

THE VETERINARY PATHOLOGY REPORT

Australian Society for Veterinary Pathology
S.A. Department of Agriculture
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CLOSING DATE FOR COPY - VPR

9th March

- CONFERENCE ABSTRACTS

23rd March

PRESIDENT'S PAGE

Every now and then something happens to restore one's flagging faith in the order of things. This time it was the reversal of the NSW Minister for Agriculture's decision to close the Armidale Regional Veterinary Laboratory. Bob Coverdale tells me that the community support in the New England area was overwhelming, with pasture Protection Boards and Farmer groups sending delegations to Sydney and strong local support from CSIRO and the University of New England. The AVA and ASVP also lobbied the Minister. The upshot of the saga is that the Armidale RVL will remain open but that the Government of NSW will be looking to closing the budget gap by other means, including consideration of a fee-for-service scheme.

What to me is important in the whole affair is the community's support of the laboratory indicating that the lab is seen as an important part of the whole structure of animal production in the area. A similar reaction occurred in South Australia's South East when locals perceived the Struan RVL as being threatened. If the laboratories had been seen as largely irrelevant by the communities there would have been little or no outcry to their possible demise. In this day and age, and indeed in future, we must be relevant to survive.

I intend writing again to the Minister with a bit of "One-Minute Praise" for his political courage in reversing his decision although in many respects it would have taken courage to the point of political suicide not to have done so.

Peter Phillips

ELECTION OF OFFICERS AND COMMITTEE - 1989/90

As the South Australian executive will have had 2 years in office by May, 1989, we will not be seeking re-election for a further term of office at the Annual General Meeting on May 13, 1989.

Members are referred to The Veterinary Pathology Report No. 4 of April, 1984, Page 8, and reminded that nominations for a committee of 5 including the Officers (President, Secretary and Treasurer) must be received in the prescribed form by the Secretary by 6 May, 1989.

3.

CONFERENCE 1989

Theme : EXOTIC DISEASE PATHOLOGY
Date : 13-14 May 1989
Venue : Australian Animal Health Laboratory, Geelong, Victoria

Accommodation : A booking has been made for 60 people at Deakin University. Room hire \$26.00 per day. Dining room and breakfast making facilities available.

First & Last Call for Papers

Papers are invited on exotic disease scares (false alarms!) and differential diagnosis, or on any diseases exotic to Australia, be they in oysters or elephants!

All papers for inclusion in the Conference Proceedings should reach the Secretary by 23 March 1989. They should be in the form of an extended summary and typed in 12 point Gothic on double sided A4 paper with single line spacing and with 3cm margin on left (binding) edge and 1½cm on other edges.

- * Main heading should be in uppercase, underlined and centred with author(s) name and address in lower case below.
- * Scientific names to be in roman, underlined.
- * References to be given in full.
- * Summaries should be no longer than 1 double sided A4 page, including references.

There is new a proposal that a veterinary training course of about 9 days duration should be held soon after or immediately before the AGM so ASVP departmental members selected by their departments could attend. The course would be orientated towards laboratory officers including pathologists.

Apart from the course, it is hoped that as many ASVP members could enter the secure part of the laboratory as possible. The main rule to bear in mind is that any person coming into the secure part will not be permitted to have contact with any animals including birds, other then dogs and cats, for a period of 7 days afterwards.

Of course, the actual meeting will be in the non-secure part of the laboratory and so no special microbiological security restrictions will apply then.

4.

REGISTRY NEWS

COMPUTERISED STORAGE AND RETRIEVAL SYSTEM

The McGarvie Smith Institute has granted the Registry £3,700 to purchase and install a software system for case storage and retrieval. The program is a modified version of that written for the Zoo Registry at Taronga Park. It will allow the Registry's cases to be searched by any combination of variables including species, tissue, pathological change and aetiology.

Registry case holdings can be seen at a glance and printouts made for later use. The system will be mounted on the Registry's Hypec microcomputer, which is an IBM compatible machine with a 20 megabyte hard disc. It will be available for use from the end of January 1989.

VISITORS

Since the last newsletter three pathologists have visited the Registry for periods of intensive training lasting 3 to 10 days. They were Robert Foster (James Cook University), John Mackie (Regional Veterinary Laboratory, Benalla) and Adrian Philby (Regional Veterinary Laboratory, Wagga).

VISITS

The South Australian Department of Agriculture arranged for Bill Hartley to visit South Australia in late October, and conducted a 2 day training seminar for 8 veterinarians at the Central Veterinary Laboratories, Adelaide.

SECOND OPINIONS

You are welcome to send material to Dr. Hartley for a second opinion. This service is being vigorously used now and is currently free of charge.

OTHER SERVICES

Kodachrome slides of gross pathology have been lent to several veterinarians asked to give talks on subjects which require visual aids. This service is also free of charge.

EXOTIC DISEASE TRAINING PACKAGE

The Registry collection contains colour transparencies of gross and histopathological lesions and glass slides of histopathological lesions from most of the major exotic diseases of domestic animals and birds. This comprehensive collection is augmented by relevant literature on the subject and the extensive experience of Dr. Bill Hartley. Dr. Hartley has lectured and worked in many parts of the world. His experience in exotic disease diagnosis at field and laboratory level has been utilised by the Commonwealth Government in training courses on exotic diseases in Australia.

The Registry collection on exotic diseases is currently being augmented by histological material from Plum Island and mainland Canada arranged by Roger Cook (RVL Wollongbar) after his recent study tour.

FUNDING

Your Registry management committee has been successful in obtaining running costs for the Registry. It has not been able to obtain funds for the Registrar's half salary beyond the end of January 1989. Attempts to raise sponsorship funds in the private sector have been unsuccessful after the earlier promise of great things.

5.

Funding the Registry from annual State contributions was put to the May meeting of the Principal Laboratory Officers with mixed success. NSW, SA and NT were for it. WA and Vic. against. Qld. undecided and Tas not represented. Another attempt is being sponsored jointly by NSW and the Commonwealth Government. The written proposal is being put to each state through its representative on Animal Health Committee. Qld indicated support when Animal Health Committee briefly discussed the proposal at its November meeting.

If you reside in Vic., WA or Tas, now is the time to convince your state to do its bit to sponsor the Registry. An 8 minute videotape and supporting documentation on the Registry is available if you wish to lobby your state representative.

