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ELIMINATION OF THE COOPERATIVE STATE-FEDERAL SHEEP SCRAPIE ERADICATION PROGRAM

GOVERNMENT

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COMMITTEE ON AGRICULTURE
W. R. FOWLER, Texas, Chairman

HEARING

BEFORE THE

SUBCOMMITTEE ON LIVESTOCK AND GRAINS

OF THE

COMMITTEE ON AGRICULTURE

HOUSE OF REPRESENTATIVES

NINETIETH CONGRESS

SECOND SESSION

ON

H.R. 10241

MAY 22, 1968

Serial VV

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ELIMINATION OF THE COOPERATIVE STATE-FEDERAL
SHEEP SCRAPIE ERADICATION PROGRAM

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ELIMINATION OF THE COOPERATIVE STATE-FEDERAL SHEEP SCRAPIE ERADICATION PROGRAM

WEDNESDAY, MAY 22, 1968

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON LIVESTOCK AND GRAINS
OF THE COMMITTEE ON AGRICULTURE,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10:10 a.m., in room 1301, Longworth House Office Building, Hon. Graham Purcell (chairman of the subcommittee) presiding.

Present: Representatives Purcell, Montgomery, Brasco, Dole, Mayne, Zwach, Kleppe, and Price.

Also present: Christine S. Gallagher, clerk; William C. Black, general counsel; Hyde H. Murray, assistant counsel; and L. T. Easley, staff consultant.

Mr. PURCELL. The subcommittee will please come to order.

We are met here this morning in regard to H.R. 10241. We have two of our colleagues here. The first one I have on my list is Mr. Ichord.

We will be glad to hear from you at this time.

(H.R. 10241 by Mr. Betts and Mr. Ichord, and the Department report dated December 29, 1967, follow:)

[H.R. 10241, 90th Cong., first sess.]

A BILL To amend the Act of May 29, 1884, relating to the control and eradication of certain animal diseases

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the first sentence of section 11 of the Act of May 29, 1884 (58 Stat. 734; 21 U.S.C. 114a), is amended by striking "scrapie and".

DEPARTMENT OF AGRICULTURE,
Washington, D.C., December 29, 1967.

Hon. W. R. POAGE,
Chairman, Committee on Agriculture,
House of Representatives.

DEAR MR. CHAIRMAN: This is in reply to your letter of August 24, 1967 requesting a report on H.R. 10241. The bill is entitled "To amend the Act of May 29, 1884, relating to the control and eradication of certain animal diseases."

The purpose of the bill is to eliminate the cooperative State-Federal scrapie eradication program. At the present time, this Department is cooperating with the States in this program under an amendment to the Act of May 29, 1884 approved August 8, 1953 (67 Stat. 493; 21 U.S.C. 114a).

This Department does not recommend enactment of H.R. 10241.

Failure to continue the eradication efforts in the United States would result in continued spread and build-up of the disease in the sheep population of this country with losses equaling those in countries in which eradication efforts are not carried out. One such country without an eradication program is Great

Britain, where the disease has been reported in 26 breeds and cross-breeds with an estimated 10,000 to 20,000 cases occurring each year in 23 million sheep. As a result of the scrapie eradication program in this country, it has been possible to restrict the disease to three breeds.

The first reported outbreak of scrapie in the United States occurred in Michigan in 1947. Scrapie was again reported in California in 1952 when an extensive outbreak involved two flocks. Shortly thereafter, the California Department of Agriculture, the California Wool Growers Association, the National Wool Growers Association, and the United States Livestock Sanitary Association urged this Department to take immediate action to eradicate scrapie. In October 1952, the Secretary of Agriculture declared an emergency and the scrapie eradication program was begun.

The objectives of the State-Federal eradication program are to locate scrapie outbreaks and eradicate foci of infection; to prevent the widespread dissemination of the disease within the three affected breeds; to prevent its spread to the 18 breeds not known to be affected in this country; and to cooperate with research scientists in determining the pathogenesis of scrapie and the development of a practical diagnostic tool in the living animal.

The Department has long recognized the danger of scrapie continuing to occur in infected and source flocks, thereby providing a continuing source of infection to spread the disease. For this reason, the early eradication program provided for slaughter of the entire infected and source flocks, all sales from these flocks, and their immediate progeny. As more information became available from research and epidemiological studies of outbreaks, the program was later modified to include slaughter of those bloodline animals most susceptible to scrapie and permit surveillance inspections of exposed nonbloodline animals sold from these flocks without undue hazard to the industry.

The modified program followed a comprehensive review and evaluation of the disease during a Scrapie Seminar held in January 1964, at which the latest technical knowledge of the disease was presented and reviewed. The Seminar was attended by representatives of the sheep and goat industries, scientists, regulatory officials and other interested persons. World authorities on scrapie from Canada, England, Scotland, and the United States participated in the Seminar. They presented research findings concerning the causative agent, transmission, animal susceptibility of resistance, and the economic importance of the disease.

The consensus of most research workers of today is that scrapie is caused by a transmissible agent; that it is a communicable and infectious disease; and that its spread from affected to healthy animals is controlled by the genetically inherited resistance or susceptibility of the individual animal exposed to the causative agent. The transmissible agent of scrapie can readily be transmitted to sheep, goats, mice, rats, and hamsters from nearly any tissue of the affected animal by many routes of inoculation.

The disease has an unusually long incubation period ranging up to the 42 months or more. The early symptoms are not readily recognized. This has been one of the biggest problems with which to contend during the eradication program. In 1964, controlled field studies were initiated to determine the fate of bloodline exposed sheep from infected and source flocks which were held under close observation instead of slaughtered. These studies also include known infected sheep held in close contact with non-bloodline and previously non-exposed sheep and goats to determine if such animals will develop scrapie.

The field studies have revealed that animals from infected and source flocks held under observation continue to develop scrapie. In one group of Texas Suffolk sheep, purchased from two infected flocks and their source flocks, 20 percent of the original 35 animals have developed scrapie since September 1964; 16 percent of an Illinois group of 64 Suffolk sheep have developed scrapie since June 1964; and 11 percent of 35 animals from Missouri have developed scrapie since March 1967. In a group of Indiana Cheviot sheep, 10 percent of 40 animals have developed the disease since July 1966.

These data confirm that scrapie could become widespread in the sheep industry of the United States without an eradication program. If the scrapie eradication program were to be discontinued this disease could become so widespread and entrenched in the sheep populations of the United States that it would be impossible to eradicate it.

Australia, Canada, New Zealand, and the Republic of South Africa have instituted active scrapie eradication programs, similar to the one followed in the United States. Of these, Australia, New Zealand, and the Republic of South Africa believe they have been successful in eradicating the disease.

The State-Federal scrapie eradication program is supported by the United States Livestock Sanitary Association, the National Sheep and Wool Growers Association, the Texas Sheep and and Goat Raisers Association and by livestock disease control officials in the various States.

The Bureau of the Budget advises that there is no objection to the presentation of this report from the standpoint of the Administration's program.

Sincerely yours,

(S) JOHN A. SCHNITKER,
Acting Secretary.

STATEMENT OF HON. RICHARD H. ICHORD, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MISSOURI

Mr. ICHORD. Mr. Chairman and gentlemen. Mr. Betts is the original author of the legislation concerning scrapie, and I believe he does have a history of the whole matter which I think it would be appropriate for him to give first.

I have no statement, except I do have a brief prepared by an old college classmate of mine, John Canestraight, concerning the Federal and Missouri laws, pertaining to the scrapie program. I think it is very informative, and I would like to submit it for the record.

I appreciate greatly the interest of the committee in H.R. 10241. I would ask each of the members of the subcommittee to look at this piece of legislation very closely. I strongly believe that the scrapie is one program in which the Federal Government has often acted arbitrarily and in a high-handed manner. This is especially true in view of the fact that there is no real or substantial evidence that scrapie is a contagious or infectious disease.

I would appreciate favorable consideration of the legislation.

Mr. PURCELL. Do you have the brief that you offer for the record?

Mr. ICHORD. Yes. I would like to make this a part of the record.

Mr. PURCELL. That will be allowed.

Thank you very much, Mr. Ichord.

(The brief submitted by Mr. Ichord follows:)

MEMORANDUM TO NATIONAL SUFFOLK SHEEP ASSOCIATION RE SCRAPIE DISEASE IN SHEEP

FACTS

A short time ago Mrs. Biellier, Secretary of the National Suffolk Sheep Association, called me on the telephone and indicated that a great number of the members of the Association in Missouri and elsewhere had flocks subjected to the slaughter program of the United States Department of Agriculture, hereinafter referred to as "USDA". She further indicated that the Association was requesting that I give an opinion relative to the legal rights of the Missouri flock owners relative to the policy of the USDA and the State of Missouri in the slaughter of sheep afflicted with, suspected of being exposed to, or being a progeny of sheep afflicted with the disease commonly known as "Scrapie". She also asked me to comment on the quarantine, appraisal and indemnifying features in connection therewith. It appears that the USDA, in cooperation with the State of Missouri, has invoked a program of slaughtering the above-described animals, over the protest of many of the flock owners.

THE LAW

A. The Federal law under which the USDA is authorized to act is, among other statutes, set out as follows:

21 USCA Sec. 114(a)—The Secretary . . . is authorized . . . to . . . eradicate scrapie and blue tongue in sheep . . . and contagious or infectious diseases of animals . . . which in the opinion of the secretary constitute an emergency and

threaten the livestock industry of the country, including the payment of claims growing out of destruction of animals. . . .

21 USCA Sec. 123. Quarantine. Secretary may quarantine an area whenever it is determined that ". . . livestock . . . are affected with any contagious, infectious or communicable disease"

21 USCA 129. provides funds to eradicate, on an emergency basis, contagious or infectious diseases of animals.

B. The Missouri law, under which the Missouri authorities find their power to act, is set out as follows:

"Missouri Livestock Disease Control and Eradication Law." Pertinent sections are:

267.565. *Definitions.* Unless the context requires otherwise as used in sections 267.560 to 267.660, the following terms mean:

(3) *Animal*, an animal of the equine, bovine, porcine, ovine, caprine, or species domesticated or semidomesticated;

(6) *Infected animal* or *infected bird*, an animal or bird which shows a positive reaction to any recognized serological test or growth on culture or any other recognized test for the detection of any disease of livestock or poultry as approved by the department or when clinical symptoms and history justifies designating such animal or bird as being infected with a contagious or infectious disease;

(9) *Quarantine*, a condition in which an animal or bird of any species is restricted in movement to a particular premise under such terms and conditions as may be designated by order of the state veterinarian or his duly authorized deputies;

267.590. *Quarantine of animal or herd by state veterinarian-duration.* If, upon investigation, the state veterinarian is satisfied that an animal, livestock or bird or a herd or flock of animals or birds is suffering from any highly contagious, communicable or infectious disease or exposure thereto, against which he may think best to quarantine, he shall immediately quarantine the same to pens, farms, sheds or barns completely separated from other susceptible animals or birds not so diseased or infected until

(1) Such diseased animals or birds are recovered and no longer capable of transmitting the disease or diseases to other susceptible animals or birds;

or

(2) Shall have been isolated; or

(3) Killed or disposed of as provided for in sections 267.560 to 267.660 and the rules of the department; or

(4) Tested, vaccinated or otherwise treated; or

(5) As otherwise released by the state veterinarian. Laws 1959, H.B. No. 501, Sec. A (7).

267.595. *Quarantine of area, notice, effect—procedure.*

1. When in the opinion of the state veterinarian the quarantine of an area is essential to

(1) Confine an outbreak of a highly contagious and communicable disease affecting livestock, animals or birds as defined in sections 267.560 to 267.660;

or

(2) When necessary for the initiation and enforcement of control measures for testing or vaccination of livestock, animals or birds within the area;

or

(3) For the slaughter of exposed and infected animals;

(4) When necessary to conform with federal regulations in effect for the cooperative control and eradication of the disease; or

(5) When necessary in order to avoid embargo against the movement of livestock out of the free areas within the state into other states; and the state veterinarian so notifies the commissioner of agriculture of such fact, the commissioner of agriculture or the state veterinarian acting for the commissioner of agriculture with the approval of the governor, may order the area quarantined, such order shall set forth the terms and conditions that are to be met by the owner of livestock within area affected by the order.

2. The notice of an order of quarantine against the movement of animals or birds from the area shall be publicized in the newspapers and radios serving the area.

3. The department shall have the authority to designate the type and kind of immunizing agent or tests that are to be applied for the control and eradication of the disease and to prohibit the use, by anyone, of those immunizing agents

which in the judgment of the state veterinarian may not effectively and expeditiously bring about the control of the disease.

4. When in the judgment of the state veterinarian the movement of livestock as defined in sections 267.560 to 267.660, from an area or section within another state favors the introduction of disease into Missouri and it is known that the livestock sanitary officials of the state have not quarantined the area or are not controlling the movement of the livestock out of such areas, the commissioner of agriculture, upon notice of such fact from the state veterinarian of Missouri, may impose restrictions or full embargo against the movement of any and all livestock from such areas within another state until the movement of livestock therefrom and into Missouri no longer favors the introduction of the disease.

5. An order setting forth the restrictions or complete embargo against the movement of livestock from an area within another state or from the entire state shall be effective upon notice in writing or by telegram to the livestock sanitary official of the state affected.

6. All public stockyards and other markets including traders and dealers, licensed to operate in Missouri, shall cooperate with the department when a quarantine is imposed upon an area within Missouri or restrictions are invoked against the entry of livestock from specified area in other states. Laws 1959, H.B. No. 501, Section A (8).

267.610. Slaughter of animals, notice, appraisal—value and expenses paid, how.

1. When in the judgment of the state veterinarian, the slaughter method is the only means of controlling and eradicating a highly contagious or communicable or infectious disease of livestock, animals or birds, or when under cooperative agreements with the United States Department of Agriculture the slaughter method is required, notice shall be given to the owner or owners of the livestock exposed to or infected with the disease. Such livestock or birds or animals shall then be appraised and shall be destroyed by the sheriff of the county in which they are located or by a representative of the department or by the United States Department of Agriculture as the state veterinarian may elect, except that when exposed or infected or recovered livestock, animals and birds in such herds or flocks can be utilized for food purposes, the state veterinarian in his discretion may permit such animals, livestock or birds to be transported on permit and under supervision of a representative of the department to a slaughter establishment operating under the federal meat inspection service or under an approved municipal meat inspection service.

2. The appraisal of such livestock, animals or birds shall be made jointly by the owner and a representative of the commissioner of agriculture or by the owner and a representative of the United States Department of Agriculture when the federal government shall elect to participate. In the case of any disagreement a disinterested third party shall be called in and a majority decision as to the appraisal of such livestock shall be fixed. The representative of the commissioner of agriculture or a representative of the United States Department of Agriculture shall prepare an itemized statement of the appraisement in triplicate, one copy of which shall be presented to the commissioner of agriculture. The commissioner shall certify a claim for the appraisement to the comptroller which shall constitute a legal claim against the state of Missouri and a warrant shall be issued therefor by the state comptroller, provided that the indemnity paid by the state under a federal cooperative program shall not exceed one-half of the appraised value.

3. A careful account of the cost of the killing, burying and also the cleaning and disinfection of premises shall be kept by the representative of the department or a representative of the United States Department of Agriculture and the cost thereof shall be paid by the state when such cost is approved by the commissioner and certified to the comptroller, in which case, a state warrant shall be issued to the owner as payment, provided, however, that such costs paid by the state under a federal cooperative program shall not exceed one-half the total cost.

4. Any livestock, animals or flock of birds appraised under the provisions of sections 267.560 to 267.660 shall be appraised at their actual value giving due consideration to breeding value as well as to dairy or meat value. A carefully itemized account of the appraisement of each individual head of such livestock, animals or flocks of birds shall be made and signed by the owner, representative of the department or of the United States Department of Agriculture and by the third party when such third party is called upon to act as a joint appraiser. Said

account shall be made out in triplicate and one copy shall be sent to the commissioner of agriculture and one copy shall be sent to the county court, when the county is paying a portion of the indemnity. Laws 1959, H.B. No. 501, Section A (11).

It can readily be seen that insofar as the Missouri law is concerned, there may be slaughter of sheep afflicted with an "Infectious, communicable or contagious disease".

The next question that poses itself is whether or not the state of Missouri can show that Scrapie in sheep, or animals exposed to Scrapie in sheep, is involved in the diseases described in the statute as "infectious, communicable or contagious", as a question of fact that must be established by the evidence that exists relative to this disease. However, there is a rule of law that prevails, both under Missouri and Federal law, that the plaintiff or moving party (State of Missouri or the Government of the United States) has the *burden of proof* to establish that this disease by a *preponderance of the evidence* is such a disease as that described in the statute.

DISCUSSION

What will the evidence show?

Scrapies in sheep has been observed on the Continent of Europe and in England for some 200 years. It has *not* been of such concern that the slaughter philosophy of the USDA has been generally invoked there.

Several foreign scientists, Dammann, 1869, M'Fagean, 1918, Bertrand, Carre and Lucan, 1937, attempted to create the disease, clinically, in healthy sheep by inoculation of materials from Scrapie sheep to no avail. The latter three admitted that theories as to cause—infection, virus, heredity, toxins and parasites had not been verified experimentally, but that they *believed* Scrapie was in "infectious disease". The basis for their belief—finding Scrapie to be an "infections" Disease, was not stated, but the USDA had the article translated from French to English and gave it wide distribution, as they did a thesis by P. Saurat *who did no experimenting* himself but concluded in 1941 that Scrapie was:

1. An infectious disease
2. A contagious disease
3. Transmissible by cohabitation, and
4. Heredity as a factor had not been demonstrated.

However, by 1941, Cuille and Chelle (1936) (1938) had been able, clinically, through inoculation, to show that in 5 cases out of 17, the disease *might* be transmitted in this specialized laboratory manner.

Greig, in 1932, felt he showed that Scrapie sheep could infect a pasture and healthy ewes could contract the disease by this method alone. Seven of 26 ewes came down with the disease but Greig's own co-workers, Wilson, Anderson and Smith, state in 1950 that the pasture feature of their experimentation had not influenced their results to any significant extent.

Because Cuille and Chelle had permitted their infected materials to be passed through a fine porcelain filter, we have the beginnings of the theory that the casual factor in Scrapie is a filterable virus.

Greig's co-workers, in 1950, did a great deal of experimenting and concluded:

1. Scrapie is transmissible by inoculation
2. It has a long incubation period, and
3. Is caused by a filterable virus they know nothing about.

C. R. Omer, veterinarian with USDA, states the position of the Department in the 1956 Edition of the Yearbook of Agriculture by concluding—without any evident experimentation of his own—that

1. Scrapie is caused by a filterable virus.
2. No treatment for it.
3. Method of eradication is slaughter.
4. Quotes Greig as to pasture infection.
5. Method of elimination of the virus is unknown.

There is another viewpoint:

H. B. Parry, writing in the *Veterinary Record*, originally experimented with 6,250 breeding ewes in 50 flocks, involving 6 different breeds. He concludes:

1. The disease may be transmitted clinically.
2. If this is a virus, it is an amazing virus since affected material has been boiled and heavily treated with chemicals (Stamp, *Veterinary Record*, 1957) (Gordon, *Veterinary Record*, 1957) and still survives.
3. The clinical pattern one might expect here is of a disease that is hereditary in origin.
4. No spread of the disease by simple contact.

There is some evidence that Parry may feel that certain susceptible strains might be eliminated.

