlled experiments inoculated with virus culture 30 months before lambing. In the third pregnancy after vaccination, were

protected. A commercial vaccine of this type is available in Britain, and is used before the breeding season. Its principal value is in the protection of ewes which may be added to infected flocks.

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PROGRESSIVE PNEUMONIA

(La Bouhite, France; Maedi, Iceland; Zwoegers, Netherlands;
Graaf-Reinnet form of Jaagsiekte, South Africa)

The disease which has been given the name progressive pneumonia in the United States is a chronic respiratory disease of sheep which is characterized by a slowly developing interalveolar cellular infiltration, resulting in gradually increasing respiratory distress, emaciation, and death.

This type of chronic respiratory disease is here discussed as distinct from infectious pulmonary adenomatosis, although in the preceding edition of this book the several described conditions in these two categories were discussed as parts of one disease complex.

History. The early report by Mitchell (1915) on jaagsiekte apparently described this disease, although the name jaagsiekte is generally associated with the adenomatous condition. De Kock (1929) suggests that there may be two diseases involved in the jaagsiekte situation, one having been observed at the Graaf-Reinnet Experiment Station which is like the progressive pneumonia group. Marsh (1923) described "progressive pneumonia" as it occurs in "lunger" sheep in western United States. Lucam (1942) described "la bouhite" in France as malignant pulmonary lymphomatosis. A similar condition was reported in the Netherlands by Koens (1943) as "zwoegers" and by DeVries (1959) as "dampigheid." "Maedi" is described by Sigurdsson *et al.* (1952) in Iceland, as distinct from pulmonary adenomatosis.

In the United States progressive pneumonia is recognized only as a disease of range sheep. In many range flocks this condition is the source of a continual low percentage loss from deaths and from the culling of affected ewes as unprofitable.

Etiology. There is good evidence that this disease is transmissible and infectious. Unpublished work at the Montana Veterinary Research Laboratory has shown that the infection can be transmitted by contact, and that similar lesions and respiratory symptoms can be produced by intrapulmonal inoculation of a bacteria-free filtrate of tissue from an affected

lung. Sigurdsson (1953) transmitted maedi by contact and by intrapulmonary inoculation of tissue suspensions. These results, in addition to the fact that cultures from affected lungs in the early stages are negative for bacteria, indicate that the causative agent is probably a virus.

In the advanced stages of the disease there is secondary bacterial invasion, the usual organisms found being *Pasteurella* and *Corynebacterium pyogenes*.

Symptoms. The clinical symptoms develop very gradually, over periods of months or years. In experimental exposure, some of the sheep exposed as lambs showed no clinically observed symptoms until they were 4 or 5 years old. After clinical signs are observed the sheep may live from 3 to 18 months. The disease is observed principally in old ewes, but may appear in younger sheep. It is rarely seen in yearlings.

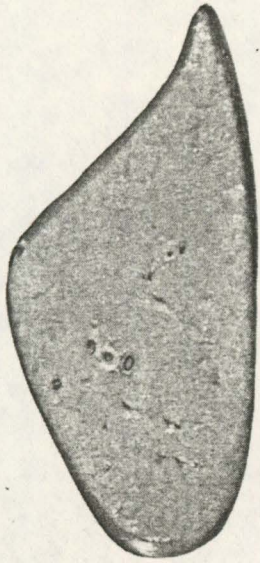
In the early stages of the clinical disease, close observation after exercise reveals somewhat accelerated respiration, with a characteristic double expiratory effort. This gradually becomes more noticeable, until there is marked respiratory distress, with occasional coughing. As the respiratory condition develops, the sheep loses condition and becomes emaciated, eventually dying from anoxia.

The morbidity in range bands is estimated at from 2 to 3 per cent annually. The mortality is eventually 100 per cent, but in range bands the death loss is less than the morbidity, because many ewes culled for age are lungers.

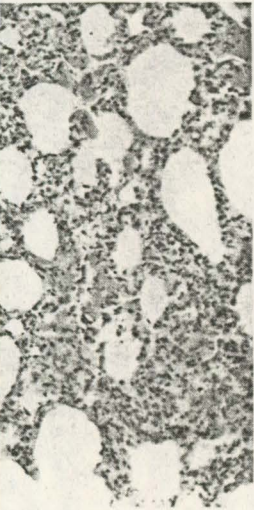
Lesions. The lesions are confined to the lungs and the thoracic lymph nodes. At necropsy of sheep dying of the disease, as observed in Montana, the lungs do not collapse when the thoracic cavity is opened. Their weight is about three times that of normal lungs. The color is dull, without the normal pink. Usually large portions of the lung are solid, particularly the apical and cardiac lobes and the ventral portions of the diaphragmatic lobes. The dorsal portions of the diaphragmatic lobes may be partially air-containing. The solid areas, both on the surface and on section, show an appearance of closely distributed gray foci of about 3 to 5 mm. in diameter in a dull red background. There is some mucous exudate in the bronchi. There may be pneumonic areas and suppurative foci caused by secondary bacterial invasion.