THE FUTURE

The physical housing of the Registry is secure with rooms provided for it at the new Elizabeth Macarthur Agricultural Institute, Menangle. The indexed cases in the system will be easily accessible by manual card and computerised systems. However, without a Registrar it will not be as useful to its members. Please continue to send case material as Bill has indicated that he will attempt to keep the Registry ticking over.

Tony Ross
Chairperson
Management Committee

TISSUE PATHOLOGY WORKSHOP - ADELAIDE

A stimulating and information-packed workshop was conducted by Bill Hartley in late October for the Department of Agriculture pathologists, utilizing transparencies from both registries. Emphasis was placed on CNS pathology, including spongiform encephalopathies in ruminants (but regrettably not Bovine Spongiform Encephalopathy) and on diseases of animals in captivity. The 2½ day workshop was recorded on video for future reference.

STATE REPORTS

SOUTH AUSTRALIA (Robin Giesecke)

VETLAB - ADELAIDE

SUDDEN LOSSES IN BROILERS (Peter Phillips, Vui Ling Tham)

In two broiler rearing establishments overnight losses of over 60% of the entire stocks of about 20,000 23-week-old and over chickens occurred.

Post mortems on dead bird, revealed fluid-filled crops, oedema and haemorrhage of gall bladder walls and enlarged kidneys. Histopathology did little other than to confirm marked submucosal haemorrhage and oedema in gall bladders.

The birds' feed had a fine white powder through it on particle surfaces and a similar powder was in the water. This powder was identified as arsenic trioxide (As₂O₃). Liver samples from dead birds contained 29 mg/Kg (ppm) inorganic arsenic, while from surviving birds liver levels of inorganic arsenic averaged 12 mg/Kg.

Police investigations are continuing!

6.

DEATHS IN BUFFALO COWS (Peter Phillips)

Two to three weeks after arriving in South Australia from the Northern Territory and being placed in a large quarantine paddock at Cape Jervis, deaths began occurring in a herd of 171 water buffalo. Deaths were restricted to pregnant cows and the clinical signs were depression, blood stained diarrhoea, swollen perineum, haemorrhagic sclera some nasal haemorrhage, hyperthermia followed by recumbency and death within about 48 hours.

Early field post mortems were unsupported by laboratory submission and were diagnosed as trucking stress. This laboratory was invited to investigate deaths 13 and 14.

The post mortem picture was one of widespread petechial and ecchymotic haemorrhage particularly of fat depots and serosal surfaces. There was spectacular gall bladder enlargement with oedema and haemorrhage of its wall. Body cavities all contained excess blood-tinged fluid. The abomasal mucosa was haemorrhagic, and the wall haemorrhagic and oedematous. Sections of the small intestine were similarly affected. The caecum and colon had bloody content but the mucosae and muscularis appeared normal. The lungs had haemorrhage of lobular distribution with consolidation and fibrinosis of ventral portions of apical and cardiac lobes. The hearts were enlarged with a fibrinous epicarditis in one animal, and gross haemorrhage of the right atrium in the other. Marked petechial haemorrhage occurred on the endo and epicardia.

Lymph nodes were uniformly enlarged and haemorrhagic. Kidneys had subcapsular and pelvic petechiation, while urinary bladders had severe intramural haemorrhage and oedema. Urine was clear. The meninges had marked petechiation and ecchymosis.

Both cows, and indeed all cows necropsied previously were in calf at near term. No pathology was seen in placentae or foetuses.

Histopathology largely reflected the haemorrhage and oedema observed grossly. One animal had been treated with antibiotics and bacteria were not seen histologically in its tissues. The second cow, untreated, had large numbers of mixed bacteria in lung alveoli with macrophage involvement. She also had large colonies of Streptococci associated with her epicarditis.

Lung cultures produced Pseudomonas aeruginosa and Pasteurella multocida Type D. Streptococcus dysgalactiae was cultured from the heart.

It is postulated that the stress of pregnancy and transport of over 3,000 km and change of climate from tropical plains to the exposed south-western slopes of Fleurieu Peninsula predisposed these animals to septicaemia. The initial concern was that the Asian Haemorrhagic Septicaemia due to Pasteurella multocida Type B (or E) may have been present.

SOUTH-EAST REGIONAL VETERINARY LABORATORY – STRUAN

Leptospirosis Abortion in Sheep (Michael Hindmarsh)

A flock of maiden Merino ewes experienced a 6% mortality and an 11% abortion rate; with a 20% mortality rate in lambs, associated with L. hardjo infection.

No ewes became ill until their dead lambs were removed and all abortions occurred in the last month of pregnancy.

7.

WESTERN AUSTRALIA (Dave Pass)

School of Veterinary Studies Murdoch University (David Pass)

ERYTHROPHAGOCYTOSIS IN BIRDS

Over the years, we have seen a number of cases in which the only lesion is erythrophagocytosis in the liver and spleen, often accompanied by intensely eosinophilic, tubular casts in the kidney, plus or minus tubular, epithelial cell degeneration. Most birds affected have been psittacines. The history has usually been of a short, non-specific illness or the bird has been found dead. Occasionally, tissues have been pale at necropsy, indicating acute anaemia.

On one occasion, this lesion has been associated with acute zinc poisoning and we believe that most cases are due to this or lead poisoning.

Recently, the lesion was seen in a cockatiel which was one of 5 that died after the aviary had been moved to a fresh area of grass. Lead and zinc could not be incriminated. The birds, however, had access to freshly growing onion grass (*Romulea longifolia*) which they devoured with relish. Can onion grass be incriminated as a cause of erythrocyte membrane damage?

Any consents on this lesion in birds would be appreciated. (Note: Phagocytosed red cell nuclei often look like protozoa).

FELINE T-LYMPHOTROPIC VIRUS INFECTION (Wayne Robinson)

Recent reports from the USA and UK indicate the isolation of a previously unrecognised lentivirus from cats with an immunodeficiency-like syndrome. FTLV has been isolated from the peripheral blood of a 14 month old castrated male domestic shorthair from the Perth metropolitan area. The cat presented with a one month history of intermittent anorexia, pyrexia and lethargy. The cat was positive for antibody to FTLV. The only finding on necropsy of the cat was generalised lymph node enlargement. Histologically, the lymph nodes were hyperplastic and the bone marrow contained many blastic cells of indeterminate origin. From the overseas reports it seems that infection with FTLV will now provide a diagnosis for a number of chronic conditions in the cat.