Another interesting view. Dr. Hutt, who is a geneticist, seems to feel that, above all, slaughter is not the answer because 80% or more of a given flock—even if the disease were contagious—would be resistant to the disease. Dr. Hutt would seem to observe that susceptibility to Scrapie is genetically determined.

It is interesting to note that Hagan and Bruner, writing in the 1961 textbook used at the University of Missouri Veterinary School, state that :

1. It is generally assumed the cause of Scrapie is a virus, but
2. Little is known about it except that it lives when other *like* viruses would be destroyed (boiling and chemical treatment).
3. The virus, if it be a virus, has not been seen, photographed, cultivated artificially, or shown to exist otherwise.

There are many other articles on this subject. The pathologists have not found the gross lesions ordinarily left by an infection caused by virus.

Webster's New Collegiate Dictionary defines "infectious disease" as any disease caused by the entrance, growth and multiplication of bacteria, protozoans, or analagous organisms (filterable viruses) in the body ; a germ disease. It may or may not be contagious."

Mo. R.S. 1959, Cum. Supp. "Infected animal" shows a positive reaction to a test * * * or clinical symptoms and history justifies designating such animal as being infected * * *

OBSERVATIONS

In response to supposed questions pointed to all of the experts in the USDA, not one at this time can testify that bacteria, protozoans, or viruses, filterable or not, enter the body of a sheep and cause Scrapie. Even a guess—not permissible in a court of law—indicating such entry, would have to include the statement that such viruses, etc., had never been seen, photographed, created by test, or left its mark as a matter of pathology.

Under the Missouri statutes, since there is no test to detect Scrapie or clinical symptoms combined with history to indicate infection the burden of proof cannot be sustained to show it is an "infectious disease".

Question : Can the authorities sustain the burden of proof to show that Scrapie is a contagious or communicable disease?

We shall assume that "communicable" and "contagious" means the same things.

Webster, *supra*, has already indicated that an infectious disease may not be contagious. Then, what is a contagious disease? Webster tells us it is "a type of infectious disease caused by receiving living germs directly from a person afflicted with the disease, or by contact with a secretion of his or with some object he has touched. Many infectious diseases are not contagious, some special method of transmission or inoculation of the germs being required."

All of the "virus" writers, including USDA, admit that the natural method of transmission is unknown. Except for Greig's pasture experiment, there is no evidence Scrapie can be transmitted other than artificially. Therefore, as a matter of testimony, the evidence must show that even if there be an infection, its natural method of transmission is not established, therefore, it *cannot* be established that it is "contagious".

Observation : The State of Missouri cannot show that the disease, Scrapie, whether infectious or not, is, in fact, "contagious".

Since the Quarantine statutes apply to infectious and contagious diseases, the same conclusions would apply.

Now we can state that :

1. The state of Missouri probably cannot sustain the burden of proof in a court of law that Scrapie is an "infectious disease" and certainly cannot show it is "contagious".

2. Unfortunately, as to sheep in interstate commerce, the Secretary of USDA is authorized "* * * to eradicate * * * Scrapie * * * and other contagious or infectious diseases * * *" Here, Scrapie is singled out and it need not be infectious and contagious. This statute should be changed to conform to the Missouri law so that the Secretary would have to sustain the burden of proof and prove the infectious and contagious features of the disease.

3. Fortunately, the Federal quarantine laws give the Secretary the power to quarantine where the disease is "contagious, infectious or communicable * * *" The Secretary cannot sustain the burden of proof on Scrapie as to quarantine for the reasons that are stated above.

4. *Appraisal.* The President of the Association has already made some excellent observations in re appraisal to the membership.

5. *Indemnity:* The Federal Congress has been liberal in appropriating funds for indemnity. The State of Missouri has never appropriated funds to indemnify for future Scrapie losses. There are no funds for such losses. The 1959 Legislature made a relief appropriation to pay *claims* for such losses in individual cases, but has previously refused to appropriate funds to pay future indemnities as to this type of loss. Some of the present claims are 15 months old and will be 30 months old *when and if* they are paid.

The emphasis is on "persuasion and cooperation". The State and USDA veterinarians spend considerable time and effort during the "persuasion and cooperation" phase before the flock owner finally agrees to the slaughter and signs the following type of document:

Date: _____
Place: _____

CERTIFICATION OF OWNER CLAIMANT

In the interest of preventing the occurrence of the disease known as Scrapie in my flock of sheep, and in conformity with the universally accepted procedures for its control and eradication, I hereby agree to the slaughter of the exposed sheep as described and appraised on the attached forms with full knowledge that funds are not presently available for the payment of the share of indemnity by the State of Missouri.

I further agree to the slaughter of the sheep described and appraised herein with the understanding that the Commissioner of Agriculture _____ and the State Veterinarian _____, and the Missouri Department of Agriculture will assume no further responsibility for any claims against them personally or the Department of Agriculture of the State of Missouri.

It is my understanding that any eventual payment of indemnity by the State of Missouri will be under the provisions of Section 267.610 Missouri Revised Statutes, 1959, Cumulative Supplement, and through the approval of a relief appropriation request by the State Legislature on the basis of a claim certified by the Commissioner of Agriculture.

Signature of Owner

Witnessed:

(Prepare in quadruplicate)

CONCLUSIONS

1. While the various authorities may not be able to *lawfully* quarantine, or slaughter, it does not follow that they may not try it.

2. If a flock owner is to test this authority, he should do so by keeping his attorney, who should be experienced and competent, fully advised at each stage.

3. The USDA seems to have adopted the slaughter method of eradication of Scrapie in sheep as a result of hysteria, or something very near hysteria. Now the USDA seems to feel they are committed to this philosophy and is considering only the evidence that sustains its position and is consciously excluding all other evidence. We feel that the intent of Congress in any eradication program involving slaughter, applies only to diseases that are dangerous and contagious by natural transmission.

4. Further research or the execution of written cooperative agreements on this subject between the State of Missouri and the USDA may change the factors that are the basis of this opinion. Once again, an attorney can research these developments.

(S) JOHN CANESTRAIGHT,
Attorney at Law,
Suite 104 Stephens Building,
Columbia, Missouri.

Dated this 9th day of March 1962.

Mr. PURCELL. Our next witness, Congressman Betts, has been in communication with me on many occasions with regard to this prob-

lem. I do not know of anyone who has worked so diligently as he has, in getting hearings set, and getting a better understanding of the problem.

We will be glad to hear from you at this time.

**STATEMENT OF HON. JACKSON E. BETTS, A REPRESENTATIVE IN
CONGRESS FROM THE STATE OF OHIO**

Mr. BETTS. Thank you, Mr. Chairman. I may have been a worker, but I want to make it plain that I am not an expert in this field.

I want to take just a few moments to tell you about the history of this subject. The real experts will take the stand later and explain it more fully.

I would say that it is a terrible thing. It was first called to my attention, I think, in 1962, when Mr. Pearson Linn, who was head of the sheep organization, residing in my district, brought it to my attention. And then his whole organization became interested in the subject, and from then on he and the officers discussed the possibility of legislation with me. On February 26, 1963, I introduced what was then H.R. 4217. We thought at that time that inasmuch as the Department of Agriculture had a program of eradication which, actually, amounted to a complete destruction of the flock in some instances, that it should be approached from the standpoint of the financial burden to the farmer, so that the bill at that time simply provided for a complete indemnification of the loss of the flocks destroyed. Your predecessor on this subcommittee, who is now chairman of the full committee, arranged for a hearing.

I think the whole subject was very well presented at that time for both sides, but the chairman at that time—and I think everybody, as well as the committee was in agreement—if my bill was adopted it would bankrupt the Treasury in financing people for the loss of their flocks. So, we dropped that, of course.

Then, the organization through their counsel came back with another approach, and I introduced it on May 11, 1965, H.R. 8068. The approach at that time was to suspend the program of eradication and enforcement of the provisions of the program as to diseased animals for 5 years, because the whole issue is a technical one as to whether scrapie is communicable and the sheep organizations at that time felt that if it was suspended for 5 years that that suspension would prove that it was not communicable. The question was whether it was communicable. That bill languished in committee, and they never got around to hearings on that bill.

But, in 1967, since Mr. Ichord represented a district that was very much concerned with this subject and had great interest in this subject, I was asked to get him into the picture and he and I introduced the bill which is up for hearing here today, which is H.R. 10241.

The purpose of this bill simply is to take out the word "scrapie" from the law on the subject, and the ultimate purpose of the bill would be to place the burden of proof on the Department of Agriculture to prove whether or not scrapie is a communicable disease. It is a very short bill. Judge Whiteman, from Indiana, who is one of the witnesses this morning, will develop the legal implications of the bill, so far as that is concerned.

So, that is a little bit of the history of this.

I should like at this time, if I may, Mr. Chairman, to introduce some documents into the record which explain the position of the supporters of this bill.

The first is an article from *Chemical and Engineering News*, February 8, 1967, page 28.

The article is entitled "Scrapie Agent Stirs Debate," which will develop for the committee the problems, the confusions which have obtained by lack of physiologic technique and by failure of science to develop tissue cultures that would support their action. These are really studies. I would like to introduce that at this time.

Mr. PURCELL. You are referring only to the article?

Mr. BETTS. To the article on page 28, yes.

Mr. PURCELL. Without objection, that may be made a part of the record.

(The document referred to follows:)

[From the *Chemical & Engineering News*, Feb. 8, 1967]

SCRAPIE AGENT STIRS DEBATE

A small viruslike agent that just might turn out to be solely a protein is stirring up a vigorous debate among virologists. It all revolves around the sheep disease known as scrapie and the chemical nature of the agent that transmits the disease to the nervous tissue of other animals.

The implications are broad, and tangled. For finding the right answers could help clear up several questions about the human disease, multiple sclerosis. It could also sharpen perspective on some diseases that seem to have both genetic and infectious origins.

The controversy distills to this: Americans think the agent is a virus; the British think it's a protein. Both qualify their claims in the conventional ways, but they do form two schools.

The most recent development was a report in *Veterinary Research* for Jan. 7 by Iain H. Pattison and Katherine M. Jones of the Institute for Research in the Animal Diseases, Compton, England. What they did, essentially, was extract the scrapie factor from the brains of infected goats, rats, and mice, using methods common for protein separation. The technique involved chloroform-methanol, sodium chloride, and picric acid precipitation. Reextracted factor, washed several times with water, induced the disease in normal animals of the same species.

These findings should send American investigators scurrying to their labs in attempts to repeat the work. Up to now, many have complained about the unrepeatability of previous British work and of the dubious interpretations based on impure extracts. The American argument runs generally along lines that the factor behaves, despite some anomalies, like a virus in the animal system. The confusion is sustained by a lack of serological techniques that could be used to follow the agent's course and by the failure of scientists to develop tissue cultures that will support the agent. Until these needs are filled, they say, really definitive studies are impossible.

Doing a great deal of the American work in the field are William Hadlow of the Public Health Service's Rocky Mountain Laboratory in Hamilton, Mont., Hilary Koprowski of the Wistar Institute in Philadelphia, and the National Institutes of Health group of Dr. Carleton Gajdusek, Clarence J. Gibbs, and Michael Alpers. Besides the U.K.'s Pattison and Jones, a team is working at the Moredun Institute in Edinburgh, Scotland. (The NIH group is working with the human disease, kuru, induced in a series of chimpanzees, starting with an animal, now deceased, by the name of Georgette.)

All of these scientists see the scrapie work in terms of a model for detailed studies of multiple sclerosis and other so-called slow-acting viral diseases that affect animals and humans.

Whatever their differences, both sides do agree that the scrapie factor is peculiar. It resists inactivation by boiling. Scrapie brain tissue preserved several months in formalin, normally an inactivator, yields an active agent. The factors elicits no antibody response in infected animals. Neither ribonuclease, which tears down virus nucleic acid, nor trypsin, which disassembles protein, affects it,

the British say. Ultraviolet radiation, say the British, doesn't hurt the factor as it does most viruses. Attempts to view it under the electron microscope have failed. The British have used the UV and ribonuclease data as evidence for the agent's protein nature, but the U.S. school says many factors could account for the results and not rule out the virus theory.

The results of the next round are anybody's guess. But the fascination remains. Scrapie, multiple sclerosis, and kuru, a New Guinea disease similar to multiple sclerosis and under study at NIH, are under growing attack. And the gut answers seem on the verge of coming in. It may be that the mechanism is so tied up with protein and nucleic acid synthesis that both sides are right.

Mr. BETTS. Mr. Chairman, also, I would like to introduce into the record at this time a letter from Dr. Harry E. Goldstein, who is chief of the Division of Animal Industry of the Ohio Department of Agriculture, which bears directly on the subject.

Mr. PURCELL. Without objection, that may be made a part of the record.

(The letter referred to, with attachments, follows:)

OHIO DEPARTMENT OF AGRICULTURE,
ANIMAL INDUSTRY,
Columbus, Ohio, September 13, 1965.

Mr. PEARSON LINN,
President, National Suffolk Sheep Association,
Bucyrus, Ohio.

DEAR PEARSON: In regards to your recent inquiry of the Ohio policy involving the disease known as Scrapie, we are enclosing a copy of the policy statement issued April 1, 1964.

To the best of our knowledge, there has been no additional scientific data to substantiate a change in our policy of disease control for this problem.

Sincerely yours,

HARRY E. GOLDSTEIN, D.V.M.,
Chief, Division of Animal Industry.

POLICY OF THE OHIO DEPARTMENT OF AGRICULTURE, DIVISION OF ANIMAL INDUSTRY,
REGARDING SCRAPIE DISEASE IN SHEEP

Since the first case of Scrapie disease was diagnosed in Ohio in 1952, sufficient time has elapsed to afford more epidemiological data regarding the disease.

There is, at this time, sufficient data to substantiate that Scrapie disease is an infectious disease. There is, however, a need for greater understanding before the disease can be classified as communicable by strict definition.

Therefore, effective April 1, 1964, only those sheep classified as a Scrapie infected flock will be quarantined in the State of Ohio. Flocks containing sheep that originated from a flock classified as a source flock from another state will not be quarantined. Flocks in Ohio classified as a source flock or the definitive diagnosis was rendered in another state will not be quarantined.

Mr. BETTS. And, also, if I might, I should like to introduce the U.S. Department of Agriculture Report No. 852-68, dated March 14, 1968.

Mr. PURCELL. Without objection, that will be made a part of the record at this point.

(The USDA Report No. 852-68 follows:)

U.S. DEPARTMENT OF AGRICULTURE REPORT NO. 852-68

WASHINGTON, March 14, 1968.

RESEARCH ON SCRAPIE MAY RELATE TO HUMAN DISEASES

Research on scrapie, a disease of sheep and goats, may provide leads for studying diseases in humans, the U.S. Department of Agriculture reports.

Studies in Great Britain sponsored by USDA's Agricultural Research Service confirm other findings that scrapie research may have implications for workers in

the fields of human nervous diseases and cancer research. This work is being financed by ARS under Public Law 480 and by Great Britain.

Scrapie, a fatal disease of the central nervous system, was first diagnosed in the United States in 1947 when it was introduced by imported sheep from Canada and Great Britain. In the many years scientists have studied scrapie, one of the significant findings is a similarity of certain symptoms of scrapie in sheep and goats, mink encephalopathy (brain disease), and kuru in humans. The most insidious thing about scrapie in animals and certain incurable neurological diseases in humans is that by the time signs or symptoms are detected, the brain has been permanently damaged.

The agent causing scrapie has defied a half century of research. Scientific data as to its nature have supported various theories. One is that the scrapie agent may be a protein. For example, it is similar to encephalitogenic factor, a small basic protein which causes allergic encephalomyelitis, a disease of the central nervous system. Both scrapie and encephalitogenic factors have this in common: high resistance to ultrasonic treatment, drying, freezing, heat, organic solvents, and formalin.

Opposing the protein theory is the viral hypothesis. However, some workers feel that the scrapie factor apparently has no nucleic acid, which is considered essential to the structure of filter-passing viruses. Yet, the scrapie agent has the remarkable capacity to reproduce, which most scientists think requires nucleic acid.

This puzzling reproductive activity has been studied in laboratory culture tests comparing scrapie-diseased cells and normal brain cells. Although normal cells die within 2 weeks, the diseased cells kept growing. This suggests that the infected cells have an abnormal growth pattern like cancer cells.

Unlike cancer cells, however, the agent multiplies in tissues outside the central nervous system without causing obvious damage. Some scientists suggest that the scrapie pathogenesis may involve a change in the arrangement of sugar molecules attached to cell membranes, impairing the efficiency of electrical nerve impulses. Such slight changes in membrane structure could be disastrous only in the central nervous tissue where the ion transport system is extremely specialized, sensitive, and rapid.

Since no antibody against scrapie has yet been detected, scientists have also considered the possibility that the scrapie agent may be a non-antigenic molecular arrangement attached to the cell membrane and apparently acceptable to normal cells which incorporate and copy it.

Scientists here and abroad continue to seek answers. The P.L. 480 grants on scrapie research to England's Agricultural Research Station, Compton, and Scotland's Moredun Research Institute, Edinburgh, were awarded in 1961. Work on these projects was paid for with English currency obtained by the United States from sales of farm products abroad. Under P.L. 480 this money cannot be converted into dollars for use in the United States, but may be used for foreign research beneficial to this country.

Mr. BETTS. And also an article entitled "Scrapie Agent Poses Mystery for Medicine," from the "Veterinary Medicine Small Animal Clinician," February, 1968.

Mr. PURCELL. Without objection, that will be made a part of the record.

(The article referred to follows:)

[From the Veterinary Medicine/Small Animal Clinician, February 1968]

SCRAPIE AGENT POSES MYSTERY FOR MEDICINE

The baffling disease agent that causes scrapie in sheep may be linked to multiple sclerosis in man, according to Dr. Iain H. Pattison, head of the pathology department at Britain's Institute for Research on Animal Diseases at Compton.

That scrapie may be related to human disease is becoming more than conjecture. Four of 7 British researchers studying swayback, a neurologic sheep disease, have developed multiple sclerosis. Now Dr. Pal A. Palsson, director of the Institute for Experimental Pathology at the University of Iceland in Reykjavik, reports evidence that multiple sclerosis may be related in some degree to scrapie.

When he and his colleagues inoculated sheep with brain material from a multiple sclerosis patient, the sheep developed a disease clinically and histopatho-

logically similar to scrapie. The Icelandic team has injected human brain tissue from three types of "chronic neurological disease" into groups of 4 sheep each. An equal number of controls were given normal brain tissue. Seven sheep, representing all 3 specimens, developed a disease "indistinguishable" from scrapie 16 to 28 months after inoculation. None of the controls contracted the disease.

The size of the scrapie agent presents an enigma. It will pass through filters that trap all known viruses. Researchers at Hammersmith Hospital in London have found that the agent is much smaller than the smallest known virus.

Scrapie is extremely difficult to inactivate. Even after being heated to 100 C. for 30 minutes, the infectivity of scrapie is maintained, investigators at Moredun Institute in Scotland have found. The agent has also survived many cycles of rapid freezing and thawing.

The resistance of scrapie to formalin is no less remarkable, reports Dr. Pattison. Brain specimens of sheep that died of scrapie, he found, are still infective after being preserved in 10% formalin for 28 months. Since formalin kills viruses, this was a result that he could "scarcely believe."

British researchers at the Institute of Research on Animal Diseases have now succeeded in inactivating the scrapie agent. Dr. G. D. Hunter and his colleagues accomplished this feat with urea, an agent that breaks down polysaccharides. When the cytoplasmic membranes of host tissue infected with scrapie were treated with dilute urea, the infectivity of scrapie was destroyed.

