

1966. No. 227

[C]

## DISEASES OF ANIMALS

## Brucellosis

ORDER, DATED 27TH SEPTEMBER 1966, MADE BY THE MINISTRY OF AGRICULTURE UNDER THE DISEASES OF ANIMALS ACT (NORTHERN IRELAND) 1958(a).

The Ministry of Agriculture in exercise of the powers conferred on it by Sections 3, 5, 10, 12, 13, 18 and 53 of the Diseases of Animals Act (Northern Ireland) 1958 and of every other power enabling it in that behalf hereby makes the following Order:—

*Short Title and Commencement*

1. This Order which may be cited as the Brucellosis Order (Northern Ireland) 1966 shall come into operation on 1st day of October 1966.

*Interpretation*

2. In this Order—

“an official test” for the presence of brucella infection shall consist of a test carried out by the Ministry on all or any animals in a herd, in respect of female animals, on samples of blood and/or milk and/or vaginal mucus or, in respect of male animals on samples of blood and/or semen taken from each animal by an authorised officer of the Ministry;

“animal” means a bovine animal;

“approved disinfectant” means a 5 per cent. solution of standard phenol or any other disinfectant approved by the Ministry for the purposes of the Animals Disinfection (Northern Ireland) Order 1927, Amendment Order, 1931(b);

“approved sale” means a sale of cattle which has been approved for the exposure of animals from Brucellosis (Certified) Herds under the Brucellosis (Certified) Herds Scheme of the Department;

“authorised officer” means a person authorised by the Ministry and includes a veterinary inspector;

“Brucellosis (Certified) Herd”, except for the purposes of Article 26 where the context otherwise requires, means a herd in respect of which a Brucellosis Certificate has been issued by the Ministry and which is on the Brucellosis Register;

“Brucellosis (Eradication) Herd” means a herd in which a test for the presence of brucella infection has been carried out under this Order or under the Brucellosis Order (Northern Ireland) 1964(c);

“certified animal” means an animal from a herd which has been registered as a Brucellosis (Certified) Herd under the Brucellosis (Certified) Herds Scheme of the Department;

“Department” means the Department of Agriculture and Fisheries of the Republic of Ireland;

“eligible animal” means an uncastrated male animal aged 9 months or over, a cow or a pregnant heifer;

“herd” means one or more animals in the same ownership;

“import” means import from the Republic of Ireland to Northern Ireland;

(a) 1958. c. 13.

(b) S.R. & O. (N.I.) 1931, No. 15.

(c) S.R. & O. (N.I.) 1964, No. 40.

“maiden heifer” means an animal which is not and has not been pregnant;  
 “Ministry” means the Ministry of Agriculture for Northern Ireland;  
 “reactor” means an animal which has given such reaction to an official test as shall give the Ministry reason to believe that the animal is infected with brucellosis.

## PART 1

### PRELIMINARY

#### *Declaration of Brucellosis Eradication Area*

3. It is hereby declared that Northern Ireland, being an area as respects which the Ministry is satisfied that a substantial majority of the cattle therein are free from brucellosis, is an eradication area for purposes connected with the control of brucellosis.

#### *Brucellosis Register*

4. The Ministry shall maintain a Register, herein described as the Brucellosis Register, of all herds in respect of which a brucellosis certificate has been issued in accordance with Part 2 or Part 3 of this Order.

## PART 2

### VOLUNTARY APPLICATION FOR ADMISSION TO THE REGISTER

#### *Application for registration of a herd in the Brucellosis Register*

5.—(1) Where an owner of a herd—

- (a) applies to the Ministry for the registration of his herd in the Brucellosis Register;
- (b) produces prima facie evidence of the herd's freedom from brucellosis; and
- (c) gives a written undertaking to the Ministry that he will observe the obligations imposed on him by this Order,

the Ministry may, if it is satisfied that the management of the herd and the conditions under which the herd is kept are suitable for the maintenance of a Brucellosis (Certified) Herd, carry out official tests.

(2) Prima facie evidence of the herd's freedom from brucellosis shall be a certificate of a veterinary surgeon, to the effect that all animals in calf, all female animals aged 18 months or more, and all uncastrated male animals aged nine months or more were tested for the presence of brucella infection and that no such animal was found to be a reactor, submitted to the Ministry within four weeks of the date on which the test was carried out.