HEPATIC NECROSIS IN DOMESTIC RABBITS (Wayne Robinson)

Two young adult domestic rabbits had 24 hour histories of depression followed by death. The rabbits came from suburban households in different areas of Perth. Necropsies showed the presence of pale livers with an exaggerated lobular pattern. This pattern was reflected histologically as severe, acute, periarterial necrosis. The rabbits were fed commercial pellets with no access to any toxic plants. The cause of the hepatic necrosis remains obscure, but an ingested toxin, possibly from the pellets, was considered.

HAEMOCHROMATOSIS IN AN AGED HORSE (Wayne Robinson)

A 23 year old thoroughbred was presented with a prolonged history of weight loss. A final clinical diagnosis of chronic hepatic disease was made. On necropsy the significant lesion was an atrophied and fibrosed liver, with the left lobe more markedly affected. The most interesting histological lesion was the presence of massive amounts of haemosiderin in hepatocytes, Kupffer cells and in multinucleate cells located in the periportal zone. Other findings included diffuse hepatic fibrosis, mild spongiform encephalopathy and membranous glomerulonephritis. The hepatic lesions are compatible with the diagnosis in man of haemochromatosis, which is a disorder of iron storage. Serum from the horse was examined retrospectively and serum iron was greatly elevated and transferrin was excessively saturated.

8.

INTESTINAL LEIOMYOSARCOMA WITH SKELETAL METASTASES IN A DOG (J Thomas)

A nine year old male kelpie cross dog had shown right hind leg lameness for three weeks. The dog was in severe pain and had difficulty defaecating. A palpable mass was present on the shaft of the right ileum. Radiography revealed multiple bone lesions in the pelvis, ribs and dorsal spinous processes.

At necropsy, the dog was in fair condition. A 2cm ulceration surrounded by marked sclerosis was present on the proximal jejunal mucosa. Multiple, osseous nodules were present on seven ribs, several spinous processes and the right ileum.

Histologically, the jejunal ulceration was surrounded with dense proliferative neoplastic tissue. The cells were elongate, spindle cells that were strap-like and occasionally contained multiple nuclei arranged linearly. No cross striations were evident and there was minimal collagen present. Similar sarcoma tissue was present in the bone lesions where there was extensive osseous remodelling around the metastases.

The clinical signs were due to the ileal tumour encroaching on the sciatic nerve and pelvic canal. There was no clinical evidence of an intestinal neoplasm.

ADENOCARCINOMA AND HAEMANGIOSARCOMA IN A DOG (J. Thomas)

An 11 year old female curly coated retriever was presented with unilateral epistaxis and exophthalmus on the right hand side. A nasal tumour was suspected and a nasal biopsy was planned, but the dog died suddenly before surgery could be performed.

At autopsy the right nasal cavity and right frontal sinus were filled with a soft pale fleshy mass which induced the exophthalma and was histologically consistent with an adenocarcinoma of the nasal submucosal glands.

A minor haemoperitoneum was present, associated with 3cm x 3cm nodules throughout the spleen and liver, which were haemorrhagic and friable with areas of pale tissue. A severe haemopericardium (300 ml) was also present and a soft, haemorrhagic proliferative lesion was present on the right atrium which had ruptured. Multiple pinpoint haemorrhagic nodules were also present throughout the lungs. All tumours in the liver, spleen and heart were haemangiosarcomas histologically.

In 1989, the Western Australian correspondent will be Ruth Reuter. David Pass is leaving the School of Veterinary Studies to take up the position of Director, Animal Resources Centre. The ARC is on the Murdoch campus.

Animal Health Laboratories

MORTALITIES IN FOOD AND FIBRE RABBITS ASSOCIATED WITH AIRCRAFT TRANSPORT

(Ron Peet, Jim Dickson and Trevor Ellis)

Of 3 recent consignments of rabbits, 117/400, 80/190 and 28/240 were dead on arrival at Perth airport. No animals from the first consignment were submitted for post mortem examination, but all the others were necropsied. All animals were in good to fat body condition. Sixty three of the 80 dead in the second consignment had apparently ruptured stomachs and subcutaneous haematomas in the sternal and ventral abdominal areas. Some post mortem changes were present but the apparently ruptured stomachs were considered to be genuine ante mortem lesions due to the presence of fibrinous adhesions and roughened serosal surfaces, indicating acute peritonitis in these rabbits. Twenty of the 28 dead rabbits in the third consignment had similar ruptured stomachs and apparent acute peritonitis. Six of these also had diaphragmatic hernias.

9.

In our opinion, these lesions are consistent with trauma and the only common factor on these flights was that the animals were off-loaded at stop-over airports. Other similar consignments where animals were on direct flights and not off-loaded onto other aircraft suffered no casualties. It would appear these intensively raised rabbits must be transported with maximum care with minimum handling and transit times to prevent these mortalities.

ALBANY REGIONAL LABORATORY (Ruth Reuter)

FLUOROACETATE POISONING

Fifteen ewes were found dead and 15 others comatose or recumbent in a small mob recently shifted to a new pasture. Post mortem of four animals in the field showed myocardial haemorrhages, soft friable livers with foci of haemorrhage and gas filled intestines. The rumens contained large amounts of leafy material. Plant specimens from the paddock were identified as Gastrolobium bilobum and Gastrolobium velutinum, both considered toxic species. The practitioner who performed the post mortems feels there is a characteristic odour to rumen content of fluoroacetate-poisoned animals. Any comments on this 'olfactory diagnostic tool' would be appreciated!

PHALARIS STAGGERS

Eighteen two tooth lambs were found dead and 50 others showed signs of staggering, collapse and convulsions when driven. The mob of 300 was purchased from a sale yard one month previously. Convulsing animals recovered with residual staggering and muscle twitching if left alone. On post mortem the brain was moderately swollen. Large amounts of granular brown, acid-fast pigment were present in neurons, particularly of the brain stem. Examination of the paddock showed large amounts of Phalaris. The sheep were moved to another pasture. Three months later numerous animals were still showing clinical signs. One of these which appeared blind was post mortemed. Characteristic pigment was widespread in neurons throughout the brain stem, and was also seen in the retinal ganglionic cells.

PHARYNGEAL RUPTURE AND CELLULITIS

Seven lambs were found dead and 20 others showing dyspnea and nasal discharge four days after weaning. At weaning they had been vaccinated, drenched for internal parasites and received cobalt and selenium bullets. Post mortem on one lamb submitted showed rupture of the pharynx with a haemorrhagic tract running through the muscle dorsal to the oesophagus. The selenium and cobalt bullets were embedded in necrotic muscle at the end of the tract. Extensive oedema and cellulitis extended along facial planes into the thoracic cavity. Subsequent field post mortem of several additional sheep showed identical lesions.