On the basis of these experiments, the researchers think that scrapie may enter the cell membrane of its host and subvert the polysaccharide components of the cell membrane, causing the cell to function less effectively. According to their theory, scrapie is transmissible but not infectious.

Dr. Francis R. Abinanti, acting associate director of NIH extramural research in allergy and infectious diseases, believes that the scrapie agent may well be a new kind of disease-producing factor.

Dr. D. Carleton Gajdusek, a virologist at the National Institute of Neurological Diseases and Blindness, disagrees, maintaining that scrapie is caused by a virus. Earliest investigations on scrapie were designed to control a disease that was causing economic loss to sheep farmers, but this desire has been largely overshadowed by the unusual scientific problems that have been brought to light by scrapie research. Dr. Gajdusek believes "there is every prospect that the answers to these riddles will contribute significant knowledge to veterinary and human medicine."

Med. World News 8:35, Sept. 8, 1967.

Mr. BETTS. And, also, here is another article on this from the report of the president, Carnegie Institution.

Mr. PURCELL. Without objection, it may be made a part of the record at this point.

(The document referred to follows:)

REPORT OF THE PRESIDENT, CARNEGIE INSTITUTION

For two hundred years, a curious nervous disease of sheep has been widely recognized. It has also been greatly feared, for it appears to be markedly contagious, and once established in an animal its progress seems inexorable, leading in all but the rarest cases to collapse and death. In France, the disease has long been known as "la tremblante," reflecting the hypersensitivity, the shuddering, and the increasing loss of muscular coordination that mark its progress, strongly suggestive of an extensive involvement of the nervous system. In England the same disease is known as "scrapie" from the intense itching that characterizes its early stages, resulting in the patchy loss of wool from constant rubbing against objects of all kinds—a further suggestion of the early involvement of the peripheral nervous system.

Despite the two centuries that this disease has preyed on men's flocks and has been a constant dread to the shepherd, despite fifty years of research into its cause, despite especially intensive investigations of the past decade, the nature of scrapie remained elusive and resolved. In 1938 two investigators, J. Cuillé and P. L. Chelle, reported that they had been able to infect experimental animals with material which passed through a filter with pores fine enough to screen the smallest bacteria. It was then widely believed that the agent of scrapie was a virus: a virus with a period of incubation extraordinarily long, varying from

four months to four years for sheep, and so influenced by immunity factors apparently genetically mediated that in any randomly selected group of exposed animals only five to thirty per cent ever developed the disease. Yet over a period of ten years studies of scrapie in tissue culture pursued in several laboratories consistently failed to demonstrate the existence of any viral agent. Serological studies failed to demonstrate the production of antibodies in affected animals, or scrapie antigen in scrapie infective material, regardless of its nature. Consistently, studies with the electron microscope of tissues and extracts proved to carry scrapie infection failed to demonstrate the presence of any virus particles. It was found, moreover, that the infective agent would withstand exposure to concentrations of formalin fatal to conventional viruses. In one experiment, indeed, brain tissue taken from an affected animal and preserved in ten per cent formalin for periods ranging from six to twenty-eight months proved capable of transmitting the disease. As added tokens of a refractoriness so great that it is hard to associate with a living organism at all, heating to one hundred degrees centigrade for half an hour did not destroy the infectious power of affected tissues, nor did exposure to a five-per-cent concentration of chloroform at thirty-seven degrees centigrade for thirteen days, nor to a concentration of phenol of two per cent for the same length of time under the same conditions. Rapid freezing and thawing, exposure to ribonuclease or deoxyribonuclease, ether, and chloroform-methanol were equally without effect.

During this year, experiments have been reported which strongly suggest that the infective "particle" of scrapie, if such indeed it is, may be smaller than the smallest virus. A study of size by means of ionizing radiation, undertaken collaboratively in the Radiopathology Research Unit of the British Medical Research Council at Hammersmith Hospital in London and the Department of Pathology at the Institute for Research on Animal Diseases of the British Agricultural Research Council at Compton in Berkshire resulted in an estimate of a particle of about seven millionths of a millimeter in diameter—substantially smaller than the smallest virus particle recorded. Irradiation with ultraviolet light of a wavelength specifically absorbed by nucleic acids in exposures that normally destroy their function made no difference in the infective power of the scrapie particles, suggesting that they may lack nucleic acid. What, then, is the nature of this seemingly new kind of disease agent that can be passed from organism to organism by simple injection, like a normal infection, which obviously can increase in concentration with time in the infected animal as though it multiplied like a virus, and that, like a normal organism of disease, produces a characteristic and reproducible—and in this case devastating—syndrome? There is no clear answer as yet. Only the future can show how far the repercussions of this new frontier of medicine and of theoretical biology will develop. But the possibilities range from a further impact on theories of the origin of terrestrial life to notions of the causes of abnormal cell development to an enhanced understanding of a group of dread human diseases the nature of which, today, is little comprehended.

One of the major obstacles to understanding how life on earth could have originated through the chemical paths now generally visualized is that, though the synthesis of proteins under conditions approximating those believed to have prevailed on the primitive earth can be readily conceived, it is less easy to imagine such processes for either ribonucleic or deoxyribonucleic acid. Yet the very earliest life systems, however simple and crude they may have been by modern standards, must nonetheless have been highly adjusted and regulated relative to nonliving matter, else they could not have persisted at all. What then could have been the regulators? Could they, in the first instance, have been relatively simple proteins, performing vital tasks, to be sure, but much less complex than those that nucleic acids were later required to handle? An observation made by I. H. Pettison and D. A. Haig in the course of a study of the behavior of nerve cells from the brains of animals killed in advanced stages of scrapie and maintained in organ culture gives pause in this context as well as in that of abnormal cellular development in general. In several cases dividing nerve cells were thought to have been detected in these cultures, although nerve cells in cultures of normal brain tissue of adult animals are ordinarily of a strictly nondividing habit. It seems possible that the scrapie-infected nerve cells may have acquired an abnormal growth mechanism at least superficially reminiscent of that of a cancerous cell.

This surprising interpretation has been reinforced by a parallel and remarkable finding announced this year by Gurdon. When the nuclei of adult nerve cells

from the brain of the clawed toad *Xenopus laevis* were injected into developing toad oocytes, it was found that in mature, unfertilized eggs, DNA synthesis might be resumed by the adult nerve-cell nucleus, under the influence, apparently, of a cytoplasmic factor which appears in the egg a few hours after the administration of pituitary hormone to the animal. It has long been a classic concept among cell physiologists that the power of growth and division is permanently lost at maturity. The idea that it is only inhibited is new and radical. But it has been foreshadowed for several years by work in the Department of Embryology, described elsewhere in this volume, in which it has proved possible to "reactivate" the synthesis of DNA in mature muscle cells infected with Rous sarcoma virus. This effect, moreover, has been confirmed by Yaffe at Rehovoth in cultures of mature muscle cells infected with polyoma virus. It seems probable that what we considered so long to be a permanent loss of the power of specialized cells to grow and divide in higher animals at their maturity may in fact represent only the repression involved in an exquisitely regulated cellular system.

There are some resemblances between the behavior of the presumed infective particle of scrapie and an agent involved in a condition which has been termed "allergic encephalomyelitis." A small basic protein, thought by some to be a polypeptide, has been isolated from the central nervous system of an animal exhibiting nervous symptoms resembling those of true encephalomyelitis. This protein, when injected into the footpad of a guinea pig, results two or three weeks later in an acute reaction in the nervous system of the animal, terminating in paralysis or even death. This "allergic encephalomyelitis" does not seem to be infectious, and it may be only a single episode of transfer. In this it is unlike scrapie. But it is like the scrapie agent in its remarkable resistance to high temperatures, formalin, solvents, and ultraviolet light. Does it belong in the same class of substances as the scrapie agent?

It seems possible that future findings on the nature of scrapie could shed light on the fundamental nature of that group of important human diseases of the central nervous system such as multiple sclerosis where, as in scrapie, there is slow destruction of that system. Particularly striking is the possibility that perhaps the most enigmatic human nervous disease known today, the notorious kuru of the New Guinean Fore people, which has variously been held to be transmitted by heredity, or congenitally, or infectiously, may be illumined by the findings on scrapie.

Mr. BETTS. So far as I am concerned, Mr. Chairman, that is the background and the important articles which have appeared on it, and I want to tell the chairman that I appreciate this courtesy in his granting this hearing. I am sure that interested parties are very much indebted to you for the time you have given them.

Mr. PURCELL. Thank you, sir.

Are there any questions?

Mr. Kleppe?

Mr. KLEPPE. May I ask Congressman Betts this question, which would add to this history, if I may?

Mr. PURCELL. Yes, sir.

Mr. KLEPPE. H.R. 4217 which was introduced in the 80th Congress was not passed?

Mr. BETTS. That is right.

Mr. KLEPPE. At that time, I understand the Department of Agriculture took no official position in regard to that bill—they were not for or against it?

I have read the record of the hearings, and I am only saying that, from having read the record.

Mr. BETTS. Whatever the record says is correct. I did not go over the record before I came here.

Mr. KLEPPE. This is correct. They took no official position; I want to establish that.

My question is: On the bill introduced on May 11, 1965, you had no hearings. Do you know if the Department of Agriculture at that time took an official position for or against it?

Mr. BETTS. I do not recall that they did.

Mr. KLEPPE. You do know that the Department has taken an official position on the bill that we have before us today, being against it?

Mr. BETTS. That is correct.

Does the committee have a copy of that report?

Mr. KLEPPE. We do have a copy of the report.

Mr. BETTS. I am sorry that I do not have it.

Mr. KLEPPE. I just wanted to get it established for the record, that is, the sequence of the various bills you have presented and the position of the Department of Agriculture in regard to them, and, then, particularly, the disposition of the first two bills. Neither one of them was adopted. One had a hearing and the other did not.

Mr. BETTS. I am sure that the Department can answer those questions.

Mr. KLEPPE. Thank you.

That is all, Mr. Chairman.

Mr. PURCELL. Mr. Mayne?

Mr. MAYNE. Before you leave, Mr. Betts, I certainly want to commend you for the very excellent work you have done in preparing the members of the subcommittee for this hearing. I have received copies of the transcript of the previous hearings, and I have had a number of other communications from your staff. I think you have done an excellent job in arranging for the hearings and giving us a more thorough understanding that many of us did not have before.

Mr. BETTS. I thank you, Mr. Mayne.

Mr. MAYNE. That is all, Mr. Chairman.

Mr. PURCELL. If there are no further Members of Congress, the next witness is Mr. Pearson L. Linn, special representative of the National Suffolk Sheep Association.

We will be glad to hear from you at this time, Mr. Linn.

Mr. KLEPPE. May I have inserted into the record here the fact that the Department of Agriculture did report unfavorably on the bill which was presented by Congressman Betts in 1965?

Mr. PURCELL. Yes, for the record.

Mr. MURRAY. During the 89th Congress on H.R. 8068 by Mr. Betts, the Agriculture Department was requested to submit a report on May 28, 1965, and it responded with an unfavorable report on August 17, 1965. The bill was before the Livestock and Feed Grains subcommittee at that time and no hearings were held on it.

Mr. PURCELL. Thank you.

You may proceed, Mr. Linn.

STATEMENT OF PEARSON L. LINN, SPECIAL REPRESENTATIVE, NATIONAL SUFFOLK SHEEP ASSOCIATION

Mr. LINN. Mr. Chairman and members of the committee.

My name is Pearson L. Linn, from Bucyrus, Ohio. I live on the same farm where I was born 59 years ago. We farm about 700 acres, raising sheep, cattle, and swine.

I am appearing at the hearing as the special representative of the National Suffolk Sheep Association, one of the two largest purebred sheep organizations in the United States. Prior to the current year, I had the honor of being president of the National Suffolk Sheep Association for the previous 10 years.

At the outset I want to thank the subcommittee on behalf of our association for the opportunity for several of us to present our views on H.R. 10241.

Year after year the U.S. Department of Agriculture has been arbitrarily and indiscriminately killing perfectly healthy and very valuable sheep against the will and advice of the affected industry under its scrapie program without there being any evidence whatsoever that there was, had been, or ever would be anything of any kind the matter with the animals being killed. This was done upon the wholly unproven and unfounded Department notion of an alleged incubation period involving a scrapie agent.

But the Department, after nearly a score of years in a March 1968 release finally admits that its own research experts have developed, "* * * that the imagination is stretched to the utmost if one is to accept it as a living thing." In short, the Department upon the basis of its own findings seems to be left with an incubation period with nothing more than a stretch of the imagination to incubate.

I would like to say for the benefit of those who are unfamiliar with the subject, we are talking about the Department's position of 3½ years ago.

This questionable status of an incubation period to which this very scrapie program is anchored is not exactly new. Dr. W. L. Bendix, State veterinarian of Virginia and secretary of the U.S. Livestock Sanitary Association pointed out this as far back as January 1961 when he made the very obvious observation.

* * * as yet no infective agent has been identified. Much talk has been heard about the period of incubation, when we don't know what we are incubating and even if we are incubating anything at all in the way of transmissible agent in the usual sense of the term. Quite frankly, I find it difficult to understand why incubation periods are an item of discussion when we are unaware of when and under what conditions exposure occurs. Incubation periods may be discussed involving artificial inoculation as the period of time between such inoculation and the development of scrapie, but under natural or flock conditions, in the absence of any knowledge as to the time, place, and condition of exposure it seems to me a discussion of incubation periods is a waste of time.

At present, it is my opinion that the whole matter hinges on this problem of transmission. If it develops that contact transmission occurs, and if it occurs with sufficient regularity to be a real factor in the spread of scrapie, then the Federal program makes scientific sense; although in my opinion, as I have previously stated, it still would be comparable to hunting rabbits with atom bombs.

This communication is dated January 12, 1961.

None of these specifications for making scientific sense has come about and so we are, as Mr. Bendix put it, "hunting rabbits with atom bombs." Meanwhile, about all that can be claimed for so-called scrapie incubation periods is that the time specified is little more than the average of the ages when sheep come down with scrapie.

The killings and Department harassment of sheepmen nevertheless continues on and on. We submit it is time something is done by Congress to put an end to this harassment of sheepmen and at the same time rebuild confidence in Department disease control methods. This is the reason for H.R. 10241.

The unfortunate thing about this whole scrapie program is the way it is put over in the first place. In Ohio, for example, let us turn to the minutes of a meeting of State veterinary officials and the sheep industry held at the Ohio State fairgrounds on September 4, 1953,

when this program was foisted upon Ohio veterinary officials and the Ohio sheep industry. These minutes were kept and prepared by the highly respected L. A. Kauffman, sheep extension specialist at the Ohio State University, in which the following declarations among others are attributed to Dr. James R. Hay, chief of the Ohio State division of animal industry at the time and presently holding an executive position with the American Veterinary Medical Association, namely:

As Dr. Gooding (U.S. Bureau of Animal Industry, Washington, D.C.) indicated, there were some states that would like to embargo Ohio sheep. I want to mention that I have had no correspondence relative to any embargo. Dr. Gooding mentioned two states—wondering what Ohio was going to do about scrapie as if having a gun over Ohio. I do not believe in disease control by those methods. I think everyone should be aware of the problem it presents to the sheep industry of Ohio.

The inevitable result of such procedures and lack of support from and with the affected sheep industry was the development of open opposition. Indeed, virtually every genuinely affected sheep organization soon took action against the program. I submit for the record copies of these respective actions which include actions by—

Michigan Sheep Breeders Association;
 Massachusetts Federation of Sheep Breeders' Associations;
 Idaho Purebred Sheepbreeders, Inc.;
 Iowa State Sheep Association;
 Iowa Suffolk Breeders Association;
 New England Sheep & Wool Growers Association;
 Missouri Suffolk Breeders Association;
 Valley Northern Virginia Sheep Breeders Association;
 Oklahoma Purebred Sheep Breeders Association;
 Pennsylvania Sheep & Wool Growers Association;
 Indiana Sheep Breeders Association;
 Illinois Purebred Sheep Breeders Association;
 Ohio Suffolk Club;
 Wisconsin Sheep Breeders' Association;
 American Shropshire Registry Association;
 Montadale Sheep Breeders' Association;
 American Cheviot Sheep Society; and
 National Suffolk Sheep Association.

I have copies of those here. I would like to submit those for the record, or for the committee's consideration.

Mr. PURCELL. You say you have the resolutions from each of these organizations?

Mr. LINN. Each of those organizations which opposes the program. This is the opposition of the sheep people.

Mr. PURCELL. How long are these? We will take your word for it, but if it is not of unreasonable length, all right.

Mr. LINN. I think that the committee should have them.

Mr. PURCELL. I will rule that you may file them with the clerk of the committee but they will not appear in the record as such. In that way, they will still be available to the members of the committee.

Mr. LINN. OK; that is agreeable to me.

(The documents referred to were filed with the clerk of the subcommittee and may be found in the files of the subcommittee.)

Mr. LINN. A program such as this especially requires the support and cooperation of the affected industry. In this case the Department

had, and still has, neither support nor cooperation from these organizations upon which enforcement necessarily depends.

The claim is made the reason scrapie has not spread in this country is because the program is successful and effective. Now, of course, the program has had nothing to do with it. The real reason scrapie has not spread is because it is virtually wholly, if not entirely, noncontagious.

Of all the grounds upon which the scrapie program is said to be indefensible, it is most indefensible on practical grounds; that is, in practice.

The only real measurement of the effectiveness of this program is the measurement as to how successfully and effectively it is able to gather up and destroy all the sheep which need to be gathered up and destroyed to make it successful and effective; that is, how total is it in this respect in practice.

Is it 80 percent in this respect, or a mere 5 percent? Or only 1 percent?

To demonstrate this ineffectiveness of the program we submit the following Department report dated February 24, 1966, as follows:

U.S. DEPARTMENT OF AGRICULTURE,
AGRICULTURAL RESEARCH SERVICE,
ANIMAL HEALTH DIVISION,
Hyattsville, Md., February 24, 1966.

SUMMARY OF SCRAPIE OUTBREAKS IN THE UNITED STATES SINCE SEPTEMBER 1, 1965

Texas: Infected Flock No. 13, in Tarrant County, was disclosed when Animal Health inspectors observed affected ram No. 730 to be showing signs of scrapie at the Fort Worth Stockyards, Fort Worth, Texas.

The affected Suffolk ram was born in a Grayson County flock (a) in April 1962, sold into a Real County flock (B) in August 1963, returned to flock A on an unknown date, resold into a Hunt County flock (C) in May 1965, resold through the Fort Worth Stockyards into the Tarrant County infected flock in October 1965, and returned to the Fort Worth Stockyards in November 1965 where he was observed to be showing signs of scrapie at 43 months of age. Ram No. 730 was transferred to the scrapie field trial premises on November 5, 1965, and died on November 11, 1965.

The Grayson County flock (A) is considered the source of this outbreak. A major portion of the Suffolk sheep of this flock (the flock also included Hampshire sheep) stems from the purchase of an Augusta County, Virginia, flock in 1958. Sheep from flock A while the flock was in Virginia, or since it has moved to Texas, have been affected or were sires or dams of affected sheep in the following scrapie outbreaks: Possibly Mississippi No. 1; Virginia No. 2 and possible No. 4; Texas No. 2, No. 3, No. 4, No. 7, No. 9, possible No. 10, No. 11, and No. 13. Ram No. 56-4 also from flock A sired 5 affected sheep in four infected flocks in Texas and possibly a sixth in a fifth flock; ram No. 45-57 from flock A sired one affected sheep in one Texas flock and six of the affected sheep at the field trial at Mission, Texas. Both of these rams died at over eight years of age and had never shown signs of scrapie.