The mediastinal lymph nodes are enlarged and edematous.

Histologically there is diffuse interalveolar infiltration of lymphocytes and macrophages, which typically extends to some degree throughout the lung. There are also peribronchial and perivascular infiltration and focal accumulations of lymphocytes. This extensive cellular infiltration eventually reduces the lumens of the alveoli and destroys the elasticity of the lung. In this basic reaction there is no exudate. As the process progresses there may be areas in which there is hyperplasia of bronchiolar epithelium



surface appearance, and inability to pass through diaphragmatic lobe. (Mon-



ary lesion of interalveolar infiltration.

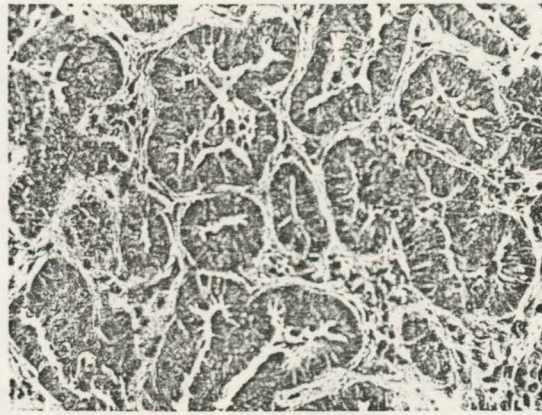


FIG. 39. Progressive pneumonia, area of epithelial hyperplasia

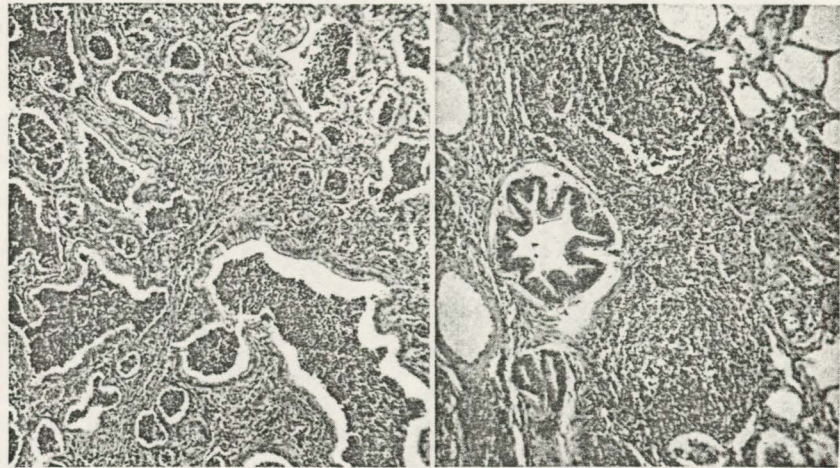


FIG. 40. Progressive pneumonia. *Left:* Pus in bronchioles from secondary bacterial invasion. *Right:* Lymphocytic nodules.

and lining of alveoli with cuboidal cells. Where this secondary epithelial proliferation occurs it may produce a somewhat adenomatous appearance, but we have not seen a true adenomatosis in this disease. In advanced cases there may be free alveolar macrophages in consolidated areas, and masses of leukocytes in bronchioles, probably due to secondary bacterial infection.

The descriptions of the clinical syndrome, gross lesions, and histology of bouhite by Lucam, maedi by Sigurdsson, zwoegers by Koens, and the Graaf-Reinnet form of jaagsiekte by De Kock agree quite closely with the above

description of the American disease, and indicate these five conditions represent one disease.

Diagnosis. This disease could be confused clinically with pulmonary involvement in caseous lymphadenitis or with verminous pneumonia. It may not always be possible to differentiate conclusively without a post-mortem examination.

Epizootiology. For the disease as observed in the United States there is no information as to the epizootiology. The condition is rather generally distributed, at least in the northwestern states, but we have no records as to the sources of infection.

Treatment and Control. No treatment for this insidious condition has been developed. The only practical control measure is the elimination of affected sheep from the flock for slaughter as soon as they can be detected. A lunger ewe will never raise a lamb, and any feed consumed by such sheep is wasted.

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INFECTIOUS PULMONARY ADENOMATOSIS

(Jaagsiekte)

Infectious pulmonary adenomatosis of sheep (jaagsiekte) is a chronic respiratory disease, characterized by a progressive adenomatous proliferation of alveolar and bronchiolar epithelium, resulting in increasing respiratory distress with coughing and nasal discharge, emaciation, and death.