THE ROLE OF THE LABORATORY IN PEST CONTROL

With the current decline in pathology submissions following introduction of charges, even dead Starlings are welcomed by a pathologist with itchy fingers! Sturnus vulgaris is a declared pest in Western Australia and a major campaign has been mounted by the Agriculture Protection Board to keep it out of the state. Earlier this year two flocks of starlings were discovered in the south coastal region. The laboratory has been assisting the Agriculture Protection Board in their eradication programme by identifying the sex and breeding status of captured birds, and examining the digestive tract to determine their food sources for future control programmes.

10.

NORTHERN TERRITORY (Lorna Melville)

BERRIMAH AGRICULTURAL LABORATORY

Avian Psittacosis (M. Bell)

One week after treatment with piperazine, a pair of King parrots and a pair of crimson wing parrots died and a mallee ringneck parrot became ill and lost weight. All birds were from separate cages in the same aviary. Spleens were slightly enlarged at post mortem, but all birds demonstrated excellent fluorescence for the presence of Chlamydia.

Botulism (M. Bell)

Investigations into persistent cattle losses on two properties resulted in the confirmation of botulism type C by mouse protection test. Investigations are continuing into several other suspect botulism cases to show whether Type D is present and hence whether producers should be using a bivalent vaccine.

M. bovis isolation from porcine lymph nodes (M. Bell)

A field collection of 24 lymph nodes from wild pigs from north west Arnhem Land showed seven with histological lesions consistent with bovine TB. Bacterial contamination of the lymph nodes was a major problem but despite this M.bovis was recovered from two samples.

Generalised Canine Lymphosarcoma (M. Bell)

A severe case of generalised canine lymphosarcoma was presented for examination. The most striking feature was that the structure of the lungs had been almost completely obliterated by infiltrating cells.

The Sad Case of Herman (L. Melville)

A local celebrity, Norman the Brahman bull, recently passed through our hands. Norman was the NT beer drinking champion, having won the annual Darwin stubby drinking competition for the past four years. (For the information of those who have not travelled to the north, Darwin stubbies contain two litres of beer and are sold mainly to tourists.)

Norman presented initially with hind limb ataxia which was thought to be associated with a fall he had in a float while on his way to a social occasion. However, over the next two weeks the neurological signs progressed and polioencephalomalacia was suggested as a possible diagnosis. Treatment with thiamine appeared to slow the progression of signs but eventually Norman showed head pressing and blindness and finally died.

Examination of his brain showed extensive cortical laminar necrosis typical of polioencephalomalacia. Other organs, including his liver, were normal. There was no evidence of lead poisoning, no history of water deprivation, so the onset of the disease was attributed possibly to overfeeding with work horse mix.

Cryptocaryon irritans infection in fish (M. Pearce)

Recently, a rapidly developing syndrome in a group of thirteen mature barramundi (L. calcarifer B.) and a mixed group of tropical marine fish was investigated.

The fish were kept in seawater at pH 7.5, temperature 29.5°C, with a diurnal range of $\pm 0.5^\circ\text{C}$ and salinity of 35ppm. Water was replaced by continuous exchange one to three times daily.

11.

The fish were inappetent and lethargic. Grossly, they had unilateral or bilateral keratitis, exophthalmia and pericorneal hyperaemia. There were nodular ulcers little larger than one or two scale units and a widespread cutaneous hyperaemia especially on the fins and ventral surface. The gills were mottled and covered by a thick layer of mucus. The swim bladder was hyperaemic and its dorsal vessels engorged. Apart from a distended gall bladder and trypanorhynch cysts in the mesentery, there appeared to be no other gross pathology.

Histologically, there were a number of encysted parasites, probably metacercariae, in the muscularis of the stomach wall and a large number of well developed melanomacrophage centres in the spleen, liver and kidney. Congestion of blood vessels was widespread and haemorrhage noted in the kidney.

In the eye, the cornea was oedematous with a light mononuclear infiltrate. The severe anterior uveitis present was notable for the presence of polymorphonuclear as well as mononuclear inflammatory cells and the choroid vessels were severely engorged. Scrapings of gill and cutaneous tissue and nodules revealed enormous numbers of the protozoan Cryptocaryon irritans.

Cryptocaryon irritans is the causal agent of marine white spot or "ich", but this clinical sign was notably absent in this outbreak. The rapid onset of disease was remarkable and it was thought the parasite was introduced with live food fish, given its simultaneous occurrence in several tanks.

QUEENSLAND (Fraser Trueman)

GRADUATE SCHOOL OF TROPICAL VETERINARY SCIENCE

JAMES COOK UNIVERSITY OF NORTH QUEENSLAND (P. W. Ladds)

A recent visitor to the School was Dr Dean Percy of the Ontario Veterinary College. While in Townsville Dean presented several excellent lectures and accompanying histopathology sessions on diseases of laboratory animals.

Research projects currently being carried by staff and graduate students of the pathology section of the School include continuing studies on male reproductive pathology, diseases of farmed crocodiles and fish, cane toad diseases, and immunopathology of ovine squamous cell carcinoma.

An extensive survey of cane toads by Dr R Speare and colleagues has so far indicated that in Australia, this species does not suffer from any major disease. Several disease entities, have however, been identified. Disseminated mycosis with Mucor amphibiorum is the most common infective disease encountered. It can affect toads in good body condition and may cause death. An oral route of infection has been demonstrated and three different strains of the fungi have been isolated. A wasting disease of undefined aetiology is also common. It is associated with food deprivation but is characterised histologically by a mild diffuse chronic enteritis with atrophy and irregularity of intestinal epithelium and distinct mononuclear infiltration of the lamina propria.

Interesting diagnostic cases recently encountered were mycotic hepatitis in hatchling crocodiles, visceral gout in a king brown snake (Pseudechis australis), cryptosporidiosis in barramundi, myxomatosis and mycotic dermatitis in a pet rabbit, extreme hepatic amyloidosis in two birds, marked congenital anasarca in a bovine foetus, a further case of systemic mycosis in a German Shepherd, polymyositis, caused by Toxoplasma gondii (or Neosporure caninum?) in a dog, a spectacular case of enterolithiasis (with many "stones" - some up to 10 cm in size) causing colic in an old gelding, and dual infection of the bursa of a chicken with infectious bursal disease and cryptosporidium.

12.