(3) For the purpose of paragraph (2), tests shall be by means of samples taken by the veterinary surgeon from each animal from as many of the following sources as may be required—

Females—blood, milk and vaginal mucus.

Males—blood and semen.

Such samples shall be sent for testing to a Veterinary Laboratory of the Ministry.

6. An applicant for the registration of a herd in the Brucellosis Register shall comply with all reasonable requirements of an authorised officer as to the collection, penning and securing of his animals for the purpose of taking

samples for an official test or for any examination for the purposes of this Order.

*Issue of Brucellosis Certificates*

7. The Ministry shall issue a brucellosis certificate to the owner of each herd in which two successive negative official tests have been obtained, and may, at its discretion, attach to the issue of such certificate such conditions as the Ministry may deem necessary.

8. The Ministry shall issue a brucellosis certificate to the owner of any herd which has been wholly constituted by the transfer of animals from herds registered in the Brucellosis Register provided that before so issuing a certificate to such a herd, the Ministry may at its discretion require one negative official test of the herd not sooner than three months after the date on which the herd was so constituted.

*Ministry not liable for loss sustained by owner*

9. The Ministry shall not be held liable for any loss sustained by the owner or other person as the result of the death, injury or illness of any animal caused or alleged to have been caused through the carrying out of an official test under this Part.

*Saving*

10. Notwithstanding anything contained in this Part, the Ministry may decline to accept and proceed upon any application received under this Part from an owner of any herd.

### PART 3

#### THE CONTROL SCHEME

*Official Tests*

11.—(1) The Ministry may at any time cause an official test to be made on any herd.

(2) The owner of a herd shall comply with all reasonable requirements of an authorised officer as to the collection, penning and securing of his animals for the purpose of taking samples for an official test or for any examination for the purposes of this Order.

*Issue of Brucellosis Certificates*

12. The Ministry may issue a brucellosis certificate to the owner of any herd in which, at the Ministry's discretion, two or more successive negative official tests have been obtained.

### PART 4

#### SLAUGHTER AND COMPENSATION

*Power to Slaughter*

13. The Ministry may slaughter or cause to be slaughtered any reactor and any other animal which has been exposed to the possibility of infection with brucellosis by being in contact with any such reactor.

*Issue of Notice to Owners*

14. Where the Ministry is satisfied that an animal should be slaughtered in accordance with this Order, the Ministry shall issue a notice in writing

to the owner or person in charge of the animal that the Ministry proposes to slaughter the animal and requiring him, pending such slaughter, to detain the animal on the premises specified in the notice and to isolate it from other animals.

#### *Isolation*

15. The owner of an animal to be slaughtered in accordance with this Order shall, when required to do so by the Ministry, immediately isolate such animal and detain it in isolation until collected on behalf of the Ministry or until informed otherwise in writing by the Ministry. No person shall move or permit to be moved from his premises any animal in respect of which a notice has been served by the Ministry in accordance with Article 14 except under the authority of a permit issued by the Ministry allowing the removal of the said animal for immediate slaughter in Northern Ireland.

#### *Compensation*

16.—(1) Where the Ministry causes an animal to be slaughtered in accordance with this Order the compensation payable by the Ministry for the animal shall be:—

- (a) in the case of a reactor an amount equal to 85% of the animal's market value or £136 whichever is the less;
- (b) in the case of an animal which is not a reactor but which has been exposed to the possibility of infection with brucellosis by being in contact with a reactor an amount equal to its market value.

(2) For the purposes of this Order the market value of an animal means the price which might reasonably have been obtained for it from a purchaser in the market if it had been free from brucellosis.

(3) The market value of an animal which the Ministry proposes to cause to be slaughtered shall, for the purposes of payment of compensation be determined before slaughter by agreement between an authorised officer and the owner of the animal or his agent or, if they fail to so agree, by an independent valuer paid by the Ministry and selected by the owner from a list of at least three such valuers submitted by the Ministry to the owner.

(4) Where an owner refuses to select a valuer in accordance with the preceding paragraph the Ministry may select a valuer, and the owner shall maintain at his own expense any animal so valued until it is collected on behalf of the Ministry.

(5) A valuer appointed in accordance with paragraph (3) or paragraph (4) shall give to the Ministry and to the owner a certificate in writing of his valuation and such valuation shall be final and binding.