The infected flock of 13 grade sheep and the Grayson County source flock (A) of 135 purebred and grade Hampshire and Suffolk sheep have been slaughtered. Slaughter arrangements are being made for the Real and Hunt Counties intermediate source flocks (B and C). Texas regulatory officials are endeavoring to locate and slaughter all bloodline exposed sheep sold from the infected flock and their immediate progeny, and locate and slaughter all bloodline exposed sheep sold from the Grayson County source flock (A) and the Real and Hunt Counties intermediate source flocks (B and C).

Mr. LINN. We wish to point out and emphasize that this is but one case and only one facet of the whole indefensible situation but it, standing alone, sufficiently demonstrates the impossible built-in nature of such a program.

First, we point your attention to the meanderings of this ram No. 730 as to how he meandered from place to place making multitudinous so-called exposures as he moved about. These sheep which he made contact, in turn, made still more and more so-called exposures and so on and on.

However, this ram No. 730 was just an insignificant part of the so-called exposures taking place. Indeed, over an 8-year period, from Virginia to Texas this Texas-Virginia flock had attributed to it by the Department, in one way or the other, in the neighborhood of 25 to 30 cases of scrapie. During this time sheep from this flock were disseminated into 40 flocks in six States while in Texas and into 52 flocks and 15 States while in Virginia. In turn, all these sheep and all these flocks in all these States were disseminating exposures into many other, sheep, flocks, and States.

And—we can be sure scrapie was not a spontaneous development either while in Virginia or in Texas. Scrapie was there all the time and disseminating so-called exposures all the while even before Texas or Virginia. It happens that an overwhelming greater part of this flock had its origin in Iowa prior to Virginia. And obviously it can be seen that these so-called “exposures” were, and still are taking place on such an ever-expanding basis that it might most logically be concluded that all the sheep in all the States between Iowa, Virginia, and Texas have long since been exposed to scrapie from this one situation alone and to carry this program to its logical conclusion inevitably requires that all sheep be killed and thus end the whole affair.

More and more examples of this sort of situation could be cited in this regard but this would seem to suffice to demonstrate that this scrapie program is not only ineffective but also incapable of preventing the spread of scrapie.

Now, a word about the economic waste of this situation. Before the January 1964 scrapie seminar, Dr. J. L. Hourrigan, Senior Staff Veterinarian, ARS, USDA, revealed figures which require comparing the scrapie situation in England with the handling of scrapie in the United States.

Both, Great Britain and the United States, have about the same number of sheep—20-25 million—with Britain's far greater density in the sheep population obviously more likely to spread the disease.

Yet, after having done nothing about scrapie for more than 250 years the annual financial losses in Britain from the disease are little more than the annual interest costs in the United States upon the indemnity payments for the mere past 15 years under Department policies. Moreover, when the probable administrative cost—Federal and State—are included the annual interest costs on this program under Department methods greatly exceed the total annual losses experienced when nothing at all was done.

Dr. J. L. Hourrigan put these annual scrapie losses in Great Britain at about \$280,000 at the 1964 scrapie seminar and when these meager losses are compared to \$5,408,000 for soremouth, \$8 million for bots, \$9,400,000 for keds, and \$4,700,000 for lice in this country, Dr. Bendix's declaration concerning hunting rabbits with atom bombs would seem fully objective.

Mr. PURCELL. Are there any questions of Mr. Linn?

Mr. Price?

Mr. PRICE. I would like to ask Mr. Linn how many Texas sheep have come up with this disease—what the total number is that have been infected. Do you have any figure on that?

Mr. LINN. I do not have a figure on that. The figure would be roughly, in the neighborhood at this time, a little in excess of 200.

Mr. PRICE. I understood that there were 236 infected sheep in the 17 or 18 years that the program has been in effect.

Mr. LINN. I do not know exactly what the latest figure is, but it is in that neighborhood.

Mr. PRICE. I also understand that it has cost \$5 million in those 17 years, not counting transportation, and so forth—just paying for the infected sheep.

Mr. LINN. In 1954, the figure for indemnity payments, both Federal and State, was \$4,400,000, and I think that by adding the 4 or 5 years since then it would be just about right, the figure that you gave.

You hear the figure occasionally as to the total cost being somewhere in the neighborhood of \$10 million. That is what I would call an educated guess, as to what the total cost would be for this type of program. My point is that at one time we had 2,000 different flocks under surveillance, and when you have both Federal and State officials for that period of time going back and forth, you get into quite a cost item, because that does cost money.

Mr. PRICE. Would you tell me, in your own words, what effect this has on the sheep producer where he cannot sell these sheep for 2 years, while they are in quarantine?

It would seem to me that this would be quite a cost.

Is it correct, that they have to go into quarantine, or you have to slaughter the whole herd, or a part of the herd?

Mr. LINN. If it happens to be an infected flock, he has to slaughter. This is one, as you say, that we are most concerned about, the flocks. You have the choice of going under quarantine, and then after a 2-year period in quarantine, you would have a lot of 2-year-olds that would be almost valueless—they are too old. Any type of so-called modification along those lines is not factual; so that about the only thing you have to do is to turn them over.

Mr. PRICE. What effect does this have on human beings who consume this food?

Mr. LINN. We have a whole report on that particular item by one of our witnesses. So far as the Department is concerned or anybody else is concerned, I have no proof whatever on that point, that is, that it is not fit to eat.

Mr. PRICE. When you slaughter the herd, that meat is consumed, I understand.

Mr. LINN. I think you have a point there.

Mr. PRICE. In other words, this is something that cannot be seen by just surveillance of the flock, unless you get a condition where the sheep are paralyzed or something of that sort.

Mr. LINN. This matter of whether it is fit to eat or not, you cannot determine, due to the fact that there is some question about it.

Mr. PRICE. You say that it is communicable?

Mr. LINN. If it were, then you would have something.

Mr. PRICE. That is all, Mr. Chairman.

Mr. PURCELL. Mr. Zwach?

Mr. ZWACH. Mr. Linn, is it your opinion that the meat is as wholesome as the meat from any other sheep?

Mr. LINN. I do not know.

Mr. ZWACH. You do not know?

Mr. LINN. I do not think that anybody else knows for sure. That is my opinion. I am expressing an opinion. When you come right down to it, when you ask me a question of that kind, due to the fact of the severity and the nature of this thing at the present moment, in connection with humans, I should be frank with you in stating that I do not know.

Mr. ZWACH. I want to assure you that I will ask the other witnesses about it. I wanted your statement. You are a farmer, like I am. I wanted your reaction.

Mr. LINN. I would say that there is a question about that.

Mr. ZWACH. In regard to the future of sheep, is there a deterioration of the wool or the animal?

What are the symptoms? What is the financial effect of this disease as to the producer of the sheep?

Mr. LINN. When you are talking about the serious financial part of it—

Mr. ZWACH. If you had an animal on your farm, what is the financial problem there?

Do they lose the wool like they do in some other instances?

Do they deteriorate?

Do they just stand there and die?

What is the financial effect on the producer where he has an animal who has this?

Mr. LINN. As I say, the best example is the example which I gave, where there was a close density of animals. At that time, probably there were 2,000 annually, and that was in Great Britain. The loss under this program was severe, you will notice in my statement.

Mr. ZWACH. You say it is severe?

Mr. LINN. The program is severe.

Mr. ZWACH. The program is severe?

Mr. LINN. The program, yes. I contend that it would not be so severe without the program.

Mr. ZWACH. Without the program, the loss would not be severe?

Mr. LINN. No.

Mr. ZWACH. Is that what you are saying?

Mr. LINN. Yes, sir. I mention this in regard to one thing, and that is I underscore the word "affected." I did that for the simple reason that it is pretty hard to make a case that the commercial sheep industry in this country could ever lose that much. There is very good reason for it.

For 18 months, almost all of your money is lost in these flocks. Otherwise, the only thing that you would lose would be an occasional infinitesimal number of sheep which would be put back into replacement, which is only about 12 percent of your total reproduction. So that, from the commercial standpoint, it is ridiculous to say that this is evidence that any important financial effect has not been had in the sheep industry.

Mr. ZWACH. You sheep people are agreed clear across the country that this is one program that does not protect the public health and it has no value, so far as we are concerned—that is, so far as the con-

sumer of meat is concerned—so far as the user of the wool is concerned—you are contending that this program has no value?

Mr. LINN. That is, the cost of putting the program over is costly.

Mr. ZWACH. Will you please say "Yes" or "No"?

Is this your position?

Mr. LINN. Practically, no value.

Mr. ZWACH. Practically no value?

Mr. LINN. Yes.

Mr. ZWACH. That is all, Mr. Chairman.

Mr. PURCELL. Any other questions?

Mr. Murray?

Mr. MURRAY. Did I understand you to say, Mr. Linn, that 236 sheep actually had become infected with scrapie during this period of time?

Mr. LINN. I just gave that figure as the latest I had.

The Department will have that more accurately. The data I have here is not quite up to date.

Mr. MURRAY. How does that compare with the number of animals that have been destroyed under the sheep scrapie eradication program?

Mr. LINN. Well, again, I will have to estimate. It would be probably in excess of 100,000 sheep.

Mr. MURRAY. As I recall from our previous hearings, there were over 61,000 at that time that had been destroyed as the result of the program.

Mr. LINN. Yes, sir.

Mr. MURRAY. Or to put it another way, what would be the ratio between the number of animals actually infected and the number of animals actually destroyed? That would be quite a large ratio, would it not?

Mr. LINN. Oh, yes, it would be. The figures were introduced—back in 1958, we had—I mean this is approximate. The percentage was .0035 to .0024. Now, you might ask as to the .0035 and the .0024, the reason for that. The Department had shown only the kill, and the next year they killed so many more. So, we asked them at that time about that. They said they changed the method of counting. What that means, I do not know. Anyhow, we revised this proposed program from our resolution here. I simply took that figure and made it the margin between the two. So, we accepted that. The one that we had in 1957. You probably will get 10,000 or 15,000 more sheep.

Mr. MURRAY. Would it be fair to characterize your position, then, by saying that you feel that the remedy is more severe than the malady?

Mr. LINN. Oh, definitely. That is what I meant in reply to the previous question. You cannot say that the program is totally worthless, but it comes pretty close to it.

Mr. MURRAY. Thank you. That is all, Mr. Chairman.

Mr. PURCELL. If there are no further questions, we thank you very much, Mr. Linn.

(Mr. Linn later submitted the following letter:)

NATIONAL SUFFOLK SHEEP ASSOCIATION,
Columbia, Mo., June 7, 1968.

HON. GRAHAM PURCELL,
Longworth House Office Building,
Washington, D.C.

DEAR SIR: In view of the fact that time would not permit rebuttal statements to be made at the time of hearing on H.R. 10241, held Wednesday May 22, 1968,

before the Livestock and Grains Subcommittee, the following are now respectfully submitted for your consideration.

1. Virtually every genuinely affected sheep organization representing the affected industry have officially opposed the scrapie program.

2. Scrapie is of no real economic importance to the sheep industry; virtually none whatever to the commercial sheepman.

3. The importance of scrapie lies in the area of the study of human diseases; research of scrapie therefore should be taken out of the U.S.D.A. which has an indefensible program to defend and place with an independent unbiased agency which has no program to bolster.

4. The scrapie program is a program without a basis.

5. It is impossible for the scrapie program to be effective for the reason that it is impossible to trace, gather up, and destroy the required necessary sheep to make it possible for it to be successful or effective.

6. If scrapie is communicable and infectious as maintained by U.S.D.A., then no necessity exists for the words "*scrapie and*" remaining in the present code because all communicable and infectious diseases are now and will continue to be subject to control by U.S.D.A.

Respectfully submitted.

PEARSON L. LINN,
BURL V. WHITEMAN,
Special Representatives,
National Suffolk Sheep Association.

Mr. PURCELL. At this time, we will call as our next witness Judge Burl V. Whiteman of Portland, Ind.

We will be glad to hear from you now.

STATEMENT OF JUDGE BURL V. WHITEMAN, PORTLAND, IND.

Judge WHITEMAN. Mr. Chairman and members of the committee.

My name is Burl V. Whiteman. I reside with my family on a farm near Portland, Ind. I presently am judge of the Jay circuit court; breed, produce, and exhibit a flock of Suffolk sheep. I am here as a representative of the National Suffolk Sheep Association, Inc. with offices in Columbia, Mo., as well as a representative for my own individual interests.

At the outset, I wish to advise you that I am a proponent of H.R. 10241 and desire to present the following for consideration of this honorable body in concluding the action to be taken thereon.

Under Public Law 87-518 as the same presently exists, the Secretary of USDA is authorized:

* * * to eradicate * * * Scrapie * * * and other contagious or infectious diseases * * *.

Here, scrapie is singled out and it need not be infectious and contagious.

However, before proceeding further it might be wise to analyze certain terminology of this law. What is an "infectious disease"? Webster's New Collegiate Dictionary defines "infectious disease" as any disease caused by the entrance, growth and multiplication of bacteria, protozoans, or analogous organisms (filterable viruses) in the body; a germ disease. It may or may not be contagious.

I believe that we assume that "communicable" and "contagious" mean the same things. Webster, *supra*, has already indicated that an infectious disease may not be contagious. Then, what is a contagious disease? Webster tells us it is—

A type of infectious disease caused by receiving living germs directly from a person afflicted with the disease, or by contact with a secretion of his or with some object he has touched. Many infectious diseases are not contagious, some special method of transmission or inoculation of the germs being required.

Applying the foregoing definitions to the verbage of the present law with the modification thereof as proposed by H.R. 10241 would have the effect of placing on the Government of the United States the burden of proof to establish that this, by a preponderance of the evidence—in other words, to give a little further explanation of this matter, it would amount to this: The Department has the administrative function to administer this law, and it would have to show whether the disease is infectious or contagious. In other words, under the present law, the mere fact that it is identified as a scrapie animal permits them to take any and all animals, whether they be infected or whether they be contagious, or whatever it may be, but they have the burden of proof to establish that this, by a preponderance of the evidence, is such a disease as that described in the statute. Such a rule of law has been the Federal law as well as the law of most, if not all, of the several States. I understand that several of you are attorneys. I am sure that you do recognize that principle of the basic principles. In short, the modification of the present law as proposed by H.R. 10241 would simply comply with our long accepted means of jurisprudence.

Now, let us examine the current public law from the viewpoint that as presently administered is it a valid and conscientious exercise of the police powers of the Federal Government. To arrive at a fair and accurate conclusion we must ascertain whether or not scrapie is injurious to the public health and welfare of the people generally or so injurious to property that the owners thereof cannot be otherwise adequately compensated therefor. To my knowledge none of the several reports on scrapie contain or make any reference to any fact which would indicate that there is any possibility that the disease is injurious to health, welfare, or property, but rather, under the present program condemned animals are slaughtered for human consumption—incidentally, it has never been shown whether or not this meat should be fit for human consumption.

While there have been numerous attempts to evaluate and classify the disease of scrapie since 1869—I could give you a whole list of documented scientists that have experimented on this disease, but I do not want to burden you with that. It would become rather boring. While there have been numerous attempts, as I say, to evaluate and classify the disease of scrapie since 1869, the only logical conclusion that can be drawn is as stated in USDA release of March 1968 stating:

The agent causing scrapie has defied a half century of research. Scientific data as to its nature have supported various theories * * *. Scientists here and abroad continue to seek answers.

From 1947 to December 31, 1964, USDA reported on February 19, 1965 the sum total of 236 known scrapie-affected sheep. I could not give you the exact numbers to the present date. I am sorry. I do have some intermittent figures, but they are not complete. The intermittent figures that I have would indicate that possibly about the same number annually have been scrapie affected; in other words, somewhere like 12 to 15 sheep, apparently, a year. I believe there was 1 year which was not included in this figure where the figure went considerably higher—possibly 1964, I believe. In view of the aforementioned facts, it is virtually impossible to justify the huge expenditures incurred by reason of a massive slaughter program because of 236 scrapie-affected sheep.

Without quarreling with the modified scrapie program initiated by the USDA in March of 1965, it might be well to consider some of the

effects on the sheep producer under the present law. The "alternate plan" provides for destruction of bloodline animals with waiver of right of subsequent indemnification on any nonbloodline animals retained, along with a 2-year quarantine on such animals, whose progeny may be retained or sacrificed for slaughter, and such owner is further required to furnish authorities the names of all persons who have acquired sheep from him. While it is realized that a commercial producer will suffer only negligibly in such a program, the purebred producer will suffer considerable losses. Under this same modified program the station at Mission, Tex. was established, but under existing conditions where movements as well as bloodlines are only as accurate as the producer sees fit or is able to furnish the scientific evaluations can likewise not be expected to be accurate.

Although in certain instances there may have been a failure of USDA to comply with certain requirements in the law contained, that is, notification of State authorities where enforcement of Federal scrapies program was being neglected prior to entrance of Federal authorities, it must be presumed if such were the case that such omission was due to either carelessness or out of contempt for the law.

By way of summation, I would like to say that several of the propositions I have mentioned, that is, exercise of police powers, edibility of slaughtered animals, evaluation of nature of disease, justification of expenditures, modified slaughter program, establishment of Mission, Tex. station and failure to comply with statutory requirements may not directly concern this honorable body, yet their consideration is almost a necessity to reach a sensible conclusion on the action to be taken on H.R. 10241; and, finally, if for no other reason, a favorable consideration of this bill would place back on a plaintiff the burden of proving his case by a preponderance of the evidence, a principal long accepted as basic.

If there are any questions, gentlemen, I will attempt to answer them if I can.

Mr. PURCELL. Thank you, Judge Whiteman.

Are there any questions of this witness?

Mr. BRASCO?

Mr. BRASCO. I am sorry that I was not here from the beginning of your statement, but I would like to ask several questions for my own edification—not coming from what is called a farm area in New York.

Judge WHITEMAN. I can appreciate that.

Mr. BRASCO. If I understand it correctly, from what I have heard up to this point, scrapie is a disease which paralyzes the sheep, is that it?

Judge WHITEMAN. Yes.

Mr. BRASCO. What does it affect, their nervous systems?

Judge WHITEMAN. I do not think that is accurately determined, but I believe that is generally an accepted description—that is, at least, a clinical diagnosis of it.

Mr. BRASCO. Apparently under existing law, you say that if one in a flock turns out to have a disease of scrapie, the rest of the flock is destroyed. I assume that the sheep with the disease are discarded and the rest of the flock is used for human consumption?

Judge WHITEMAN. That is my understanding, that it is correct.

Mr. BRASCO. The purpose of this particular law that we are considering here is to do away with the slaughtering of the sheep that do not have the disease at the time so that they can be further used for breeding purposes rather than being slaughtered for human consumption: is that it?

Judge WHITEMAN. That is correct—that is my understanding.

Mr. BRASCO. On the basis of your argument and that of the sheep people there does not seem to be any way that we can decide whether or not this disease is or is not infectious. Is that it?

Judge WHITEMAN. It is—that is correct.

Mr. BRASCO. Do you not think it is kind of a dangerous thing to slaughter these animals where some in a flock are infected with a certain kind of a disease, for human consumption?

Judge WHITEMAN. You may be entirely right. I am not able to say.

Mr. BRASCO. In view of that fact, and the fact that there is no evidence to the effect that this disease is not infectious, we may be acting in a reckless manner, and at the possible expense of using Americans as guinea pigs to see what happens after the meat is eaten. There are a number of diseases today, you know, of which the origin cannot be traced. I do not know, but maybe some of them come from this kind of attitude that we have, where we have some animals that have scrapie, and we slaughter the rest of them for human consumption. It seems to me to be a kind of dangerous thing.