VETERINARY PATHOLOGY SERVICES - BRISBANE

MYONECROSIS IN A SHORT HAired POINTER (Geoff Mitchell)

An 18 month old male German Short Hair Pointer presented with partial paresis and mild muscle soreness. Conservative treatment overnight resulted in return to normal function and the dog was sent home. The dog rushed around that afternoon and was re-presented the following day with more advanced paralysis, was mildly polydipsic and had dark urine with a 3+ for blood on dip stick examination. Biochemistry revealed the following:

	3/05/88	6/05/88	REFERENCE
UREA	5.4	9.3	2.7-6.6
CREATININE	0.08	0.05	0.06-0.18
ALK. PHOS .	86	77	20-70
AST	3.702	3.587	15-70
ALT	555	1,022	15-70
CPK	106,310	110,380	70-250

By the 3rd day one of the triceps muscles was firmer than normal but not noticeably painful or hot. The diagnosis of acute progressive muscle necrosis with secondary hepatocellular degeneration/necrosis was made. A blood count showed a mild mature neutrophilia without toxic changes suggesting that the myonecrosis was not of bacterial cause.

There are very few diseases in dogs that result in such marked elevations of muscle enzymes. Severe trauma is usually not progressive and CPK levels after 3 days would be expected to be 25% of the initial value. Severe myositis from bacteria, allergies or protozoan infections normally do not result in CPK levels as high and the WBC and differential is not consistent with these.

In this particular case the most likely presumptive diagnosis is envenomation by the Eastern Small-eyed Snake which causes severe progressive myonecrosis in animals and man despite treatment including tiger snake antivenene. Most victims (including this dog) die within 2 weeks from myoglobinuric nephrosis. Recovery, if it occurs, takes up to 3 weeks with very gradual return to normal mobility.

FELINE LEPROSY (Geoff Mitchell)

We have just seen our first case of feline leprosy. How exciting! This disease is caused by Mycobacterium lepraemurium and results in multiple dermal granulomatous nodules. Diagnosis is by histopathology and very large numbers of acid-fast bacteria are present in macrophages within the dermis and subcutis. The disease is common in New Zealand and has been seen in the southern Australian states. The cat in question migrated to Brisbane from Victoria 5 years ago.

The non-tubercloid atypical Mycobacterium spp. (M. fortuitum, M. Smegmatis and M. chelonae) are very common in cats in Queensland and usually cause extensive (granulomatous steatitis with draining fistulas of the inguinal and other fat pads. Acid-fast organisms are frequently very difficult to demonstrate histologically as they occur in low numbers. In fat vacuoles within the centers of pyogranulomas. Cultures should be attempted .

13.

NEW SOUTH WALES (Jim Rothwell)

REGIONAL VETERINARY LABORATORIES - GLENFIELD, ARMIDALE

MULTIFOCAL ENCEPHALOPATHY IN SIMMENTAL CALVES (P. Harper, O. Coverdale)

We have recently recognised a previously undescribed neurological disorder in 5 to 12 month old Simmental calves observed on a single Simmental property in NSW. Several cases had occurred in previous years, however, in 1988, 3 heifers were affected with the disorder. Clinical signs included progressive posterior ataxia with a swaying gait, weight loss progressing to emaciation, and behavioural changes including aggressiveness and dullness. Death was preceded by inability to rise, with progressive opisthotonus, forelimb extension, muscular hypertonia and hyperaesthesia. Two affected animals were necropsied. Multifocal bilaterally symmetrical cerebral lysis involving the caudate nucleus, and the lateral nucleus of the brain was observed at necropsy of one of the heifers. The lesions appeared as focal areas of watery replacement of tissue, rather than the discoloured softening of "malacia". Pedigree information was available from only 2 of the affected animals and revealed that both had a common maternal great grandsire.

At histological examination, similar lesions were found in the brains, consisting of symmetrical foci of cerebral lysis, consisting of loss of myelin and axons, mild gliosis and preservation of neuronal cell bodies. Frank necrosis of tissue was absent. In most sites affected, the periphery of the lesions displayed spongy change with moderate gliosis, prominent loss of myelin, naked axons, occasional swollen axons, and the presence of myelin and PAS positive debris. Sites affected included the caudate nucleus, putamen, geniculate body and lateral nucleus. In addition mild to moderate spongy change without tissue destruction was observed in some large myelinated white matter tracts.

Microbiological and biochemical studies have failed to identify an aetiology for this disorder. A similar, possibly identical disease, has been observed in New Zealand on a single property, in Simmental and Simmental cross calves (J. M. Gill, W. J. Hartley, pers. Comm.). The lesions resemble those recently reported in the U.K. in Limousin cross calves (Palmer and others, 1988) and observed in Limousin calves in Australia (Harper and others, unpublished information), however, in the Limousin calves, the clinical findings of ocular deficits and the location of lesions in the optic nerves and cerebellar peduncles, suggest they are different, although remarkably similar disorders. We are keen to examine further cases and would appreciate advice of all suspected cases (please ring Peter Harper on 02 605 1511).

Reference:

Palmer A.C., Jackson P.G.G., Hudson W.E. (1988) Veterinary Record 123, 114.

REGIONAL VETERINARY LABORATORIES - GLENFIELD, WOLLONGBAR

MULTIFOCAL ENCEPHALOPHY IN LIMOUSIN CALVES (P. Harper, J. Boulton, G. Fraser)

We have recently recognised a neurological disorder in Limousin calves that is similar or possibly identical to that recently recorded in the UK (Palmer *et al.* 1988). The disease has occurred in 4 sibling calves on a single property in NSW. The calves were the result of multiple ovulation embryo transfer matings of a Limousin cow with semen imported from a Limousin bull from the UK. Clinical signs were observed from 4 months of age as failure to thrive, ataxia and apparent blindness. Progressively severe ataxia with pronounced forelimb hypermetria, apparent blindness, behavioural changes and weight loss, were observed during the course of the disease, which lasted up to 4 months.

14.

Histological examination of the brain from two of affected animals displayed multifocal lesions located in regions including the substantia nigra, internal capsule, ventral nucleus, cerebellar peduncles and optic nerves. The lesions were characterised by myelin and axon depletion with preservation of neurones, vascular hyperplasia and mild gliosis. Invasion of "gitter" cells was observed in one case. Occasional vacuoles in neuronal perikaryon were observed in the red nucleus, and mild Wallerian-type degeneration was observed in the ventral motor tracts of the brainstem and spinal cord. Microbiological and Biochemical studies have been unremarkable. As all affected animals were siblings, it is possible that hereditary factors may be involved.