## PART 5

### GENERAL

17. The owner of a Brucellosis (Certified) Herd or a Brucellosis (Eradication) Herd shall comply with the rules specified in Schedule 1.

18. A herd owner shall, when required to do so by notice in writing, present for official test all animals in his possession in the categories specified in the said notice. Any owner who withdraws or withholds any such animal from an official test shall be guilty of an offence against the Act.

19. The Ministry may carry out official tests in respect of any herd registered in the Brucellosis Register and where any reactor is found in any herd as the result of an official test, the Ministry shall proceed to slaughter or cause to be slaughtered such reactor in accordance with the provisions of Article 13.

#### *Marking*

20. An authorised officer may paint, stamp or clip any mark on any animal or may permanently mark any animal. No person shall remove, obliterate, deface or duplicate or attempt to remove, obliterate, deface or duplicate such a mark.

#### *Power of entry, etc.*

21. The owner of a Brucellosis (Certified) Herd or Brucellosis (Eradication) Herd shall give all reasonable facilities for the entry of a veterinary inspector or other officer of the Ministry on to his farm and premises for the purpose of examining such farm and premises, the animals thereon, the records required to be kept and permits issued under this Order, and for the official testing of animals. The owner shall furthermore comply with all reasonable requirements of an authorised officer as to the collection, penning and securing of his animals for the purpose of taking samples for an official test. The owner shall furnish to the veterinary inspector or other officer all such information as may reasonably be required for the purposes of the Order.

#### *Isolation*

22. The owner of a herd shall immediately isolate any animal when required to do so, in accordance with the conditions of a notice issued by the Ministry in writing, and shall detain such animal in isolation on his premises until informed otherwise by the Ministry in writing.

#### *Disinfection*

23. The owner of a herd shall disinfect or cause to be disinfected in the manner prescribed in Schedule 3 any part or parts of any premises, any vehicle and any equipment which the Ministry may require him by notice in writing so to disinfect. Such disinfection shall be carried out within 48 hours after the removal of animals to be slaughtered or the receipt of the said notice and before any animals are permitted to occupy the said part or parts of premises or the said vehicle.

#### *Abortion*

24. In the event of any animal in a Brucellosis (Certified) Herd or a Brucellosis (Eradication) Herd aborting, the owner shall immediately isolate the animal and with all practicable speed notify the Ministry of the circumstances. The animals shall be retained in isolation until tested by the Ministry.

## PART 6

### MOVEMENT CONTROL

#### *Movement of cattle*

25.—(1) Except under the authority of a permit issued by an officer of the Ministry and in accordance with the conditions of such permit as specified in Schedule 2 an animal shall not be moved—

- (a) on to any premises on which a Brucellosis (Certified) Herd or a Brucellosis (Eradication) Herd is maintained; or

(b) to any premises or any part thereof being used with the approval of the Ministry, for the exhibition or sale of animals from Brucellosis (Certified) Herds.

(2) The provisions of paragraph (1)(a) shall not apply to any castrated male animal, or to any uncastrated male animal under the age of nine months. Provided that all such animals shall be isolated on arrival at the purchaser's premises for a period of not less than 6 weeks before joining the herd.

(3) The owner of a Brucellosis (Certified) Herd shall not—

(a) move any animal from his premises for service on to premises whereon is maintained a herd other than another Brucellosis (Certified) Herd; or

(b) allow to be moved on to his premises for service any animal which does not form part of a Brucellosis (Certified) Herd.

(4) The owner of a Brucellosis (Eradication) Herd shall not—

(a) move any animal from his premises for service on to premises whereon is maintained a herd other than another Brucellosis (Eradication) Herd; or

(b) allow to be moved on to his premises for service any animal which does not form part of a Brucellosis (Eradication) Herd.

(5) The Ministry may, if it finds on premises where a Brucellosis (Certified) Herd or a Brucellosis (Eradication) Herd is maintained an animal which has been moved otherwise than in accordance with this Article, require the owner of the said herd to:—

(a) isolate the animal;

(b) have the animal tested by a Veterinary Surgeon at his own expense; and

(c) forward the Veterinary Surgeon's Certificate showing the result of the test to the Ministry within 7 days of the completion of such test.