Mr. PRICE. Will you yield?

Mr. BRASCO. I will yield.

Mr. PRICE. There were 236 animals in the 17 years that they found that they knew had the disease, and they paid out some \$5 million to people for those. These sheep that were detected were slaughtered and were consumed.

Mr. BRASCO. It might be producing something else. No one seems to have any knowledge of the disease.

Mr. PRICE. I think that this—

Mr. BRASCO. That is an argument. You said that there were 236?

Mr. PRICE. Knowing animals as I do, I know that there are thousands of diseases perhaps present in every animal, in chickens, in sheep, hogs, cattle.

Mr. BRASCO. Knowing people as I do, you are not going to sell me on that proposition.

Mr. PRICE. I think there is a misunderstanding of the problem.

Mr. BRASCO. I thought I understood. At least, the gentleman said—I understood the basis of it. It is a very simple kind of thing. There is no evidence on either side. Obviously, when the sheep are slaughtered the growers are paid, and they say they would make more money if they were used for breeding purposes. It seems to me that we have a question of a few more dollars against the interest of the American people where they may get some kind of diseased meat. We do not know. I think that a responsible attitude would be that we have to protect the public. I cannot seem to equate breeding sheep with the possibility that we are going to have hundreds of thousands of Americans sick. They could be getting sick from this kind of thing for all I know. No one has proven the opposite.

Mr. PRICE. Will you yield further?

Mr. BRASCO. Yes.

Mr. PRICE. As an example, take a man raising a purebred herd of sheep, the veterinarian comes in and says, "We suspect you have it in your herd. We do not know that you have it." This could be true of any animal.

Mr. BRASCO. We are talking about two different things. If you take a suspected animal that has a disease, that is one thing, but if there is definitely a diseased animal in the flock, and you cannot prove one way or the other medically whether or not this thing is infectious—the other half of the flock may be in various stages of getting it. I think we are, therefore, taking a dangerous chance even to slaughter them to sell them to the public.

Mr. PRICE. They do not know whether it may be in the genes. They say it is not transmittible from one animal to the other. It may be in the genes as the animal is bred.

Mr. BRASCO. Nobody seems to know what the trouble is, and because we do not seem to know, I do not think that we should allow the public to be exposed to that kind of a situation. It may not be dangerous, but we do not know. Later on we may find we may be reproducing these diseased animals. I do not know.

Mr. PRICE. Until they got into the program, when we did not have it, we ate a lot of the meat.

Mr. BRASCO. One of the failings we have today—and I am sure that you are aware of it—is that there are a number of diseases that humans contact and we do not know where they are coming from. There are a lot of different theories. Some say from cigarettes; some say from fertilizers, pesticides, and what have you, which are being used; and some say other things. But it seems to me that we are getting into a very dangerous area where we are talking about a disease that paralyzes an animal, and then you say we do not want to exterminate the rest of the flock associated with that disease, where we cannot say medically one way or the other anything about the infectious nature of the disease.

Mr. KLEPPE. Would you yield?

Mr. BRASCO. I yield.

Mr. KLEPPE. You mentioned cigarettes. If the Government suspects—

Mr. BRASCO. Would you say that this was associated with—

Mr. KLEPPE. You yielded. You mentioned cigarettes.

If the Government suspects that cigarettes cause cancer, and there is a great deal of evidence to show that they do, then the Government should destroy all of the cigarettes, you say?

Now, if the Government decides there is a possibility, not knowing that scrapie is the chief problem, then what you are saying is, that all of those animals should be destroyed where there is no proof that it is infectious or contagious.

As I look at this particular bill we have, we are only trying to eliminate a questionable area that is not questionable insofar as the Government's authority to quarantine or to destroy the animals that are known to have scrapie. They can still do that under the present authority. All we are saying here is that the Government should not have the authority to come and mass slaughter all of the progeny of any animal that once has been discovered to have scrapie. The cigarette thing is a very, very good example. It pertains to a thing instead of an animal, but there is a lot of proof that it does cause cancer.

Mr. BRASCO. But the important thing, you are taking an attitude here with cigarettes and tobaccos, putting a warning on the package.

Mr. KLEPPE. There is a warning with scrapie, too.

Mr. BRASCO. Would you go along with the kind of label that if it goes into human consumption that it would be so labeled that it was a relative of lamb that was in the flock that had scrapie, that had a paralytic disease?

Mr. KLEPPE. If there is any evidence, any proof of the fact, that it would follow the progeny.

Mr. BRASCO. You do not have any evidence that it will not.

Mr. KLEPPE. Neither do you have any evidence that it does. You just do not have any evidence that it does.

Mr. BRASCO. If I hear more of this, I will become a vegetarian.

Mr. KLEPPE. That is your prerogative. [Laughter.]

Mr. PURCELL. Will you please answer that question? [Laughter.]

Judge WHITEMAN. I will try to give a further explanation for the enlightenment of the committee.

I believe, whether or not this amendment is accepted or rejected, the slaughtering of the sheep for human consumption, the question of that will not be changed, because they are already being slaughtered for human consumption under the present law. That may be a question. I am not in a position to answer that, because I do not know if there is any evidence one way or the other, as to whether this meat is good for human consumption or whether it is not.

Your point may be well taken.

Mr. BRASCO. You understand my question, Mr. Whiteman?

Not coming from a farm area, obviously, I do not have the specific knowledge. I was dwelling on the point that we were not trying to hurt anyone. This would follow out, in my mind, what appears to be a sensible kind of thing. No matter how I look at the question, your arithmetic does not make sense. It seems to me that it bad enough to have this food—or should I say these sheep slaughtered for human consumption, and it is like putting a little bit of salt onto a wound, to say, you know, that they should not be slaughtered for food but let us keep on doing it and maybe we can produce a race of sheep or a breed of sheep that has inherent in it this kind of disease. I do not know. It seems to me that there is no evidence one way or the other. This is what I was saying.

Mr. Kleppe seems to think, because there is no evidence one way or the other, that maybe we could use the public as a guinea pig until we find out.

Mr. KLEPPE. I did not say that.

Mr. BRASCO. That is it, basically. We do not have any evidence one way or the other, because there is no evidence one way or the other—let us use the sheep for breeding. That is your position. My position is, because we do not have any evidence one way or the other, we should not do this. Maybe we are doing a damaging thing to our constituents and to the Americans at large if we are slaughtering these animals and are allowing them to be sold for human consumption. Maybe the bill we have before us should be amended to prevent any of this meat being sold for human consumption.

Mr. KLEPPE. Will you yield?

Mr. BRASCO. Again, I will.

Mr. KLEPPE. I want to clarify this. When you used my name, that is not exactly what I said, to use the public as a guinea pig. I did not say that at all. I said that under the present law, if we adopt this bill and eliminated the word "scrapie," that the Department of Agriculture still has the authority to quarantine and to destroy the animals. The difference is that they do not go all the way back and try to trace the progeny and to destroy all of them. It was admitted in the examples cited by an earlier witness that they cannot trace all of the progeny anyway. These animals are being slaughtered and used in human consumption. That part is not before us. I am not talking about using the public as a guinea pig at all.

Mr. BRASCO. It seems to me that all of the legislation we pass here has been that they are not going to do this. Now, you say let us take scrapie out. That is like six of one and a half a dozen of another. The basic thing is that we do not know anything about the disease, and we shouldn't act until we do.

Mr. KLEPPE. We, obviously, are in disagreement, but I appreciate your views nevertheless.

Mr. BRASCO. No further questions, Mr. Chairman.

Mr. PURCELL. Thank you very much.

Mr. Mayne?

Mr. MAYNE. Judge Whiteman, I have run across the figure of \$5 million plus. What was that based on?

Judge WHITEMAN. Possibly, members from the Department can answer your question much better than I can.

The last figure I had was 4 million something at the time of the scrapie seminar in 1964. Assuming that a similar expenditure has taken place since that date, the figure of \$5 million would be an educated guess.

Mr. MAYNE. That is, the entire expenditure of the Department for the scrapie program?

Judge WHITEMAN. I believe that is the payment that has been made for the animals that have been taken. That is not all made by the Department. I do not believe that I would want to go on record as saying that is all by the Department. That is by the Department in conjunction with those States that have cooperated in the payments for the losses by reason of the slaughter. There are some States that have cooperated to a degree. There are some States that have not seen fit to cooperate at all.

As I understand it, there are some States that have cooperated to the extent of 100 percent.

Mr. MAYNE. You did not mean to give the impression—or your predecessor on the stand—that the Federal Government has paid out \$5 million for this purpose?

Judge WHITEMAN. No; I think that is in error, if I am not mistaken. That has been the total cost, I believe, for the program for slaughtering the animals, or in that neighborhood.

Mr. MAYNE. You state that in this period of 17 years, from 1947 to 1964, the Department has reported—in other words, they have discovered a total of 236 cases of scrapie infected sheep. According to my arithmetic, that is about 14 a year that were scrapie infected that have been discovered.

What is the approximate sheep population of the United States?

Judge WHITEMAN. I believe it is estimated to be in the neighborhood of 20 to 25 million.

Mr. MAYNE. Thank you.

That is all, Mr. Chairman.

Mr. PURCELL. Are there any other questions?

Mr. Zwach?

Mr. ZWACH. One question, Mr. Chairman.

Judge Whiteman, you are speaking as a representative of the National Suffolk Sheep Association?

Judge WHITEMAN. That is correct.

Mr. ZWACH. In this entire area, is your association trying to do research with regard to your obtaining more knowledge on this disease?

Judge WHITEMAN. Well, I cannot give you the exact amount. I do know from attendance at the annual meetings that sums were provided for research.

Mr. ZWACH. By your association?

Judge WHITEMAN. By the association, that is correct, sir.

Mr. ZWACH. I would like to know what research is going on in this area at the State level and at the national level and at private levels in trying to get at the real crux of this question. We have some unanswered things here that, as a committee member, I would like to know about and have answered.

Judge WHITEMAN. I am not an expert on that subject, but I can mention several of them for you, if that would help.

Mr. ZWACH. Yes, it would.

Judge WHITEMAN. I would be glad to do so.

While there is some experimentation taking place at some of the State universities, it may very well be that some experimentation which I cannot answer for, sponsored by the U.S. Department of Agriculture for instance, is taking place, such as the confinement of scrapie animals in Mission, Tex., at the station there. I am not in position to answer that portion of it. There may be some diagnostic work being done either here in Maryland or at Kings, Ill.

Mr. ZWACH. But your association does favor the resolution of this gray area?

Judge WHITEMAN. Yes; yes, sir.

Mr. ZWACH. To obtain knowledge?

Judge WHITEMAN. Yes, sir. As far as finding out what the disease and the method of treatment, and so on, I think everyone desires that.

Mr. ZWACH. That is all, Mr. Chairman.

Mr. PURCELL. Just one question.

How much money is your association appropriating each year for this research work?

Judge WHITEMAN. Well, I am a little fuzzy on that. I cannot tell you. I have seen the financial reports at the annual meetings, but I cannot answer it now. I know that there was money spent for Dr. Parry, and there was also furnished either by the association or members of the association to bring Dr. Parry over to the United States for the seminar which was held here in 1964. How much additional sums have been provided, I cannot tell you.

Mr. PURCELL. Would you furnish that for the record?

Judge WHITEMAN. I will try to do that.

(Judge Whiteman later submitted the following information:)

1. \$300 to \$500 scholarship to Nuffield Institute of Medical Research (about 1958-1959)—Oxford University, England.

2. \$1,500 to \$2,000, plus approximately \$500 incidental expense, in a joint project with the National Foundation for Neuromuscular Diseases, New York City, about 1963. Cheviot Association contributed \$500 of this. Two week Seminar in Eastern United States by Dr. H. B. Perry.

3. About \$750 expenses incurred Scrapie Seminar recording, etc. in 1964 assistance to Dr. H. B. Perry and Mr. Draper.

We are not a rich organization—This is, therefore, a sizeable expenditure comparatively speaking.

Mr. PURCELL. Thank you very much.

That is all, I think.

The next witness will be Mr. Stan Gates, secretary-treasurer, American Cheviot Sheep Society, Inc., Lafayette Hill, Pa.

We will be glad to hear from you now.

STATEMENT OF STAN GATES, SECRETARY-TREASURER, AMERICAN CHEVIOT SHEEP SOCIETY, INC., LAFAYETTE HILL, PA.

Mr. GATES. Mr. Chairman and members of the subcommittee, I would like to digress for a moment from my statement to say that I am also involved in raising sheep as well as being the secretary of the society. I am personally involved with the sheep industry; I am also associated with the Pennsylvania Sheep & Woolgrowers Association.

There are two things I would like to add to the prepared statement I have.

In answer to a question by the gentleman here on the left, you asked for the relationship of scrapie animals in relation to the population—at that time, under 10 years of operation, it would take 3,047 years and 10 months for scrapie to destroy as many animals as the eradication program had destroyed up to that time. It gives you a little idea of the proportion.

I am a little confused in hearings of this sort as to the purpose of this bill. My interpretation of the purpose of this bill is defined in Judge Whiteman's statement on the last page where he states:

A favorable consideration of this bill would place back on the plaintiff the burden of proving his case by a preponderance of the evidence, a principal long accepted as basic.

This is the assumption in which I appear here today, and it is my understanding of the real effect of this bill, that we place the burden on the plaintiff where we think it deservedly belongs.

My name is Stan Gates, and I am the secretary-treasurer of the American Cheviot Sheep Society, Inc., Lafayette Hill, Pa. I am here representing the society for the purpose of making a brief statement in behalf of H.R. 10241. We thank your committee for this opportunity to call this serious situation to your attention.

The present law relating to the eradication of scrapie is based on the assumption that scrapie is a communicable disease.

Gordon, Stamp, & Associates—and for the benefit of those who may not know, this is in Great Britain—working under a Public Law 480 grant from USDA, have held tenaciously until recently to a nebulous hypothesis that it is a communicable disease, yet when queried at the 1964 scrapie seminar on the subject, stated that they had no evidence from any controlled experiment to show that scrapie had ever been transmitted from one sheep to another under field conditions. How-

ever, it should be said that there seems to be some change in the British position recently.

Dr. Parry's work at Oxford (England) University, on the other hand—this was a separate and somewhat independent effort—leads rather directly toward a conclusion that scrapie is a defect which is passed from parent to offspring by inheritance.

Scrapie has not been shown to be communicable, but the "eradication" program slaughters all sheep which have had contact with a scrapied sheep. It also slaughters all parents and offspring of the affected sheep wherever they may be located. And I would like to emphasize "wherever they may be located."

A parallel would be a program to eradicate blue eyes by denying parenthood to all people with blue eyes, and to all people who had ever associated with blue-eyed people.

We are plagued by a law without a basis. It must be taken out of political arena and given to the scientists for fact finding. This is long overdue. This is especially urgent in view of recent developments regarding the possible relation between scrapie and multiple sclerosis in humans. This matter has already been delayed too long. It is time to heed the grave implications of a recent report appearing in the February 1968 *Veterinary Medicine/Small Animal Clinician* regarding developments in the scrapie-multiple sclerosis area as reported in the September 8, 1967, *Medical World News*. (See p. 12.)

The following steps should be taken:

1. Let all available information on scrapie be studied and evaluated by an independent group of scientific experts.

We suggest the National Research Council to arrive at the following:

(a) Is scrapie a communicable disease?

(b) Is scrapie a hereditary defect?

(c) What, then, would be the effective method for limiting its spread?

2. Until these things are completed, let the "eradication" program be suspended. The "eradication" program is killing tens of thousands of sheep hundreds of times faster than the disease is killing them.

Mr. PURCELL. Are there any questions of this witness?

If not, thank you very much, Mr. Gates.

The next witness is Dr. Francis J. Mulhern, Deputy Administrator, Regulatory and Control Programs, Agricultural Research Service, U.S. Department of Agriculture.

We will be glad to hear from you now.

STATEMENT OF DR. FRANCIS J. MULHERN, DEPUTY ADMINISTRATOR, REGULATORY AND CONTROL PROGRAMS, AGRICULTURAL RESEARCH SERVICE; ACCOMPANIED BY DR. JAMES L. HOURRIGAN, SENIOR STAFF VETERINARIAN, ANIMAL HEALTH DIVISION, AND DR. PAUL D. DELAY, DIRECTOR, ANIMAL DISEASE AND PARASITE RESEARCH DIVISION, AGRICULTURAL RESEARCH SERVICE, U.S. DEPARTMENT OF AGRICULTURE

Dr. MULHERN. Mr. Chairman and members of the committee.

I am Dr. Francis J. Mulhern, Deputy Administrator, Regulatory and Control Programs, Agricultural Research Service, and on my

left is Dr. James L. Hourrigan, the Senior Staff Officer for Sheep Diseases in the Animal Health Division, and on my right is Dr. Paul D. Delay, Director of the Animal Disease and Parasite Research Division.

I appreciate the opportunity to appear before you to express the views of the Department on H.R. 10241.

The purpose of the bill is to eliminate the cooperative State-Federal scrapie eradication program.

The Department of Agriculture does not recommend enactment of H.R. 10241.

The objectives of the State-Federal eradication program are to locate scrapie outbreaks and eradicate foci of infection, to prevent the widespread dissemination of the disease within the four affected breeds of sheep to prevent its spread to the 17 breeds not known to be affected in this country, and to cooperate with research scientists in determining the pathogenesis of scrapie and the development of a practical diagnostic tool in the living animal.

Failure to continue the eradication efforts in the United States would result in continued spread and buildup of the disease in the sheep population of this country with losses equaling those in countries in which eradication efforts are not carried out. One such country without an eradication program is Great Britain, where the disease has been reported in 26 breeds and crossbreeds with an estimated 10,000 to 20,000 cases occurring each year in 23 million sheep. As a result of the scrapie eradication program in this country, it has been possible to restrict the disease to four breeds where it has appeared.

Australia, Canada, New Zealand, and the Republic of South Africa have instituted active scrapie eradication programs, similar to the one followed in the United States. Of these, Australia, New Zealand, and the Republic of South Africa believe they have been successful in eradicating the disease.

The first reported outbreak of scrapie in the United States occurred in Michigan in 1947. Scrapie was not again reported until in California in 1952, an extensive outbreak involving two flocks. Shortly thereafter, the California Department of Agriculture, the California Wool Growers Association, the National Wool Growers Association, and the U.S. Livestock Sanitary Association urged the Department to take immediate action to eradicate scrapie. In October 1952, the Secretary of Agriculture declared an emergency and the scrapie eradication program was begun.

The disease has an unusually long incubation period ranging up to 42 months or more. The early symptoms are not readily recognized, which has been one of the biggest problems with which to contend during the eradication program.

The consensus of most research workers of today—and I would like to repeat: The consensus of most research workers of today is that scrapie is caused by a transmissible agent, that it is a communicable and infectious disease, and that its spread from affected to healthy animals is controlled by the genetically inherited resistance or susceptibility of the individual animal exposed to the causative agent. The transmissible agent of scrapie can readily be transmitted to sheep, goats, mice, rats, and hamsters from nearly any tissue of the affected animal by many routes of inoculation.

The early eradication program provided for slaughter of the entire infected and source flocks, all sales or movements from these flocks, and their immediate progeny. As more information became available from research and epidemiological studies of outbreaks, the program was later modified to include slaughter of those bloodline animals most susceptible to scrapie and permit surveillance inspections of exposed nonbloodline animals sold from these flocks without undue hazard to the industry. This has reduced the number of flocks annually under surveillance from a peak of a few years ago or a high of 2,035 to the present level of 283.