We have recently also observed a similar disorder in Simmental cattle in Australia and New Zealand (unpublished observations). It is important to distinguish these lesions from those recorded in older dairy cattle in the UK affected with spongiform encephalopathy, suggested to be due to a scrapie-like agent (Wells *et al.*, 1987, Cranwell *et al.*, 1988). To further investigate these disorders, we would be pleased to hear of all suspected cases (Phone: P. Harper on 02 605 1511).

Reference:

Palmer A. C., Jackson P. G. G., Hudson W. E. (1988) Vet Rec. 123 : 114

REGIONAL VETERINARY LABORATORY - WOLLONGBAR

LIMOUSIN ENCEPHALOPATHY (Paul Gill)

We have had two cases of multifocal encephalopathy in Limousin calves. Both animals were the result of embryo transfer matings of a Limousin cow with semen from a stud bull from the U.K. Clinical signs of apparent blindness and ataxia began at four months of age and became progressively worse. Eyes, brain and spinal cord appeared grossly normal. Microscopically, the optic nerves had microvacuolation, gemistocytosis, and small foci of gliosis. Microcavitation, mainly in the white matter, was evident throughout the brain. Other associated changes included endothelial hypertrophy, gliosis, and infiltration by foamy macrophages. There was microvacuolation and microglial infiltration of the white matter at all levels of the spinal cord.

LISTERIA IVANOVII ABORTION IN DAIRY CATTLE (Paul Gill)

Five abortions occurred over a two week period in a herd of 120 Friesian cows. Listeria ivanovii was recovered from multiple sites of two of three fetuses presented for laboratory examination. L. ivanovii was also recovered from milk of one of the aborting cows. The abortions occurred between 7½ and 8 months of gestation. Histologically there was mild foetal pneumonia and large numbers of organisms consistent with Listeria were present in lung and liver.

HAEMORRHAGIC ENTERITIS IN TURKEYS (Paul Gill)

Three of 26 12-week-old birds in a mixed flock of 100 turkeys died suddenly over a three day period. One bird was available for necropsy. It was anaemic and had necrotizing enteritis affecting the lower half of the small intestine and severe haemorrhagic typhlitis. The spleen was paler than normal, soft and enlarged. Histopathologically post mortem changes in the small intestine and caecum were advanced. In the spleen there was hyperplasia and necrosis of lymphoid follicles and many reticuloendothelial cells contained basophilic intranuclear inclusions consistent with adenovirus infection.

15.

TUBERCULOSIS IN AN ECLECTUS PARROT (Paul Gill)

A six year old eclectus parrot from a large aviary was presented for necropsy. The bird was in very poor condition. Large numbers of intracellular acid fast bacilli were evident in impression smears of liver. Histologically there was severe multifocal granulomatous pneumonia, and portal plasmacytosis and focal Kupffer cell/histiocyte proliferation in the liver. Large numbers of acid fast bacilli were present in both organs. The lamina propria of the intestine was diffusely expanded by histiocytic infiltration and massive numbers of acid fast bacilli.

GRANULOMATOUS PNEUMONIA IN PIGEONS (Paul Gill)

Six young (1-4 week old) pigeons died without obvious illness. Two birds were necropsied. Both had firm white foci with soft centres throughout the lungs. Microscopically there was severe diffuse granulomatous pneumonia and dense dominant growths of Salmonella spp. were cultured from the lungs of both birds.

REGIONAL VETERINARY LABORATORY, ORANGE

LISTERIAL MYELITIS (John Seaman)

An interesting case of posterior paresis and paralysis in sheep was diagnosed as Listerial myelitis from the Dubbo area in the central west of New South Wales. A total of 33 sheep out of 3000 at risk died over a 4 week period. Clinically affected sheep showed a variety of nervous signs ranging from mild ataxia with knuckling of the hind limbs, through to posterior paralysis and in severe cases total recumbency. Brains and spinal cords were examined from six animals, with histological lesions of severe myelitis in the lumbar cord only in 2, and cervical cord in the other 4 (2 of these also had mild brain stem involvement). Listeria monocytogenes was isolated from the spinal cord but not the brain in 3 out of 4 sheep cultured. The precipitating factors for the outbreak are not known but the weather had been unseasonably wet in early spring and sheep had been dipped during the previous month.

ANTHRAX

Anthrax was the flavour of the month in November with the disease confirmed on 8 properties, 3 from Nyngan, 3 from Condobolin, 1 from Forbes and 1 from Orange. Sheep losses of over 100 dead were experienced in at least 3 cases. One case had significant regulatory repercussions with sheep from that property being sold at Forbes sale yards and subsequently distributed around the state. A local piggery owner at Forbes collected dead sheep out of the sale yards and fed them (illegally) to his pigs with 22 out of 90 developing Anthrax 2-3 days later. A local dog at Forbes was suspected of having Anthrax after "feeding" at the piggery. The Forbes sale yards were closed for one week and decontaminated at an estimated cost of \$15,000. Thirty tonne of sheep meat (traced to Gunnedah abattoir) was unfit for human consumption and processed for meat meal. The positive Anthrax diagnosis at Orange was a traceforward from the Forbes sale yards. The saga continues

REGIONAL VETERINARY LABORATORY WAGGA WAGGA (John Glastonbury)

CATTLE

Pica

Following the construction of new cattle yards, animals developed a craving for the subsoil which had been exposed. Analyses performed on the soil at the Agricultural Research Institute, Wagga, showed it to be both acidic and salty with the major cations being magnesium and sodium. Their conclusion was that the subsoil was providing a magnesium salt lick.

16.

Woolly Coated Hereford Cardiomyopathy

Before one week of age, 8.8% of 80 Hereford calves died. The histological finding of severe multifocal, locally extensive myocardial degeneration and fibrosis, coupled with evidence of congestive heart failure, led to the above diagnosis. When alerted to this fact, the submitting veterinarian agreed that the hair coat appeared abnormal.

Osteomalacia, "Peg-Leg"

A mortality rate of 6.7% occurred amongst 300 14 year old Shorthorn cows in poor condition recently introduced to a western Riverina property. Clinical signs were marked by a "splay-legged" appearance. Dehydration was evidenced by a PCV of 53% in one sample and the serum, calcium, magnesium and phosphorus levels were found to be 1.13, 0.45 and 0.43 mmol/l respectively. Minor degenerative changes consistent with old age were found histologically in the liver and kidney.