(6) Without prejudice to any liability under any other provision of this Article, any person who fails to comply with the requirements of a notice served on him by the Ministry under paragraph (5) shall be guilty of an offence against the Diseases of Animals Act (Northern Ireland) 1958.

#### *Importation of Animals from Republic of Ireland*

26.—(1) No person shall import an eligible animal except through one of the points of entry specified in Schedule 4 and between such times as may from time to time be notified by means of a Notice prominently displayed at each such point of entry.

(2) The Ministry may from time to time determine the period in respect of each point of entry during which certified animals only may be imported and shall notify any such determination by means of a Notice prominently displayed at the said point of entry.

(3) Save as is provided in paragraph (4) no person shall import an eligible animal unless either:—

(a) it is a certified animal which has been moved under the authority of a permit issued by the Department direct from a Brucellosis (Certified) Herd under the Brucellosis (Certified) Herds Scheme of the Department or from an approved sale to the point of entry; or

(b) it is accompanied by a valid certificate issued by the Department that the animal has passed a test for brucellosis. Such certificate shall be

deemed to be valid only if the date on which the test was done was not more than 10 days prior to the date of importation.

(4) The provisions of paragraph (3) shall not apply to a person who imports an eligible animal for direct shipment from Northern Ireland. Where such an animal is imported the Ministry shall issue a movement permit authorising the movement of that animal from the point of entry to the port of shipment and it shall be the duty of the said person to comply, or cause to be complied, with all the conditions of the said permit.

## PART 7

### BLOOD SAMPLES, VACCINATION

27. No person other than an authorised officer of the Ministry may take a blood sample from any animal in a Brucellosis (Certified) Herd or a Brucellosis (Eradication) Herd for the purpose of a test for the detection of brucella infection, except with the permission of the Ministry. Provided that this Article shall not apply to animals being held in isolation in accordance with paragraph 3 of Schedule 2 or to animals which the Ministry has, in accordance with Article 25(5), required a herdowner to have tested by a Veterinary Surgeon at his own expense.

28. No person other than a Veterinary Surgeon shall vaccinate any animal with anti-abortion vaccine.

29. A Veterinary Surgeon may vaccinate with anti-abortion vaccine any animal which is between four months and eight months of age. A Veterinary Surgeon shall not vaccinate an animal of less than four months or more than eight months of age unless he has the prior permission of the Ministry in writing.

30. A Veterinary Surgeon who vaccinates an animal with anti-abortion vaccine shall:—

- (a) place immediately on the lower half of the left ear in the case of home-bred animals, and on the lower half of the right ear in the case of imported animals, a tattoo mark consisting of the letter "V" followed by the last numeral of the year in which the vaccination is carried out; and
- (b) submit to the Ministry, within seven days, a certificate which shall detail the age, ear number and description of the animal vaccinated and the name and address of the owner of the animal and the date on which the animal was vaccinated.

31. For the purpose of carrying out the vaccination authorised under Article 29 the Ministry may issue supplies of anti-abortion vaccine free of charge to Veterinary Surgeons.

#### *Revocations*

32. The Statutory Rules and Orders set out in Schedule 5 are hereby revoked.

Sealed with the Official Seal of the Ministry of Agriculture for Northern Ireland this 27th day of September 1966 in the presence of

(L.S.)

(*Sd.*) *W. G. Malcolm,*  
Assistant Secretary.

## SCHEDULE 1

**Rules to be observed by the Owners of Brucellosis (Certified) Herds and Brucellosis (Eradication) Herds***Keeping of records*

1. The owner of a Brucellosis (Certified) Herd or Brucellosis (Eradication) Herd shall, in addition to maintaining the record of every animal in his herd as required by the Movements of Animals (Records) Order (Northern Ireland) 1962(a), keep a record of the date on which any animal was vaccinated.

*Fences*

2. The fences dividing the owner's farm from adjoining land shall be maintained, to the satisfaction of the Ministry, in such condition as to prevent so far as possible the infection of the herd by cattle on the adjoining land.

*Use of milk for feeding to animals*

3.—(1) Milk or dairy by-products shall not be brought, for feeding to bovine or other animals, on to a farm where a Brucellosis (Certified) Herd or a Brucellosis (Eradication) Herd is maintained except when the milk or dairy by-product—

- (a) comes direct from a farm where a Brucellosis (Certified) Herd is maintained; or
- (b) has been converted into powder form; or
- (c) is boiled or pasteurised before use for feeding purposes.