In earlier editions of this book pulmonary adenomatosis was discussed as one of the conditions in a complex under the heading "progressive pneumonia," but here the adenomatous type of pulmonary disease will be

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Y ADENOMATOSIS

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m, resulting in increasing respira-
charge, emaciation, and death.

monary adenomatosis was discussed
under the heading "progressive
type of pulmonary disease will be

described as distinct from the interstitial infiltrative disease which is dis-
cussed under the progressive pneumonia heading.

History. Robertson (1904) and Mitchell (1915) described the disease
known in South Africa as "jaagsiekte," and Cowdry (1925a, 1925b) studied
the pathology. It appears, however, that this work was not with the
adenomatous form of jaagsiekte. De Kock (1929) suggested that two diseases
were probably involved in jaagsiekte, in one of which primary adenoma
was involved. In 1938 Dungal *et al.*, in Iceland, reported an epizootic
disease which he described as epizootic adenomatosis. Since then pulmo-
nary adenomatosis has been reported from England (Blakemore and
Bosworth, 1941), Peru (Cuba Caparo, 1945), Greece (Christodoulous and
Tarlatis, 1952), Germany (Eylau, 1953), Kenya (Shirlaw, 1956), Israel
(Nobel, 1956), Bulgaria (Enchev *et al.*, 1958), Italy (Romboli, 1959), India
(Damodaran, 1960), and Yugoslavia (Cvjetranovic and Martincic, 1962).

Etiology. Dungal (1946) and Sigurdsson (1958) have shown that this
disease can be transmitted by contact and by intrapulmonary injections of
filtrates of suspensions of infected lungs. Bacteriological examination of
the lungs have not produced any evidence of primary involvement of bac-
teria in the etiology of the disease. It is therefore probable that the causa-
tive agent is a virus. Shirlaw (1959) has isolated an infective agent in

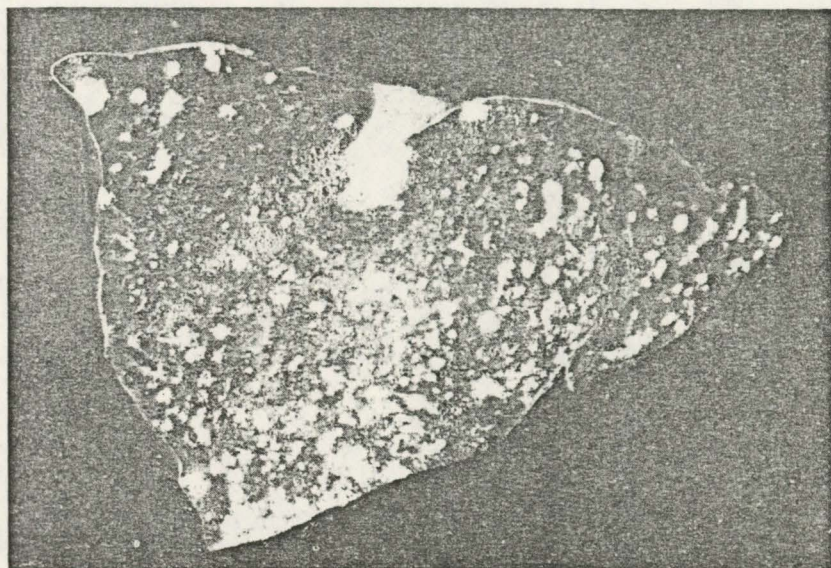


FIG. 41. Pulmonary adenomatosis. Section through affected lung. (Alberto Cuba Caparo, Universidad Nacional de San Marcos, Lima, Peru)

chicken eggs inoculated with suspensions of tissue from sheep with Laikipia disease, which he identifies with jaagsiekte.

Clinical Signs. This is a slowly developing condition, but apparently the clinical disease is observed in a shorter time after exposure than is the case