Lead Poisoning

A Leeton district farmer found a "permanent" solution to a bloat problem in heifers. His treatment is copious amounts of sump oil. Six of the heifers exhibited nervous symptoms and 4 died. The veterinarian surgeon performing the post mortem examination made a presumptive diagnosis of lead poisoning. This was confirmed following analysis of kidney at BCRI Rydalmere with 709 and 589 $\mu\text{mol/kg}$ Pb being recorded. Greater than 20 $\mu\text{mol/kg}$ Pb is regarded as possibly "positive" and interpreted in light of history. Histopathology did not yield any significant lesions in this case.

SHEEP

Footrot

During September and October Gram stained smears were examined from 61 farms. On 47 they contained organisms with a morphology consistent with *Bacteroides nodosus*.

Virulence testing of *B. nodosus* was completed on 8 mobs of sheep from 7 farms. Two did not yield any *B. nodosus* (previously lame sheep, free of footrot) 3 yielded virulent strains (including 1 vaccinated flock), 1 yielded intermediate strains (under-running of feet on lush pasture) and 2 yielded benign (minimal under-running of lush pasture).

Clostridial Diseases

These diseases are still capable of causing substantial mortalities in sheep throughout the Riverina. From August to October we diagnosed the following conditions:

Enterotoxaemia - Mortality rates of 0.8 to 10% were attributed to this disease on 9 farms. The diagnosis was based upon the detection of cerebral angiopathy with perivascular oedema, focal symmetrical encephalomalacia and/or organisms with a morphology consistent with *Clostridium perfringens* in intestinal mucosal smears.

Black Disease - An interesting manifestation of this disease was found to be responsible for the death of 3.3% of a mob of 5-year-old ewes. Direct impression smears stained positively with fluorescent antibody against *Clostridium novyi*. Histologically there was severe segmental fibrinous perihepatitis associated with numerous clumps of organisms with a morphology consistent with *Clostridia*.

17.

Malignant Oedema - Three days after being subjected to the mules operation and marking 6. 1% of a mob of 8-week-old Merino lambs died suddenly. Impression smears of muscle stained positively with fluorescent antibody against *Clostridium chauvoei* and histological examination revealed acute necrotising haemorrhagic myositis.

Yersiniosis

Isolation of *Yersinia* sp. was associated with diarrhoea in sheep on 6 farms during August. Morbidity rates varied from 1.2 to 10.0% and subsequent case fatality rates were approximately 5.0%. *Yersinia pseudotuberculosis* was isolated from material submitted from 5 farms and in the 3 cases examined histologically there was acute segmental necrotic erosive enteritis. *Y. enterocolitica* was recovered from the final farm.

Polioencephalomalacia

Following the detection of lamina cortical necrosis histologically, this disease was diagnosed on 5 farms. The mortality rates varied from 0.3 to 2.9%. Interestingly on one farm, both ewes and their 5-month-old lambs were involved. The detection of fluorescence in fresh brain when examined under ultra-violet light enabled a rapid diagnosis in some instances.

GOATS

Congenital Goitre

Of 300 Angora kids on 1 farm, 2% were found to be suffering from goitre clinically. Their thyroids weighed up to 6.6gm (normal neonatal lambs have thyroids weighing 2gm). Microscopic examination confirmed, the presence of hyperplastic parenchymatous goitre.

BIRDS

Yersiniosis

A substantial mortality of 80% amongst 25 canaries occurred in one aviary. Heavy growths of *Yersinia pseudotuberculosis* were recovered from a variety of visceral organs. Multifocal pyogranulomatous hepatitis as well as embolic pyogranulomatous nephritis and pneumonia were detected histologically.

HORSES

Equine Herpes Virus 1

Two abortions occurred at about 180 day's gestation on a local farm. One aborted foal was submitted to the laboratory and the most significant gross findings were generalised oedema, a swollen friable and congested liver and severe oedema of vessel walls in the amnion. Histological examination revealed focal necrotising inflammation in the lung, liver, spleen, thymus, lymph nodes and alimentary tract. Possible eosinophilic intranuclear inclusion bodies were observed in the thymus. In addition segmental, necrotising non-suppurative vasculitis was observed in a number of organs.

A herpes virus, as yet to be characterised, was isolated from material submitted to the CVL Virology.

VICTORIA (Susan Friend)

REGIONAL VETERINARY LABORATORY, BENALLA

PROLIFERATIVE HAEMORRHAGIC ENTEROPATHY IN SOWS (John Mackie)

Eight out of 50 sows died after an acute episode of diarrhoea with bloody black faeces. On postmortem examination, the wall of the terminal ileum was thickened, the mucosa was corrugated and the ileal contents were dark red and contained large fibrin casts. Caecal and colonic mucosae were not markedly affected and the contents were dark red to black. The most pronounced histological lesion was a severe ileitis featuring inflammatory cells within crypts, many of which were dilated and lined by attenuated enterocytes. A mixed inflammatory cell infiltrate, including large numbers of eosinophils was present in the lamina propria and the upper region of the submucosa. The use of a Warthin-Starry silver stain revealed moderate numbers of silver-positive, s-shaped organisms, morphologically consistent with Campylobacter spp., arranged in rows or clumps in the apical cytoplasm of some enterocytes in affected crypts.

A diagnosis of proliferative Haemorrhagic Enteropathy associated with Campylobacter spp. was made, based on the nature and location of the gross and histopathological lesions and the failure to culture Salmonella spp.

LUPINOSIS IN CATTLE (John Mackie)

A group of 80 yearling heifers were grazing lupin stubble for 3-4 weeks. Mortalities commenced 24 hours after the cattle were shifted off the lupin stubble into a paddock sown with improved pasture and lucerne. Affected animals were depressed, staggering and some were clinically jaundiced. The clinical course before death was generally brief (1-3 days) and the mortality rate exceeded 25%. On post mortem examination, the carcasses were jaundiced with extensive subcutaneous and subserosal haemorrhages. Livers were pale orange and firm.

Histological examination revealed diffuse hepatic fibrosis with biliary proliferation and a marked reduction in hepatic parenchymal mass. There was also moderate fatty vacuolation of hepatocytes, inspissated bile and scattered deposits of golden-brown pigment which appeared to be predominantly intracellular. Abnormal mitotic figures with dispersal of chromatin were present occasionally in hepatocytes

Serum samples from 33 heifers were submitted for- biochemistry and the following results were obtained:

	<u>RANGE</u>	<u>NORMAL</u>
GGT	65-384 U/l	< 25 U/l
GLDH	26-389 U/l	< 20 U/l
AST	60-110 U/l	< 80 U/l
TOTAL BILIRUBIN	6-266 U/l	< 24 umol/l

Total bilirubin was elevated in 8 of the 33 samples; conjugated bilirubin was approximately one third of the total bilirubin.