(2) For the purposes of this rule, "pasteurised" means retained at a temperature of not less than 145° Fahrenheit and not more than 150° Fahrenheit for at least thirty minutes or at a temperature of not less than 162° Fahrenheit for at least fifteen seconds.

## SCHEDULE 2

**Conditions which may be included in Permits relating to the Movement of Animals to Brucellosis (Certified) Herds or to Brucellosis (Eradication) Herds or to approved Exhibitions or Sales**

1. Where an animal is moved direct to a Brucellosis (Certified) Herd or to a Brucellosis (Eradication) Herd from—

- (a) a Brucellosis (Certified) Herd, or
- (b) a place of exhibition or sale where accommodation is reserved and approved by the Ministry for the exposure of animals from Brucellosis (Certified) Herds,

a permit issued by the Ministry authorising such movement may contain the following conditions:—

- (i) the animal, during the course of movement, shall not be allowed or caused to come into contact with any animal other than an animal from another Brucellosis (Certified) Herd which is also being moved under the authority of a permit issued under this Order;
- (ii) any road vehicle used for the conveyance of such animal shall immediately before its use for that purpose, have been cleansed and disinfected as follows:—

the floor, roof and sides of the inside of the vehicle and all other parts of the vehicle with which the animal to be conveyed or any fodder, litter or other matter may come in contact, shall have been scraped and swept and the scrapings and sweepings and all dung, sawdust litter and matter shall have been removed, and thereafter all such parts of the vehicle shall have been thoroughly washed, scrubbed or scoured with water and disinfected by being thoroughly coated or washed with an approved disinfectant;



- (iii) any rail vehicle used for the conveyance of such animal shall, since it was last used for the conveyance of animals, have been cleansed and disinfected in accordance with Article 24 of the Transit of Animals (Northern Ireland) Order of 1927(a) and shall, in addition, have been further disinfected by coating or washing the floor, roof and sides of the inside of the vehicle with an approved disinfectant immediately prior to the loading of the animal in the vehicle;
- (iv) water, if required by an animal during transit, shall be supplied in a clean bucket from a tap and not from a water trough or other source of supply to which livestock may have direct access;
- (v) any other condition which may reasonably be required by the Ministry.

2. Where any female animal under twelve months of age is moved to a Brucellosis (Certified) Herd or to a Brucellosis (Eradication) Herd from premises other than those specified in 1(a) or (b), a permit issued by the Ministry authorising such movement shall contain the conditions set out in paragraph 1 and shall furthermore require that the animal be isolated, on arrival at the purchaser's premises, for a period of not less than six weeks before joining the herd.

3. Subject to the conditions of paragraph 4 where any female animal over twelve months of age or any uncastrated male animal over nine months of age is moved to a Brucellosis (Certified) Herd or to a Brucellosis (Eradication) Herd from premises other than those specified in 1(a) or (b), a permit issued by the Ministry authorising such movement shall contain the conditions set out in paragraph 1 and shall furthermore require that:—

- (a) the animal shall be isolated on arrival at the premises and shall be tested by a veterinary surgeon within seven days of the animal's arrival on the premises, and the veterinary surgeon's certificate showing the result of his test shall be forwarded by the owner of the animal to the Ministry within seven days of the completion of such test; and that
- (b) the animal shall be kept in isolation for a period of two months or until it has calved; and that
- (c) the animal shall then be subject to an official test; and that
- (d) the animal shall not join the herd unless the veterinary surgeon's test made under (a) above, and the official test made under (c) above, show that there is no evidence of brucellosis infection in the animal, or in any other animal with which it has been in contact.

The requirements under (a) above may be waived where an animal has been tested for brucellosis by a veterinary surgeon or veterinary inspector within ten days prior to movement and found to show no evidence of brucellosis. In this case the veterinary surgeon's certificate showing the result of this test must be sent by the owner of the animal to the Ministry when an application for a movement permit is made in respect of the animal.

4. Notwithstanding the provisions of paragraph 3, where any maiden heifer over the age of twelve months is moved for other than breeding purposes on to any premises whereon is maintained a Brucellosis (Certified) Herd or a Brucellosis (Eradication) Herd, a permit issued by the Ministry authorising such movement shall contain the following conditions:—

- (a) the animal shall be moved on to a part of the premises approved by the Ministry; and
- (b) such animal shall be strictly segregated from the rest of the herd at all times.