The modified program followed a comprehensive review and evaluation of the disease during a scrapie seminar held in January 1964, at which the latest technical knowledge of the disease was presented and reviewed. The seminar was attended by representatives of the sheep and goat industries, scientists, regulatory officials, and other interested persons. World authorities on scrapie from Canada, England, Scotland, and the United States participated in the seminar. They presented research findings concerning the causative agent, transmission, animal susceptibility of resistance, and the economic importance of the disease. The present approach was an outcome of that meeting. We feel that this approach is providing the best we can do to control the disease with a minimum interference of the marketing practices of the industry involved.

Mr. Chairman, I will be happy to respond to any questions you or the members of the committee may have.

Mr. PURCELL. Are there any questions?

Mr. PRICE?

Mr. PRICE. One short question. I think we are all interested in the health of people, and I want to commend the Department and the veterinarians for a fine job and the interest they have had in the past in this program. I do think it is very important, but I think that we want also to consider the condition of this man who is involved in trying to make a livable business in what he is trying to do. You know, yourself, if you were a businessman and had these sheep and they were quarantined for 2 years, it would cause a tremendous finance strain on you, and you would say that is tough. You can either slaughter them or sell them or get out of business. I think in some areas such as that we should try to work something out whereby this man continues in a profitable business.

Would you have any suggestions that we might offer in this area that would help and give relief to these people?

Do you have any suggestions there?

Dr. MULHERN. Mr. Price, we recognize the hardships that the producers who have affected sheep are bearing. But we must evaluate the problem as to what the total effect may be on the entire industry. This is an insidious disease, and it is necessary to change the thinking and attitudes about scrapie. We cannot expect rapid and extensive outbreaks to appear in our country overnight as in the case of diseases such as foot-and-mouth. Although we have seen relatively few affected animals appearing annually, this disease, if left alone, could be infiltrating or undermining within the different breeds involved. If left alone it will continue to undermine and spread throughout the whole industry. If that happens, the annual losses from scrapie will be far more of an operational expense than at the present time.

There have been suggestions that the program has not taken into consideration the economic effects on the people in the industry. I do not think this is really valid. Just a few years ago, in 1964, prior to the seminar and prior to the change in the program, a total of 15,292 animals were slaughtered. In other words, we took the affected flock, the source flock and their progeny from which it may have come and any movements from that flock. After the seminar in 1964 the total program was evaluated and modified. We are now dealing with fewer animals. Animals, that previously would have been destroyed are being held under supervision to see if they will develop the disease.

There have been statements made that the exposed animals are not going to come down with scrapie. We have taken animals from affected flocks, for field trial investigations at Mission, Tex., and have held them to see if they would come down. In some cases, 20 percent have come down. It is not only the affected animal that ever gets sick and dies. Since we have held flocks, rather than dispose of them promptly others have come down. We have had some breaks in those animals that were not of the immediate bloodline, who have come down with the disease.

Mr. PRICE. What you are saying is that there is a possibility that it is transmittable to other sheep?

Dr. MULHERN. Yes, and outside of the bloodline—

Mr. PRICE. Outside of the bloodline; is that correct?

Dr. MULHERN. You can see that there are conflicting views between us and members of the industry. We say that it is infectious. Most of the research workers who are working on this particular disease, in 10 different locations throughout the world, are agreed that it is infectious. There is an agent that can be put into an animal which will produce disease. There has been no trouble taking the transmissible agent, putting it into an animal and producing the disease.

Mr. PRICE. Wait a minute. Let us follow that just a minute. Transmissible, what are we talking about? Putting it into this animal?

Dr. MULHERN. We can take material from the affected animal, practically any of his tissues, grind it up, put it into a solution, inject it into an animal and produce the disease.

Now, when you come—

Mr. PRICE. Let me say this: You are injecting this, experiments, into their tissues?

I am talking about an animal, through his droppings, or through his feed, where some might drop out of his mouth into the box so that the other animals could pick it up. Is this possible?

Dr. MULHERN. We will be the first to admit that there is a lot about this disease that is not known. For example, how it goes from one animal to another, by what means. The research work published in January 1968, by Dr. Stamp and others, which I would like to offer for the record, states, and I will just read here a summary of it:

In two contact experiments where 17 goats were kept for long periods in the same pen as sheep affected with natural scrapies ten cases of scrapie occurred in the goats. Contact infection did not occur within the same time limit when the sheep with experimental scrapie were used as the source of infection. Goats from the same population maintained out of contact also remained normal.

Dr. Stamp said that infection did not occur within the same time limit when the sheep were artificially inoculated. For some reason, to date, it has not spread to them.

So, there is evidence developing now that confirms previous findings that the disease is capable of spreading by contact and not only by laboratory means.

Mr. PRICE. Thank you very much.

That is all, Mr. Chairman.

Mr. PURCELL. Are there any questions?

Mr. KLEPPE. Yes, Mr. Chairman, I have some questions.

Since this bill was introduced back in 1963, on this scrapie slaughter program, this bill was not passed; what authority is presently being used in connection with the slaughter program for the eradication program that is in use today—under what authority?

Dr. MULHERN. The program is carried on under the basic authority for the Department to cooperate with the States, which includes cooperative sharing for payments of indemnity.

Mr. KLEPPE. Where is the legislative authority, insofar as the Secretary of Agriculture is concerned, for this?

Dr. MULHERN. Under the 1884 act, as amended—21 U.S.C. 114(a).

Mr. KLEPPE. In the 1884 act?

Dr. MULHERN. Yes, sir.

Mr. KLEPPE. There is one point I would just like to bring out in connection with a statement you made about the test in England where they had an animal in a pen over an extended period of time with other animals, and still it showed that those that were inoculated did not contact it. That then becomes somewhat significant, so far as the health and the strength of each individual animal is concerned, irrespective of his background or his progeny; am I right?

Dr. MULHERN. I would like to correct that, if I gave that impression. The animals that were inoculated came down with the disease.

Mr. KLEPPE. Yes, sir. Those that were inoculated did not spread it to others?

Dr. MULHERN. That is right.

Mr. KLEPPE. So is there not some indication here that the individual health and strength of the animal, regardless of his sire or his dam or his background, have something to do with the fact that he was going to contact the disease?

Dr. MULHERN. The susceptibility and resistance, are two factors in individual sheep, that play a part in whether they come down with the disease or not.

Mr. KLEPPE. I bring this point up, because of the massive eradication program of anything that comes out of the infected flock, because there is a difference within the individual sheep within those flocks, whether their breeding originated with a scrapie infected animal or not.

Dr. MULHERN. Mr. Kleppe, let me say as to massive eradication; we have modified the program to where we are taking the affected animal, his sire, and his dam, and the progeny from the affected animal, but the remainder of the flock of sheep are held under surveillance to see whether they come down.

Mr. KLEPPE. I understand that, but even in that gradation of eradication, you still would have some of the animals that would never contract scrapie, based on the tests that have been run and from what we know about the disease itself?

Dr. MULHERN. Yes, sir; I think that is correct. There are areas under study, for example, in sheep that we have taken to Mission, Tex. These

are animals from infected and noninfected flocks and, as I said, in one flock, 20 percent of them have come down. The average is about 12 percent of them that have come down annually. There is some question in those that have not come down: Do we have carriers among them, that they are not coming down but they are also capable of spreading the disease, or are there some just naturally resistant? This area needs to be investigated.

Mr. KLEPPE. There is no evidence here to justify one position or the other?

Dr. MULHERN. That is correct.

Mr. KLEPPE. Thank you.

That is all, Mr. Chairman.

Mr. PURCELL. Mr. Zwach?

Mr. ZWACH. Do many sheep countries have a program similar to this, or variations of it?

Dr. MULHERN. As I mentioned, Australia, New Zealand, and South Africa do have, but countries in Europe and Great Britain do not.

Mr. ZWACH. There are none in Europe?

Dr. MULHERN. That is correct.

Mr. ZWACH. Comparing it with the countries that do not have it, does it seem to follow that there are more sheep that contract this disease in a country like that, than in a country like Australia or the United States?

Dr. MULHERN. Well, when we try to trace back where we got the infection, we believe it came from sheep that originated in Great Britain.

Mr. ZWACH. You think that is where it came from?

Dr. MULHERN. Yes, sir.

Mr. ZWACH. How fast are you finding out new things about this? How soon will you have some of the answers that this committee does not have today?

Dr. MULHERN. I wish I could say next week. We can't say.

Mr. ZWACH. What research is going on throughout the United States and the world?

Dr. MULHERN. Because of the long incubation period, and the need to develop lines of sheep that have been exposed, we have taken advantage of the research work that has already been done in other countries. We have cooperated with them to further their research in order to get some of the answers to problems that you are talking about. In this work they have had evidence of scrapie being spread by contact. In the area mentioned earlier by Mr. Gates of people with sclerosis, they have taken brain tissue and have inoculated it into sheep and have produced a disease that was indistinguishable from scrapie. We do not know whether or not man is playing a part in the introduction of this disease. There is no work in this particular area.

Mr. ZWACH. Is there research with regard to multiple sclerosis and its relationship to scrapie at the present time? Is there any?

Dr. MULHERN. There is more work being done in this particular area because of the close relationship of these two diseases. The work is being done in three different countries where they have taken material from humans with sclerosis and have inoculated it into the animals.

Mr. ZWACH. You have a strong feeling that this bill should not be passed?

Dr. MULHERN. Absolutely. We think that this bill would eliminate the State-Federal cooperative scrapie program. If this bill passes, it is our interpretation that we would be out of the scrapie program.

Mr. ZWACH. You think this would be a detriment to our country?

Dr. MULHERN. I think it would be a serious mistake to the total sheep industry of this country.

Mr. ZWACH. What about the general public?

Dr. MULHERN. That remains to be seen, from whatever we are able to find out from research.

Mr. ZWACH. That is all, Mr. Chairman.

Thank you.

Mr. PURCELL. Mr. Price?

Mr. PRICE. I do not see how in the world you can ever keep track of where the sheep go, or where someone buys them and sells them, and then they go to another place. It is hard to tell what we are talking about there. Would not there be some way in this 2-year quarantine where they would be under inspection and under your jurisdiction, that they could slaughter these sheep?

Dr. MULHERN. They are permitted to go to slaughter. They cannot be sold for breeding purposes. As I say, it is unfortunate that the members of the industry are accepting or have to accept this heavy burden. We wish we had something else to offer. The program has been modified in response to their past demands and our program experience. We are concerned about the animals that we have held under quarantine, which were not slaughtered until they came down with the disease. Whether this is a mistake, we do not know at this time. But, we feel that the entire industry is holding us responsible, and we are trying to keep this disease under control until we find some better way out of the problem.

Mr. PRICE. You do not feel that if we eliminated this in all bloodlines that it would not particularly stop this disease; you are not saying that?

Dr. MULHERN. I would hate to take that approach to it.

Mr. PRICE. I would, too. When you get right down to it that is what we are talking about.

Dr. MULHERN. One of the problems we have in finding the disease is getting it reported—in finding all of the infected animals. If we could find some way to do this, the end may be in sight. In the absence of this and not knowing whether we are going to get 100 percent cooperation in this area, the disease could be in a flock or a bloodline for years before we became aware of it. We assume this is happening in some cases. We are not making any headway there. We are dissatisfied with that record, but at the same time the disease is not getting away from us. This attitude by some places the entire industry in jeopardy.

Mr. PRICE. Thank you. That is all, Mr. Chairman.

Mr. PURCELL. What would you suggest for us to do?

Someone asked awhile ago about the number of proven cases in numbers of individual animals per year. Would you get that information for us? And the Federal expenditure for participation—not the administration end of it, but paying for the animals that were forced to be slaughtered.

Dr. MULHERN. Yes; we can do that.

Mr. PURCELL. I do not know whether you have been asked as to the State expenses, those that have cooperated in this program. Do you have that information in your Department?

Dr. MULHERN. Yes, sir, we will provide it for the record.

If you are interested in approximate figures, the Federal indemnity paid to date is about \$2.4 million and the State payments matching the Federal, or at least their participation in the total of the indemnity, is about \$1.2 million. Roughly, that is a total indemnity of State and Federal of \$3.7 million. Other expenses of surveillance and our mission studies that have been going on since the beginning of the program run around \$900,000. So, totally, in rounded figures we have spent since 1953, \$4,700,000 on this program. We will supply the exact figures.

(The information follows:)

SCRAPIE ERADICATION

Fiscal year	Number of infected flocks	Number of sheep affected on farms	Indemnity		
			Federal	State	Total
1953.....	10	45	\$15,669	\$73,555	\$89,224
1954.....	3	6	3,943	0	3,943
1955.....	11	14	52,481	19,563	72,044
1956.....	22	36	59,956	43,673	103,629
1957.....	13	15	331,135	276,600	607,735
1958.....	7	10	109,525	99,572	209,097
1959.....	11	12	293,039	216,271	509,310
1960.....	11	12	238,622	109,381	348,003
1961.....	10	12	123,192	102,844	226,036
1962.....	14	28	426,806	88,164	514,970
1963.....	11	11	119,350	37,336	156,686
1964.....	14	17	413,327	150,668	563,995
1965.....	12	14	94,988	37,693	132,681
1966.....	9	11	106,183	4,096	110,279
1967.....	11	13	51,478	5,487	56,965
Total.....	169	256	2,439,694	1,264,903	3,704,597

Mr. PURCELL. Thank you.

Are there any other questions?

(The article entitled "Spread of Scrapie by Contact to Goats and Sheep," submitted by Dr. Mulhern, follows:)

[From J. Comp. Path. 1968]

SPREAD OF SCRAPIE BY CONTACT TO GOATS AND SHEEP¹

(By J. G. Brotherston, C. C. Renwick, J. T. Stamp, I. Zlotnik,² Moredun Research Institute, Gilmerton, Edinburgh, and I. H. Pattison, A. R. C. Institute for Research on Animal Disease, Compton, Berkshire)

INTRODUCTION

Chelle (1942) recorded a case of scrapie in a goat that had been in continuous contact since birth with scrapie-affected sheep. As the detection of natural scrapie is likely to be a rare event in goats (Mackay and Smith, 1961) it is of importance to the understanding of the pathogenicity and epidemiology of the scrapie syndrome to extend Chelle's observations. Experiments to investigate the possibility of contact infection from sheep with natural and experimental scrapie to young goats have been undertaken over the last 8 years.

One of the most difficult problems in assessing sheep-to-sheep contact transmission of scrapie is to establish that individual sheep designated "scrapie-free" are not incipient cases of the disease. In the sheep experiment to be described Scottish Blackface sheep were chosen because no case of natural scrapie in this breed has so far been recorded. The only cases known to have occurred on farms

¹ The sheep experiments were carried out by C. C. Renwick and I. Zlotnik.

² Present address: Microbiological Research Establishment, Porton, Salisbury, Wilts.

are accidental cases resulting from the inoculation of contaminated louping-ill vaccine (Gordon, 1946; Grieg, 1950).

MATERIALS AND METHODS

Goat experiment. For the purpose of the first experiment six kids under 7 days old were bought from a local source in Scotland known from previous experience to be free of natural scrapie. All were placed in a pen measuring eighteen feet by fifteen feet which was inside a covered animal house. A creep was constructed in this pen for the kids while they were very young. They were bottle-fed on cows' milk and given weaning nuts after the first week. After weaning at 3 months they were allowed hay and water ad lib. and a daily ration of concentrates. From the start a succession of natural scrapie-affected sheep of various breeds, the majority being Suffolks, were introduced to the pen. Further sheep, all of which had contracted scrapies naturally were subsequently introduced from time to time in order to replace those which became too ill to be allowed to remain. Thus for four years the goats were continuously in close contact with scrapie sheep (Stamp, 1962). The experiment began in March 1958 and was terminated in February 1962.

The second goat experiment began one year after the conclusion of the first, in February 1963. A different pen in the same building was used for this experiment. Twelve pregnant goats from the breeding herd of the A.R.C. Institute for Research on Animal Diseases, Compton, were divided into three groups of four. Group one was transferred to Moredun where they were placed in the pen described. Goat 5B29 produced a single kid, SB72, on the 30th March, 1963. At this time a succession of clinical cases of natural scrapie were put in beside the goats. There was some doubt that if the three remaining pregnant goats did not produce a high proportion of twins the numbers would be insufficient for a long-term experiment. Two more pregnant goats from the Compton herd were therefore added to the pen on the 30th April, 1963. The first kid to be born, SB72, therefore made first contact with scrapie after birth. Subsequently, however, the dams of the other kids were in contact with scrapie for varying periods before the birth of the kids (see Table 2).

The kids from goats of group 2 were put in contact at Compton with a succession of cases of experimental scrapie induced by the inoculation of Hardwick sheep with scrapie sheep brain pool No. 1/23/24. The kids from goats of group 3 served as controls and were kept at Compton out of contact with sheep altogether.

All the dams in all three groups were removed from the pens when their kids were weaned at about three months and took no further part in the experiments. The male kids were castrated by the rubber ring method within the first week of life. All groups were kept under close observation and it was planned that the experiment should continue for four years, if necessary.

Sheep experiment. The animals placed in contact with scrapie-affected sheep were eleven pure-bred Blackface lambs born in the spring of 1962 to seven ewes which were mated to a ram from a recorded flock. The ewes were bought in 1958, when six months old, and from the age of 18 months onwards were run with a scrapie-affected flock of Suffolk sheep. Five of the ewes died at various ages after this experiment began and proved to be free of any lesions of scrapie by histopathological examination, two are still alive.

The lambs at the age of 1 to 3 days, together with their dams, were put into a pen measuring 15 ft. by 18 ft. in a covered sheep house. A succession of naturally-affected scrapie sheep of the following breeds were introduced into the same pen: Suffolks, Swaledales and Cheviot x Border Leicester half-bred animals. For the first three weeks the dams were separated from the scrapie sheep by a gate, but the lambs could run back and forwards freely: the dams were removed from the pen after 2 to 3 months. The dam of twin lambs, both of which subsequently developed scrapie, died as a result of gangrenous mastitis when the lambs were 45 days old. Sheep affected by natural scrapie at various stages of the disease were added to the pen to replace those which became too ill to remain, so that at no time during the experiment was the pen free from clinically affected sheep. The experiment was begun in March 1962 and still continues (February 1967).

Brains required for histopathological examination were removed as soon as possible after sacrifice, fixed in 10 per cent. formal saline for at least 14 days, post-fixed in corrosive sublimate for 2 days and finally dehydrated in graded alcohols and imbedded in paraffin wax. The cutting of serial sections and the staining techniques used were the same as described previously (Zlotnik, 1958, 1961).

RESULTS

Goat experiments

Contact 1958 to 1962 (Experiment 1)

After two years 8 months of contact, goat 4650 developed symptoms of urinary obstruction and was killed. Histological examination of the brain did not reveal lesions characteristic of scrapie. The remaining goats appeared normal in behaviour for a further seven months and then symptoms appeared in three of them, beginning with unthriftiness and localised pruritus resulting in leg biting and rubbing of the flanks and neck. These symptoms progressed rapidly, inco-ordination appeared and the animals were sacrificed for autopsy 3½ years after the commencement of the experiment. All three were diagnosed histopathologically as having lesions of scrapie in the brain. The fifth animal became obviously ill nearly 4 years after contact and the disease progressed in characteristic fashion until the animal was killed for examination. It was also positive for scrapie. The sixth animal remained in good health until it was killed on the 6th October, 1966, when the brain histopathology was negative for scrapie. The sequence of events is given in Table 1.