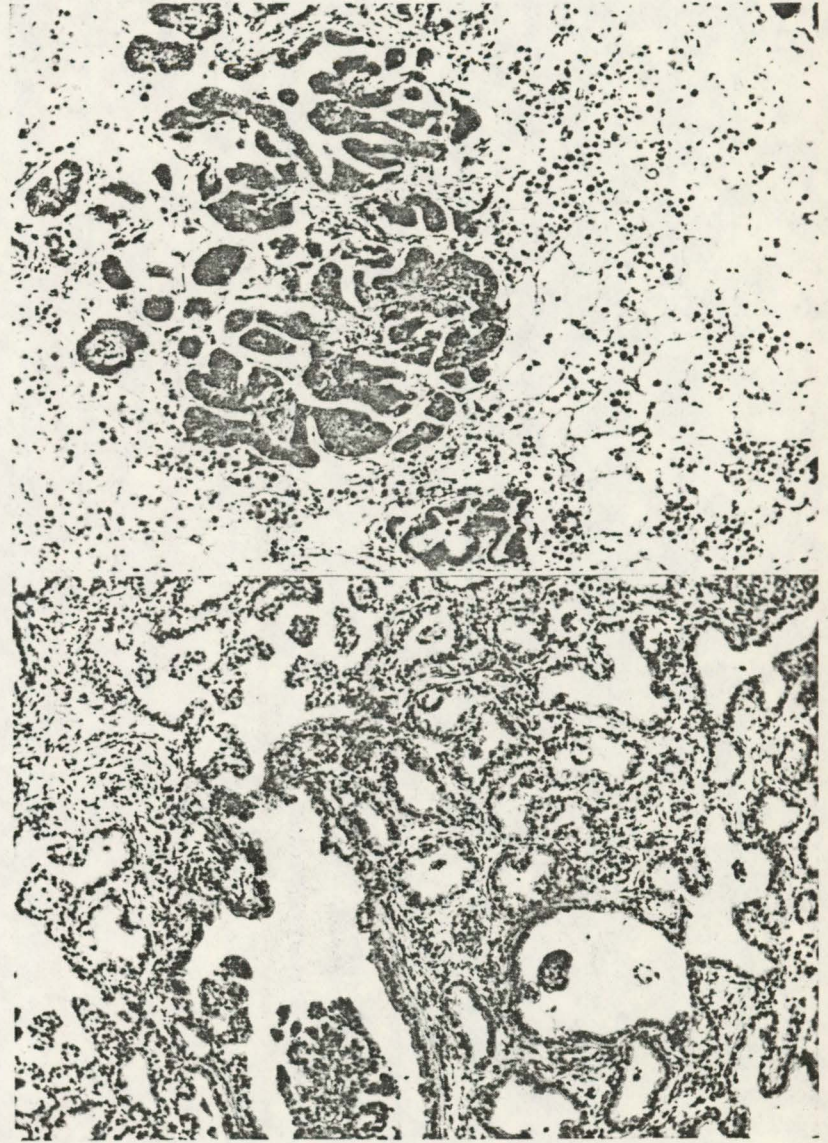


FIG. 42. Pulmonary adenomatosis. *Upper:* Focus of epithelial proliferation. Alveolar macrophages free in alveoli. *Lower:* More advanced lesion, with some interstitial fibrosis. (Montana Veterinary Research Laboratory)

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with progressive pneumonia. The sheep may live several months or a year after the clinical signs first appear. Respiration is gradually accelerated as the disease progresses, and the sheep become emaciated in the later stages. A constant characteristic of pulmonary adenomatosis which is not present in progressive pneumonia, is the production of large amounts of bronchial exudate, causing frequent spells of coughing and copious nasal discharge. When the head is held low, a thin exudate pours from the nostrils. Moist rales are heard on auscultation.

Lesions. The lungs are much enlarged, and have a gray or light purple color. There are grayish patches in which there are numerous light colored nodules, up to 1 cm. in diameter. In some cases the nodules become confluent, forming a mass which occupies a large area. There may be normal lung tissue between the affected areas. The affected parts become greatly enlarged. The tissue in the nodular areas is friable. The mediastinal lymph nodes are not changed to any extent, except in advanced cases with secondary infect.

Histology. Stained sections show heavily stained patches 2 to 10 mm. in diameter, separated by loose open tissue. These areas are islands of papilliform adenomatous tissue, with thin-walled alveoli between the islands. Usually there are many alveolar macrophages in the lumens of the alveoli. The origin of the epithelial proliferation appears to be from epithelium of alveoli and bronchioles. In some areas there may be interstitial cellular infiltration similar to that in progressive pneumonia, but it appears to be secondary to the epithelial proliferation. Fibrosis develops in advanced cases.

Cuba Caparo (1961) and Enchev (1961) have reported metastases of the adenomatous tissue to mediastinal lymph nodes.

Diagnosis. Dungal *et al.* (1938) state that in the field an almost pathognomonic feature to differentiate this condition from other respiratory diseases is the flow of exudate from the nose when the rear of the sheep is raised and the head lowered.

Epizootiology. Experience in Iceland and experimental exposure indicates that the spread of the disease is by the introduction of infected sheep into a susceptible flock under conditions of confinement where aerosol inhalation is possible.

Control. The only control which has been practiced is slaughter of affected animals as soon as they can be identified.

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