Such animal shall not be eligible for certified status.

5. Where, for the purposes of exhibition or sale at a place where it is to be accommodated in premises or any part thereof approved by the Ministry, for the exhibition or sale of cattle from Brucellosis (Certified) Herds, an animal is moved from a Brucellosis (Certified) Herd, a permit issued by the Ministry authorising such movement may contain the conditions set out in paragraph 1.

## SCHEDULE 3

## Disinfection of Premises

Where disinfection of premises is required under Article 23, disinfection shall be carried out in the following manner:—

(1) before removal from the premises, the manure, fittings and other things and materials therein, shall be thoroughly soaked with an approved disinfectant;

(2) the manure shall then be removed from the premises and deposited in a place not normally accessible to cattle and such manure shall not subsequently be spread on pasture;

(3) after the removal of the manure from the premises, all parts of the premises with which cattle have been in contact or which have been soiled with their excretions, shall be thoroughly scraped. The scrapings shall be removed and the scraped parts of the premises shall be thoroughly scrubbed and washed with a four per cent. solution of washing soda in hot water, and after the completion of such scrubbing and washing, the scraped parts shall be sprayed with an approved disinfectant;

(4) all utensils and other articles, whether within or without the premises, and any vehicles which have been used in connection with the care, milking, management or transport of any animal found to be a reactor, shall be thoroughly cleansed and washed with a four per cent. solution of washing soda in hot water;

(5) any person carrying out the disinfection described in this Schedule shall, on completing the disinfection and before entering other premises or coming into contact with any animal, disinfect his boots and hands by washing them in an approved disinfectant.

## SCHEDULE 4

## Points of entry into Northern Ireland for eligible animals

<i>Point of Entry</i>	<i>Land Route</i>
Killeen . . . . .	Dundalk—Newry
Carnagh . . . . .	Castleblayney—Keady
Middletown . . . . .	Monaghan—Armagh
Aughnacloy . . . . .	Monaghan—Aughnacloy
Clonmackan . . . . .	Clones—Newtownbutler
Drumcullion . . . . .	Swanlinbar—Enniskillen
Belcúo East . . . . .	Manorhamilton—Enniskillen
Corry . . . . .	Ballyshannon—Belleek
Killynoogan . . . . .	Pettigo—Kesh
Strabane . . . . .	Lifford—Strabane
Mullennan . . . . .	Carrigans—Londonderry
Culmore . . . . .	Muff—Londonderry

## SCHEDULE 5

## Statutory Rules and Orders Revoked

Number	Short Title
S.R. & O. (N.I.) 1964, No. 40	Brucellosis Order (Northern Ireland) 1964
S.R. & O. (N.I.) 1965, No. 20	Brucellosis (Amendment) Order (Northern Ireland) 1965
S.R. & O. (N.I.) 1966, No. 94	Brucellosis (Eradication Area) Order (Northern Ireland) 1966
S.R. & O. (N.I.) 1966, No. 95	Brucellosis (Landing of Cattle) Order (Northern Ireland) 1966
S.R. & O. (N.I.) 1966, No. 181	Brucellosis (Amendment No. 2) Order (Northern Ireland) 1966

## EXPLANATORY NOTE

*(This note is not part of the Order but is intended to indicate its general purport.)*

This Order consolidates with an amendment five Orders made under the Diseases of Animals Act (Northern Ireland) 1958 for purposes connected with the control of brucellosis in cattle.

The amendment is that from the 1st October 1966 no herdowner will have the right to choose whether to have reactors slaughtered or to retain them for a limited period.

1966. No. 228

[NC]

**GAME**

**Partridge**

ORDER, DATED 29TH SEPTEMBER 1966, MADE BY THE MINISTER OF HOME AFFAIRS UNDER SECTIONS 7C AND 7F OF THE GAME PRESERVATION ACT (NORTHERN IRELAND) 1928 AS INSERTED BY SECTION 3 OF THE GAME LAW AMENDMENT ACT (NORTHERN IRELAND) 1951.

This Order, prohibiting the sale or purchase of partridge for consumption during the period 1st October 1966 to 30th September 1967, being of temporary effect, is not printed at length in this volume.