TABLE 1.—CONTACT SCRAPIE IN GOATS

Experiment 1

Goat number (sex)	Contact period	Pathology
4650 (M).....	2½ years.....	—ve
4645 (F).....	3½ years.....	+ve
4647 (M).....	3½ years.....	+ve
4649 (M).....	3½ years.....	+ve
4646 (M).....	3½ years.....	+ve
4648 (M) ¹	> 4 years.....	—ve

¹ Killed June 10, 1966—Pathology negative.

Contact 1963 to Date (Experiment 2)

Group 1. Eleven kids were born to the six pregnant goats brought from Compton. They remained normal until two years and four months after the beginning of the experiment, when 8B75 began to refuse food, lost weight and became unthrifty in appearance. An intermittent persistent cough occurred when it was standing with the head down and the back arched. On the assumption that it had developed pneumonia it was sacrificed for general examination and the brain was removed for neuropathological examination. Prolonged clinical examination or treatment of the animal had been considered inadvisable. The general comment about the post-mortem examination was that the lung lesions were very slight and certainly not sufficient to cause respiratory distress; the only other lesion of significance was splenitis. Histological examination of the brain, however, revealed lesions characteristic of scrapie.

Obvious symptoms of scrapie were not seen in three of the remaining goats until about two years and eight months after the experiment began. These progressed steadily and when the animals were examined on the 8th of February, 1966, about three years after contact was established, the following were the clinical appearances.

Goat 8B72. This animal showed a midline rubbed area denuded of hair but without scab formation about 1 inch wide and 12 inches long in the middle of the back. It showed marked dullness, the head drooping, the ears back and a fixed expression on its face. Occasionally there was grinding of the teeth. The hocks were bent and the animal was not inclined to move. There was an infrequent soft cough.

Goat 8B73. There was a scratched area without scab formation in the midline of the lumbar region. The animal showed hypersensitivity, with flicking of the tail and stamping of the hind feet. It was inclined to lie down for brief periods and the hocks were also bent.

Goat 8B74. There was a scratch mark without scab formation exposing the skin on the right side of the back and a small rubbed area on the right flank. There was evidence of hypersensitivity, uneasiness and flicking of the tail and stamping of the hind feet. The goat was inclined to lie down for brief periods and to nibble the inside of the hind legs.

Clinical symptoms. The clinical symptoms in all these animals were classified as the mixed type of scrapie, neither truly drowsy, in which scratching is absent, nor truly scratching, in which scratching is more or less continuous and causes scab formation on the skin. The mixed clinical syndrome occurs characteristically, although not exclusively, in the first passage of sheep to goats.

Although there were early signs in only some of the remaining 7 animals at this time, it was decided to sacrifice them for neurohistopathological examination between the 11th February and 18th May. The animals apparently most affected were killed first. The final evaluation on histological evidence was that six of the eleven animals were affected with scrapie. The sequence of events is shown in Table 2.

TABLE 2.—CONTACT SCRAPIE IN GOATS

Experiment 2

Dam. date brought to Moredun	Progeny	Date born	Contact ante-natal	Date killed	Contact post-natal	Pathology
5829						
Feb. 22, 1963	8B72(F)	*Mar. 30, 1965	Nil	Feb. 11, 1966	2 1/2 years	+
5B30	8B75(M)	Apr. 14, 1963	14 days	Aug. 30, 1965	2 1/2 years	+
Feb. 22, 1963	8B76(M)	Apr. 14, 1963	do	May 18, 1966	3 1/2 years	+
5B31	8B73(F)	Apr. 8, 1963	9 days	Mar. 30, 1966	3 years	+
Feb. 22, 1963	8B74(F)	Apr. 8, 1963	do	Apr. 6, 1966	3 years	+
5B32	8B79(M)	May 6, 1963	37 days	May 18, 1966	3 years	+
Feb. 22, 1963	8B80(F)	May 6, 1963	do	May 18, 1966	3 years	—
7B43	8B77(F)	May 1, 1963	32 days	May 18, 1966	3 years	—
Apr. 30, 1963	8B78(M)	May 1, 1963	do	May 18, 1966	3 years	—
7B44	8B81(F)	June 7, 1963	69 days	May 18, 1966	2 1/2 years	—
Apr. 30, 1963	8B82(M)	June 7, 1965	do	Apr. 13, 1966	2 1/2 years	—

*Scrapie sheep introduced at this date.

Histology. The histological lesions were very similar in all the goats from both experiments except that in one goat in the first experiment the lesions were rather less advanced. Both brain and cervical cord were equally affected in most cases and spongy degeneration was very prominent in most areas. The lesions consisted of various forms of neuronal degeneration, with widespread necrosis, typical vacuolation of neurons and axons, status spongiosus and focal and diffuse astrocytic hypertrophy. The lesions were present throughout the spinal cord, but the posterior columns and the intermediolateral cell-columns were more affected than other areas. The medulla had lesions in most areas, but especially severe changes in the form of spongy degeneration and necrosis of neurons were found in the cuneate and lateral cuneate nuclei. In the pons the changes were usually very widespread and severe, and affected the reticular formation, the pontine nuclei and the central grey matter. The tegmental nuclei of the mesencephalon, the red nucleus, the substantia nigra and the inferior colliculi were often affected. Lesions were seen throughout the thalamus, hypothalamus, caudate nucleus and para-terminal body and in the cerebellum.

Groups 2 and 3. These goats were held at Compton. Group 2 consisted of 7 animals, the offspring of females that prior to kidding and at kidding, were housed in a yard with sheep clinically affected with experimentally-produced scrapie. All available cases of experimentally-produced scrapie in sheep, 978 in all, were held in this yard for a few days up to a few weeks prior to slaughter. In this manner direct physical contact between the goats and affected sheep was continuous from February, 1963, to the time of writing (February, 1967). During this period there were short intervals when scrapie-affected sheep were not available to maintain continuous contact, but these intervals totalled only a few weeks out of the four-year period. Group 3 consisted of 3 goats born in a non-scrapie environment in the spring of 1963 and held in a non-scrapie environment.

The experiments with goats at Compton (groups 2 and 3) were terminated after 4 years 3 months. The animals were clinically normal at this time and no abnormality was found when their brains were examined histopathologically.

Sheep experiment

The fate of the eleven in-contact lambs is shown in Table 3. It can be seen that of the seven sheep that survived to an age at which scrapie commonly occurs, that is 2 years old or more, there have been 3 confirmed cases of disease. Of the

lambs which died before attaining the age of 2 years, 8581 developed swayback at the age of 6 weeks, while two, 8572 and 8577, were unthrifty and were destroyed at the age of 4 months. One animal, 8580, died at the age of 1 year as a result of non-suppurative meningoencephalitis: another, 8578, died when 2½ years old and the post-mortem examination revealed lung lesions characteristic of jaagsiekte. Three animals still survive.

TABLE 3.—BLACKFACE LAMBS EXPOSED TO CONTACT WITH SCRAPIE

Dam	Lambs				
	Sex	Date born	Date killed	Contact period (years ¹)	Pathology
5345	8572 (F)	Mar. 25, 1962	July 30, 1962	<1	No P.M.
	8573 (M) ²	do	do	>4	
5346	8574 (F)	Mar. 26, 1962	July 19, 1966	>4	Scrapie +.
	8575 (F)	do	Dec. 27, 1965	>3	Do.
5343	8576 (M) ²	do	do	>4	
	8577 (M)	do	July 26, 1962	<1	No P.M.
5356	8578 (M)	Apr. 4, 1962	Oct. 15, 1964	>2	Jaagsiekte.
	8579 (M) ²	Apr. 5, 1962	do	>4	
5344	8580 (M)	do	Apr. 30, 1963	>1	Encephalitis.
	8581 (M)	Apr. 16, 1962	May 29, 1962	<1	Swayback.
5348	8582 (F)	May 3, 1962	Feb. 15, 1966	>3	Scrapie +.

¹ Scrapie sheep introduced Mar. 28, 1962.

² Still alive.

Clinical symptoms. In the three animals which eventually developed definite symptoms of scrapie, the initial feature was pruritis which was seen from the age of about 1 year, but no further symptoms occurred until the sheep were over three years old. The first clinical case was seen in November, 1965, when 8575 showed marked pruritis, inco-ordination of gait, twitching of lips, slight nibble reflex and loss of weight. The disease progressed fairly rapidly so that by the end of December there was very intensive pruritis resulting in rubbing and loss of wool in the region of the shoulders. Both inco-ordination and nibble reflex became marked and the weight of the animal fell to 76 lb.

The second sheep, 8582, also developed scrapie in November, 1965, but it was not destroyed until the middle of February, 1966. It was very dull, lost weight rapidly and before death it weighed only 52 lb. It rubbed constantly, both buttocks and rump became completely denuded of wool and a vigorous "nibble reflex" was easily induced. The third case, 8574, the twin of the first sheep to go down with scrapie, was first affected in November, 1965, but the symptoms remained stationary until March, 1966, and only became very obvious in June. The animal was destroyed in July, 1966, the weight before death being 85 lb. Post-mortem examination showed severe emaciation in the second sheep only, the other two having moderate amounts of abdominal fat. In the three animals the loss of weight was largely due to wasting of the musculature.

Histology. Lesions characteristic of scrapie were found in the brains, being confined to the subcortical centres along the neuraxis and to the cervical part of the spinal cord. Widespread degeneration, necrosis and vacuolation of neurones and status spongiosus of the grey matter, accompanied by a certain degree of astrocytic hypertrophy, were the characteristic lesions. Large multiple vacuoles were frequently present in the neurones, especially in those of the medulla and cord. The following areas were affected in all 3 cases; Clark's columns of the spinal cord, the arcuate cells, the cuneate and lateral cuneate nuclei of the medulla as well as the dorsal motor vagus, the facial nucleus and the formatio reticularis, including the formatio reticularis alba. In the pons both the formatio reticularis and pontine nuclei were affected, while in the midbrain only limited changes were found in the tegmental nuclei, but very severe lesions in the form of chromatolysis and vacuolation were present in the red nucleus. The mamillary body and the anterior thalamic nucleus showed spongy degeneration while the dentate nucleus of the cerebellum was vacuolated and pyknotic.

DISCUSSION

In the goat experiments the fact that the incubation period was shorter in the second experiment than in the first may indicate the importance of infection at birth or soon after birth. Reference to Table 2 shows that the first four goats

which were brought from Compton to Moredun Institute produced kids in which the highest incidence of scrapie took place. The two goats which were introduced some weeks later produced four kids, none of which subsequently contracted scrapie. No definite conclusion can be made about the effects of ante-natal as compared with post-natal contact. It would appear as if the length of ante-natal contact had no special significance. The failure to find cases of scrapie amongst goats kept in contact with experimentally-infected goats for 7 years (Pattison, 1964) and in goats of group 2 kept in contact with experimentally-infected sheep for over 4 years in this series of experiments, suggests that there is a difference between natural and experimental scrapie in the ability to transmit infection.

It may be important to draw attention to the fact that the clinical signs exhibited by the animals in contact were very similar to those seen in the first experimental passage of sheep scrapie to goats—namely of the mixed type. The similarity of lesions in the brain of the contact goats to those seen in Suffolk sheep, especially as far as the distribution of lesions is concerned, is also important. Since all the contact goats had lesions in the coneat nuclei, a region rarely affected in experimentally-infected goats but almost invariably affected in Suffolk sheep, the possibility cannot be overlooked that these goats contracted the disease only from the Suffolk sheep with which they cohabited for very long periods (Zlotnik, 1961, 1962).

These two goat experiments suggest that, under the conditions described, contact infection from naturally-affected sheep to goats occurred. This supports the report by Chelle (1942). It also provides evidence that contact may indeed play a part in the spread of the natural disease.

In the sheep Greig (1940) first suggested that scrapie infection can spread directly from affected to healthy animals as a result of grazing contaminated pastures for 3 years and Sigurdsson (1954) observed that sheep housed for one year in premises previously occupied by Rida-affected animals became affected (Rida is the Icelandic term for a condition in sheep histopathologically similar to scrapie). Gordon (1957) recorded scrapie in some of his in-contact control animals, but Pattison (1964) did not see the disease in sheep housed in a yard for 55 months with clinical cases of experimentally-induced scrapie in sheep or in goats. The present observations provide further evidence that scrapie may be contagious in that the disease apparently spreads to in-contact Blackface sheep which are reputed to be free from the naturally-occurring condition.

The histological changes resembled, in the main, those seen in Suffolk sheep in so far as distribution is concerned, and those of Swaledale sheep in regard to severity and type of lesion (Zlotnik, 1962). As there is no information about any of the features of naturally-occurring scrapie in Blackface sheep it is impossible to draw any conclusions from these histological observations.

Some general observations merit discussion. It is well recognized that scrapie disease of sheep can be transmitted serially to sheep, goats, mice, rats and hamsters by the inoculation of various tissues, including brain and spinal cord, and by oral dosing. The agent apparently replicates and has many of the characteristics of a virus, but its nature has not been determined. Some of the characteristics of the agent are difficult to reconcile with those of a virus, however, especially its resistance to boiling (Wilson, 1954), to formalin (Gordon, 1946; Pattison, 1965), to formalin and also to acetyleneimine (Stamp, Brotherston, Zlotnik, Mackay and Smith, 1959) which latter agent is reported to destroy viral nucleo-protein (Hurst, 1957). The size of the agent has been estimated by inactivation of biological activity and by ultraviolet radiation and the results suggest that it is possibly too small to contain a nucleic acid code (Alper, Haig and Clarke, 1966). There is also some evidence that limited scrapie activity can, under certain circumstances, pass through a dialysing membrane (Pattison and Sansom, 1964). Recently Pattison and Jones (1967) have postulated that the replicating substance is, or may be associated with, a small basic protein whose physico-chemical properties are closely similar to those of the encephalitogenic factors of allergic encephalomyelitis.

Doubt has also been cast on the viral etiology of scrapie on epidemiological grounds. It has long been recognised that there is a strong familial pattern in the incidence of scrapie in sheep and it has been found, in particular, that affected ewes mated with affected rams leave offspring which nearly always become affected themselves. There are two views as to the reason for the familial incidence. Either the disease is solely genetic in origin and is caused by a recessive gene (Parry, 1960, 1962), or there is a non-genic parental transmission of a scrapie pathogen (Dickinson, Young, Stamp and Renwick, 1965). Parry (1966) maintains

that contagion plays no part in the epidemiology of the natural disease, nor would one expect it to do so if the disease is caused solely by a defective gene. Other, but as yet incomplete, evidence suggests that on occasion lateral contagion can and does occur in the field (Dickinson and Stamp, 1967, unpublished).

As a result of these observations there is naturally some scepticism as to whether scrapie is caused by a virus and in this context the results reported here are of considerable interest. That scrapie can spread from affected to healthy animals by contagion now appears to be beyond doubt. This is not a new observation, but in most previous work of this type some criticism could always be leveled at the experimental design. In the present instance it is difficult to know how scrapie could have arisen in any other way than by some form of contact transmission. This important fact is apt to be forgotten when the nature of scrapie and other possibly allied degenerative diseases of the central nervous system are being discussed because the unusual features of the transmissible factor tend to obscure all else.

One as yet unexplained feature of the present work concerns the inability to transmit scrapie by contact from goats and sheep affected with the experimental disease to healthy goats. A longer time of contact may of course give a positive answer, but as already suggested, the experimental disease may be different from the natural disease in the inability of the former to transmit by contagion. A further possibility is that the disease is transmitted by some intermediate host which is prevalent at Moredun Institute, but absent from the Institute at Compton. That an intermediate host may be involved has already been postulated in Iceland (Palsson and Sigurdsson, 1959).

SUMMARY

In two contact experiments where 17 goats were kept for long periods in the same pen as sheep affected with natural scrapie 10 cases of scrapie occurred in the goats. Contact infection did not occur within the same time limit when sheep with experimental scrapie were used as the source of infection. Goats from the same population maintained out of contact also remained normal.

Three cases of scrapie occurred in Blackface sheep kept in continuous contact from birth with naturally-affected sheep of various breeds for periods of 3 years 9 months to 4 years 4 months.

ACKNOWLEDGMENT

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MR. PURCELL. I have a telegram that I have been asked to insert into the record from the National Wool Growers Association.

And then I have been asked to place in the record a letter from The Aduar Farms, dated May 18, 1968.

Without objection, these two documents will be made a part of the record.

(The telegram referred to and the letter from The Aduar Farms with attachments are as follows:)

THE ADUAR FARMS,
May 18, 1968.

HON. W. R. POAGE,
Chairman, House Agriculture Committee,
Washington, D.C.

DEAR MR. POAGE: We urge your support of the enactment of H.R. 10241. We agree in every respect with the statements in your letter of September 15, 1966 to the President of our National Suffolk Association in which you said: "I agree with you that the Department has not shown what causes scrapie and it strikes me that the slaughter program that they carried out for a long time was done in a most unnecessarily harsh manner", and in the letter written by your assistant, Christine S. Gallagher, dated April 10, 1967, in which she said: "The Chairman feels that the Department of Agriculture has been altogether too strict in the administration of this program and has gone much too far in requiring the slaughter of healthy animals".

Unquestionably the program is unfair and has been harshly administered, with thousands of healthy animals slaughtered that would never have succumbed to scrapie. The program is patently unworkable. The average annual incidence of scrapie consistently remains at about 12 to 15 cases per year, yet the myth is propagated by USDA that their control program is the limiting factor for this low incidence. This is not the fact. By USDA's own reckoning, the most scrapie-ridden flock in the United States was brought into Texas from Staunton, Virginia, in 1958 and flourished here through 1965. During this period, the Sugar Loaf bloodlines were liberally spread over the entire area for five years without "control". Prior to the time our sheep were slaughtered, and after, countless rams, lambs and ewes of this basic flock were sold at auction, private treaty, production and dispersal sales. These sheep went to breeders all over the State of Texas as well as into neighboring states. Pens, trucks, facilities and flocks in great numbers were thoroughly "exposed" from sheep in the flock we owned and its predecessors, as well as by other flocks in Texas which carried the scrapie potential inherent in their bloodlines.

If this disease is contagious or infectious, the sheep industry in Texas is doomed.

Of equal concern is the manner in which the program has been carried out in the State of Texas, in that it violates those constitutional rights which protect us from illegal search and seizure. The Congress, aware of the dangers inherent in granting federal authority to seize and destroy private property under animal health and quarantine laws, carefully wrote into Public Law 87-518 requirements that the agents of the Secretary of Agriculture who invaded premises of citizens would be equipped with warrants. Agents of the Secretary of Agriculture choose not to abide by these provisions.

Writing for the Secretary of Agriculture, Mr. Hugo O. Graumann in a letter to Congressman Jim Wright dated 24 March 1967, states: "Although this law (87-518) was enacted in 1962, the Department has not applied the special authorities contained in it either in regard to scrapie or any other cooperative animal disease control or eradication program". Put another way, Mr. Graumann is thus also saying that the Department has not applied the special safeguards for the constitutional rights of citizens.

Mr. Graumann states further that the scrapie control program in Texas is carried out under a "Memorandum of Understanding between the Livestock Sanitary Association of Texas and the U.S. Department of Agriculture" that is dated back in 1955. We respectfully submit that this 13-year old "memorandum of understanding" has no legal validity and was superceded by Public Law 87-518 of 1962 which clearly states that "Any provision of any other Act inconsistent with the provisions of this Act is hereby repealed (Sec. 12)". This law provides that the Secretary of Agriculture will act within a State only when that

State fails to take proper action, and that he will notify appropriate State officials in writing before any action is taken in a state by federal authority. We are enclosing letters written by Dr. S. B. Walker, Executive Director of the Texas Animal Health Commission, stating that USDA was acting upon its own authority in scrapie control in Texas; that the State of Texas had never declared itself unable or unwilling to control scrapie; and that a review of his files revealed no official notice from the Secretary of Agriculture of his intent to take unilateral action under the provisions of Public Law 87-518.

In a letter written 15 September 1966 by your administrative assistant, Mr. James F. O'Neal, to the President of our National Suffolk Association, he said: "I know that he (i.e. Mr. Poage) is very familiar with the Scrapie Program and I know that he feels it is unfair, and has been harshly administered, but I do not know what he can do about it".

We certainly share this concern. If Congress cannot correct an arrogant abuse of federal power, what hope is there for the common citizen? If the Congress passes a law and the Executive Branch of Government chooses to disregard it, where is the redress for the disillusioned citizen other than in remedial legislation or long, costly and involved litigation? Few of us have the time or money to engage this most powerful arm of government. USDA has demonstrated that the Department has unlimited time, funds and personnel to develop propaganda and specious justification for this costly and inefficient program.

When the citizen finally despairs that anything will ever be done to roll back or stop the type of bureaucratic tyranny exemplified by the scrapie control program, there is a weakening of confidence in the democratic processes of government that tears at the basic foundation of our country.

We are personally dismayed to have lost confidence in the Animal Research Service of the Department of Agriculture. We are now concerned that if the bill as proposed by Mr. Betts and Mr. Ichord becomes law, what difference will it make if the Secretary of Agriculture chooses not to abide by it, or chooses to re-write it in the form of administrative regulations which ignore or go beyond the intent of Congress?

Respectfully,

HONZIE L. RODGERS,
Lieutenant Colonel, Signal Corps, U.S. Army (retired).

WALNUT SPRINGS, TEX.,
December 16, 1966.

S. B. WALKER, D.V.M.,
*Executive Director, Texas Animal Health Commission,
Austin, Tex.*

DEAR DR. WALKER: Our sheep and goats were destroyed by the U.S. Dept. of Agriculture late in 1963 and early 1964 and our premises were quarantined for ninety (90) days. During the nine (9) months period when we were under "surveillance" or "quarantine" no official of the State of Texas ever set foot on our property nor were we contacted by any representative of your office.

In view of the foregoing, we respectfully submit the following questions and request that they be answered at the earliest practicable date:

(1) Has the State of Texas officially declared that it is "unwilling or unable" to control the sheep disease scrapie, and thereby given the USDA full authority to take any action they deem necessary; or

(2) Has the United States Dept. of Agriculture taken this authority upon itself without the official sanction or approval of the State of Texas?

If the answer to (1) above is "Yes", then what is the position of Governor Connally's administration with respect to the payment of indemnity for the destruction of private property for the public good?

Yours very truly,

HONZIE L. RODGERS,
W. H. HEARTSILL.

TEXAS ANIMAL HEALTH COMMISSION,
Austin, Tex., December 22, 1966.

Mr. HONZIE L. RODGERS,
Mr. W. H. HEARTSILL,
Walnut Springs, Tex.

GENTLEMEN: Thank you for your letter of December 16, 1966, and visit in my office last week. The present Commission has not officially declared it is unwilling or unable to control the sheep disease "scrapie". In fact there has been no official action taken either for or against control of the disease.

Since no action has been taken by the Commission the United States Department of Agriculture has been acting upon its own authority.

If this Agency can be of further service, please advise.

Very truly yours,

S. B. WALKER, D.V.M.,
Executive Director.

WALNUT SPRINGS, TEX.,
December 23, 1966.

S. B. WALKER, D.V.M.,
Executive Director, Texas Animal Health Commission, Austin, Texas.

DEAR DR. WALKER: Since according to your reply to our letter of December 16, 1966, the scrapie control program as carried out in the State of Texas is not a State-Federal cooperative program, under the provisions of Public Law 87-518, dated 2 July 1962, as set forth in Section 2, sub-paragraph (b), the Secretary of Agriculture, USDA, shall notify the appropriate official of a State before any action is taken in that State pursuant to this law. Would you be so kind as to provide us with a copy of this official notice to the State of Texas by the U.S. Secretary of Agriculture that he intended to take this unilateral action, and a copy of the reply, if any, by the officials of the State of Texas.

In addition, can you assist us further by providing us with a copy of the State of Texas Concurrent Resolution No. 47, about the year 1959?

Yours very truly,

HONZIE L. RODGERS.
W. H. HEARTSILL.

TEXAS ANIMAL HEALTH COMMISSION,
Austin, Tex., January 4, 1967.

Mr. HONZIE L. RODGERS,
Mr. W. H. HEARTSILL,
Walnut Springs, Tex.

GENTLEMEN: A review of the files of this Agency does not reveal an official notice from the United States Secretary of Agriculture to the State of Texas of the intent of unilateral action under the provisions of Public Law 87-518.

A copy of Texas Concurrent Resolution No. 47 is enclosed.

Very truly yours,

S. B. WALKER, D.V.M.,
Executive Director.

SBW/p

SALT LAKE CITY, UTAH,
May 21, 1968.

CHRISTINE S. GALLAGHER,
Clerk, House Agriculture Committee,
Washington, D.C.:

National Wool Growers Association strongly opposes HR 10241 to halt scrapie control program. USDA tests to date prove scrapie can spread to other animals in flocks affected. Therefore control program still most vital to protect sheep industry nationwide. Appreciate your having this read into subcommittee hearing record. Letter follows.

EDWIN E. MARSH,
Executive Secretary,
National Wool Growers Association.

(The following letters, statement, and telegram were also submitted to the subcommittee:)

NATIONAL WOOL GROWERS ASSOCIATION,
Salt Lake City, Utah, May 21, 1968.

HON. GRAHAM PURCELL,
Chairman, Livestock and Feed Grains Subcommittee,
House Agriculture Committee
Washington, D.C.

DEAR MR. PURCELL: This supplements my wire sent today in opposition to H.R. 10241 which we understand will come before your subcommittee for a hearing tomorrow.

At the 103rd Annual Convention of the National Wool Growers Association held in Dallas, Texas, January 28-31, 1968, the following resolution was unanimously adopted:

"The disease of scrapie in sheep, unless controlled and eventually eradicated, creates a serious threat to the economy of the sheep and goat industry of the United States. We highly commend the Animal Health Division of the U.S. Department of Agriculture for the progress of the eradication program up to the present time. We urge the Congress to continue to provide adequate funds for this program."

The National Wool Growers Association and its 20 affiliated state and area sheep producer organizations are greatly concerned with this effort to halt a control and eradication program that is vital to the domestic sheep industry. Field studies made by the USDA since the first known outbreak in this country, in 1947, prove without a doubt that animals from affected flocks held under observation continue to develop scrapie. Under these circumstances it would be disastrous to discontinue our eradication and control program and subject the domestic sheep industry in our 50 states to possible widespread outbreaks of this insidious disease.

Sheep producers in our organizations are extremely anxious to find all the answers to the control and eradication of this disease. Research workers today are generally agreed that it is communicable and infectious.

There is absolutely no proof that we can do away with this control and eradication program without serious effects on our sheep industry nationwide. In view of this we stand strongly behind the USDA and its present eradication and control program.

We are presenting this letter in behalf of the National Wool Growers Association and the following 20 affiliated organizations operating in a 22-state area where approximately 85 per cent of the nation's sheep, lambs and wool are produced:

Arizona Wool Growers Association
California Wool Growers Association
Colorado Wool Growers Association
Idaho Wool Growers Association
Indiana Sheep Breeders Association
Kansas State Sheep and Wool Growers Association
Mississippi Sheep Producers Association
Montana Wool Growers Association
Nevada Wool Growers Association
New Mexico Wool Growers, Inc.
Oklahoma Sheep & Wool Producers Association
Oregon Sheep Growers Association
Texas Sheep & Goat Raisers Association
Utah Wool Growers, Inc.
Washington Wool Growers Association
Western South Dakota Sheep Growers Association
Wisconsin Cooperative Wool Growers Association
Wyoming Wool Growers Association
Midwest Wool Marketing Cooperative, Inc., Missouri
North Central Wool Marketing Corp., Minnesota

We will appreciate your including this letter in the hearing record.

Sincerely,

EDWIN E. MARSH,
Executive Secretary.

STATEMENT BY THE AMERICAN VETERINARY MEDICAL ASSOCIATION, M. R. CLARKSON,
EXECUTIVE SECRETARY

Mr. Chairman and Members of the Committee: Thank you for the opportunity to present the view of the American Veterinary Medical Association on H.R. 10241. The purpose of this bill is to eliminate the Cooperative State-Federal Scrapie Eradication Program.

The Cooperative Scrapie Eradication Program began in October 1952, after the disease had been diagnosed in California. It was initiated at the urgent requests of the California Department of Agriculture, California Wool Growers Association, National Wool Growers Association, and United States Livestock Sanitary Association. Shortly thereafter, scrapie was diagnosed in several flocks in Ohio and in Illinois, and these states requested the United States Department of Agriculture to enter into a cooperative agreement with them to eradicate scrapie. The disease has since been diagnosed in 24 other states.

Scrapie, a naturally occurring disease of sheep and goats, has been recognized for several hundred years in Europe and has now been reported in many parts of the world. Although the mortality from the disease in a given flock may be only a few animals each year, it has, on occasion, been responsible for the death of 30 percent or more of the breeding ewes in a flock. Inasmuch as scrapie is characterized by an extremely long incubation period and is a disease essentially of adult animals, the mortality within a flock is spread over a number of years. The disease has more serious consequences in purebred flocks than in grade flocks.

Although for scrapie and the unusual virus which causes it, long-term research efforts are indicated, considerable research progress has been made. Experiments over the years have indicated that a familial pattern exists in scrapie and it is the consensus of research workers today that this is due to the inherited susceptibility or resistance to the disease. Research has shown that when the offspring of affected ewes and rams are raised in a contaminated environment, nearly all develop the disease and die.

The causative agent most resembles a virus in that it is experimentally transmissible by inoculation of normal animals with suspensions of many tissues from scrapie-affected animals and because the causative agent will pass readily through bacterial filters. Furthermore, studies have shown that the disease can be passed through animals in series, indicating that the transmissible agent has the ability to reproduce itself in the body of the affected animal. The disease has been transmitted to sheep, goats, mice, rats, and hamsters.

Although some workers have previously doubted that scrapie is a contagious disease, studies reported by Brotherston, Renwick, Stamp, Zlotnik, and Pattison of the United Kingdom, in the *Journal of Comparative Pathology*, 1968, Vol. 78, have proven that the disease is spread by contact from sheep with naturally occurring scrapie to susceptible sheep and goats. In one experiment, 17 goats were kept for long periods in contact with affected sheep. Scrapie occurred in 10 of the goats. Another experiment involved 11 purebred lambs exposed to scrapie-affected sheep. Scrapie occurred in seven of the lambs during an exposure period of approximately 4 years. This experiment still continues.

The similarity of scrapie to several chronic neurological diseases of man and animals has been reported over the last several years by medical research authorities both in the United States and foreign countries. Examples of these chronic neurological diseases are multiple sclerosis and kuru in man and encephalopathy in mink.

The Cooperative State-Federal Eradication Program has among its objectives: (1) the finding of scrapie-affected animals and the destruction of those sources of infection; and (2) through quarantine and inspection to prevent the further spread of the disease and, more important, to prevent its introduction into the 17 breeds of sheep not known to be currently affected in this country. Although only four breeds of sheep are known to be affected in this country, the disease, if allowed to continue uncontrolled, could spread to other breeds, affecting the entire sheep and wool industry in the United States. The disease has occurred in 27 pure breeds and crossbreeds in Britain, where 10,000 to 20,000 cases occur each year.

As a result of our review of the progress made in preventing more widespread incidence of scrapie in the United States; of the considerable research activities of the U.S. Department of Agriculture, of the Department of Health, Education, and Welfare, and of several veterinary and medical research groups in this country and in Britain; and of the far-reaching effects of the bill, the American Veterinary Medical Association opposes passage of H.R. 10241. Passage of this

bill would halt the Department of Agriculture's efforts to protect the over-all sheep population of the United States.

WESTERN OREGON LIVESTOCK ASSOCIATION,
Corvallis, Oreg., June 10, 1968.

Congressman GRAHAM PURCELL,
Chairman, Subcommittee Livestock and Feed Grain, House Committee on Agriculture, House of Representatives, Washington, D.C.

DEAR SIR: It has been brought to my attention that your sub-committee is considering H.R. 10241 relating to discontinuance of State-Federal cooperation in control and elimination of livestock diseases when they occur in localized areas. Our association is deeply concerned regarding this matter. We feel that leaving each state on its own to control livestock diseases will seriously weaken national livestock disease control efforts.

We will appreciate it if you will make known our association's position to your sub-committee.

Very truly yours,

DICK NICHOLS,
President, Western Oregon Livestock Association.

SAN ANGELO, TEX., May 22, 1968.

Congressman GRAHAM PURCELL,
Chairman, Agricultural Subcommittee on Livestock and Feed Grain, House of Representatives, Washington, D.C.:

The Texas Sheep and Goat Raisers Association is strongly opposed to H.R. 10241 which would halt import scrapie control program. Respectfully urge that you oppose this bill.

WORTH B. DURHAM, President.

HILLSBORO, OREG., June 3, 1968.

Congressman GRAHAM PURCELL,
Chairman, Subcommittee Livestock and Feed Grain, House Committee on Agriculture, House of Representatives, Washington, D.C.

DEAR CHAIRMAN PURCELL: It has recently been called to the attention of the Oregon Purebred Sheep Breeder's Association and the Associated Lamb Shows of Western Oregon that Congressman Jackson Betts and Richard Ichord have introduced house bill H.R. 10241 which would strike "Scrapie And" from the act of May 29, 1884, preventing U.S.D.A. from cooperating for the State Department of Agriculture to eradicate this communicable and infectious disease.

It is the feeling of the sheepmen of these two associations that research should be continued for the control of this disease.

We would encourage your subcommittee to oppose the passage of this bill and that the above mentioned associations of the State of Oregon oppose the passage of H.R. 10241.

Sincerely yours,

JOHN A. LEFFEL,
Secretary of the Association Lamb Shows of
Western Oregon and Oregon Purebred Sheep Breeder's Association.

SALEM, OREG., June 5, 1968.

Congressman GRAHAM PURCELL,
Chairman, Subcommittee on Livestock and Feed Grains, House Committee on Agriculture, House of Representatives, Washington, D.C.:

We urge opposition by your subcommittee to H.R. 10241 which would strike "scrapie" thus preventing USDA from cooperating with States to eradicate scrapie. Elimination of eradication programs could result in uncontrolled spread and build up of this communicable infectious disease. Letter follows.

HOWARD FUJII,
Oregon Farm Bureau Federation.

OREGON FARM BUREAU FEDERATION,
Salem, Oreg., June 6, 1968.

HON. GRAHAM PURCELL,
Chairman, Subcommittee on Livestock and Feed Grains, House Committee on
Agriculture, House of Representatives, Washington, D.C.

DEAR CONGRESSMAN PURCELL: The Oregon Farm Bureau Federation wishes to express its concern and opposition to H.R. 10241, which would delete the scrapie eradication from the State-Federal cooperative program. Scrapie is a communicable and infectious disease that is caused by a transmittable agent according to research findings.

Discontinuation of the eradication program could result in widespread infection in the domestic sheep industry. Scrapie could become so entrenched that it would be impossible to eradicate it. Maintenance of this eradication program is the "ounce of prevention" necessary to prevent a serious economic loss to the sheep industry.

It is evident that the State-Federal eradication program initiated in 1952 prevented widespread dissemination of this disease and continues surveillance inspection on susceptible animals. Australia, New Zealand and the Republic of South Africa, according to reports, have been successful in controlling the disease. Canada also has an eradication program similar to the one in the United States.

We urge that members of your subcommittee take into consideration the necessity of maintaining this program in the interest of an overall disease eradication program to maintain good animal health. The international relations with other nations that have initiated eradication programs must be considered. We urge opposition by your subcommittee to H.R. 10241. Your sincere consideration and support of this request will be appreciated.

Sincerely,

HOWARD FUJII,
Director, Commodities and Farm Labor.

UNITED STATES LIVESTOCK SANITARY ASSOCIATION,
Richmond, Va., May 24, 1968.

HON. GRAHAM PURCELL,
Chairman, Subcommittee on Agriculture for Livestock and Grains,
U.S. House of Representatives, Washington, D.C.

DEAR CONGRESSMAN PURCELL: During the recent hearing before your committee on H.R. 10241 to delete "and scrapie" from the basic law giving the U.S. Department of Agriculture the right to cooperate and eradicate animal diseases, the United States Livestock Sanitary Association questions the challenge made at the hearing that scrapie is not an infectious or contagious disease.

Documented examples in nature, supported by research investigation by reputable individuals, have shown scrapie to be definitely transmissible.

Brotherston, Renwick, Stamp, Zlotnik and Pattison of the United Kingdom, report in the Journal of Comparative Pathology, 1968, Vol. 78, two experiments. One, conducted during 1958 to 1962 and the second, 1963 to the present. This controlled research reports on two contact experiments using goats. Seventeen susceptible animals were kept long periods in contact with affected sheep. Ten cases of scrapie occurred in the goats. In another experiment eleven lambs were exposed to scrapie sheep. Three cases have occurred after prolonged exposure for periods of over three years. In addition, the result of research in ten locations show it to be transmissible. None of the research workers will deny its being infectious. Dr. Stamp has shown it to be contagious.

The existing scrapie program is designed to prevent further spread of scrapie in the four breeds where it exists and to protect the seventeen breeds of sheep that are not now affected.

We agree it is extremely unfortunate that a minority of the present flock owners are suffering hardships under this program. Nevertheless, the present program has slowed the spread of scrapie and has kept it from the remaining breeds of sheep.

Disease eradication programs in the United States that have benefited the livestock industry and the citizens of our country so greatly have all been conducted impartially and have caused certain hardships in some instances. Nevertheless the overall philosophy has been for the welfare of the Nation's industry.

Passage of H.R. 10241 would stop the scrapie program. The United States

Livestock Sanitary Association does not feel this to be in accord with good animal disease eradication procedures.

Very truly yours,

JOHN L. O'HARRA, D.V.M.,
President-Elect.

Mr. PURCELL. The subcommittee will stand in recess.
We will have an executive committee meeting tomorrow morning.
(Whereupon, at 12:05 p.m., the subcommittee arose, sine die.)



The subcommittee of the committee on the livestock industry, created by the Senate on July 1, 1941, to study and report on the livestock industry, has the honor to acknowledge the receipt of your letter of July 1, 1941, in which you expressed your interest in the livestock industry and your desire to have a representative of the livestock industry on the subcommittee. The subcommittee is pleased to have you as a member and to have you represent the livestock industry on the subcommittee. The subcommittee is currently studying the livestock industry and will report to the Senate on or about October 1, 1941.

Very truly yours,
John L. O'Harra, D.V.M.,
President-Elect.

Livestock Sanitary Association
1200 North 17th Street
Chicago, Illinois

The Livestock Sanitary Association is a non-profit organization which is dedicated to the eradication of animal diseases. It is the only organization in the United States which is dedicated to the eradication of animal diseases.

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