A diagnosis of mycotoxic lupinosis was made based on:

- (a) the histological picture of a severe, diffuse, chronic hepatopathy with fibroplasia, biliary proliferation and fatty change
- (b) the presence of abnormal mitotic figures
- (c) the history of access to lupin stubble.

19.

Before being grazed, the lupin stubble had been raked and burned. However, some stubble remained after the raking and burning and the following rain and warm weather, would have provided favourable conditions for growth of the fungus Phomopsis leptostromiformis.

REGIONAL VETERINARY LABORATORY, BENDIGO

KHANCOBAN X DISEASE (R. T. Jones)

On a 100 sow Pig farm at Khancoban in New South Wales, 125 pigs from one group died after ingesting a ration supplied by a feedmill. Pigs started to die 24-48 hours after receiving the ration. Appetite in the affected groups was depressed and only pigs fed the ration became sick. No other pigs were fed this ration and no others became sick. Affected pigs appeared blind and, to a lesser degree, inco-ordinated. Growth rate in the affected groups was markedly reduced and pigs were still dying 12 weeks later. No significant gross or histological lesions were detected. Analyses for lead, copper, arsenic, mercury, selenium, DDT and Dieldrin were negative. A toxicity of unknown cause was suspected. Any contents or suggestions would be greatly appreciated.

MENINGOENCEPHALITIS OF CALVES (R. T. Badman)

Two cases of severe meningoencephalitis in calves had been encountered on separate properties, in 1988. In both animals dullness and inappetence was noticed for a day prior to death. The histological picture was one of severe thromboembolic-type meningoencephalitis similar to that described for Haemophilus somus. Bacteriological culture did not yield any significant organisms although specific culture for Haemophilus was not performed.

WORMS AND MORE WORMS (R. T. Badman)

Winter 1988 was a great season for internal parasites, but obviously not so good for sheep. The dry summer and autumn could have been expected to aid the effectiveness of summer drenching programs but in spite of this, very heavy burdens were found in well managed flocks. Since mid-May the weather was very wet and exceptionally mild and in every way conducive to maximum worm larval survival on pasture. In some cases the high burdens encountered led to winter larval pickup as a result of ineffective summer drenching programs. In several cases, however, two summer drenches allowed considerable larval contamination of pasture and exceptionally high burdens in post lambing ewes. Follow-up 'drench test' studies indicated the presence of resistance to Levamisole.

UNIVERSITY OF MELBOURNE, VET. SCIENCE FACULTY

DISSEMINATED ASPERGILLOSIS IN A GERMAN SHEPHERD (Jenny Charles)

A five year-old male German Shepherd presented with a five week history of progressive fore and hind limb ataxia, with rapid deterioration to extensor rigidity, opisthotonus and coma. CSF examination showed a marked increase in pressure, protein levels and leucocyte numbers.

Necropsy examination revealed multiple firm white-cream circumscribed nodules throughout both kidneys, with similar material radiating from the pelvis into the medullae. A small firm cream nodule was present proximally in one testis with extension into the adjacent epididymal head. There were multiple acute peripheral splenic infarcts. The brain was swollen, with gyral flattening and cerebellar lipping and coning.

Histologically, there was a severe unilateral granulomatous orchitis and bilateral nephritis, with occasional fibrinoid necrosis of renal arcuate arteries. Small pockets of macrophages and giant cells, the latter containing fungal hyphal elements, were scattered throughout the lungs and associated with splenic periarteriolar lymphoid sheaths. There was a severe generalised granulomatous meningoencephalitis, most intense over the cerebellar meninges, with large foci of malacia. Numerous thin-walled, septate, branching

hyphae of uniform diameter and with lateral aleuriospores were present within multinucleated giant cells, and associated with fibrinoid necrosis of meningeal vessels and with ependymal necrosis in the mesencephalic aqueduct.

Aspergillus carneus was cultured from the sediment of a centrifuged urine sample. The original portal of entry was unidentified but haematogenous spread via circulation aleuriospores would explain the distribution of the lesions. This case differed from the series of disseminated *Aspergillus* cases reported in W.A.. German Sheperds, in its lack of bone and joint involvement, minimal lymph node involvement and in the severity of the CNS lesion.

CHRONIC ACTIVE HEPATITIS IN DOBERMANS (Jenny Charles)

A four year old male and a nine year old female Doberman presented with histories of weight loss, jaundice and ascites with the female showing signs of hepatic encephalopathy. Clinical pathology was consistent with an active hepatopathy, cell death and significant cholestasis.

Hepatic biopsies from the dogs were comparable, with irregular lobular size, nodule hyperplasia and individual hepatocyte hypertrophy. Mild to moderate numbers of lymphocytes, plasma cells, macrophages and fewer neutrophils extended from portal triads into lobules, associated with prominent apoptosis of hepatocytes. There was minimal fibroplasia or biliary reactivity, and little significant cholestasis. Many periportal hepatocytes contained yellow-brown granular material, often within cytoplasmic vacuoles, and this stained strongly positive for copper with rubianic acid.

Doberman Pinchers are over-represented amongst canine cases of chronic active hepatitis, suggesting a genetic susceptibility. The excessive hepatic accumulation of copper that occurs in the breed (with copper levels usually inconsistent with degree of cholestasis) suggests the condition is akin to chronic copper toxicosis of Bedlington terriers.

AUSTRALIAN ANIMAL HEALTH LABORATORY GEELONG

VESICULAR EXANTHEMA (M. Westbury, P. Hooper)

This disease is remarkable in its rapidity of development after experimental inoculation. Inoculation into scarified skin of the snouts resulted in temperature rises exceeding 41°C within 24 hours and vesicle formation following another 24 hour-period. The results of intranasal and intravenous inoculations, the usual routes of inoculation were less well defined. For example, one pig inoculated intranasally did not develop clinical signs but a contact pig developed vesicular exanthema 4 days later.

PHOTOTOXIC VESICULO-BULLOUS DERMATITIS (P. Hooper)

A disease almost identical in appearance to vesicular exanthema was produced in pigs by rubbing the snouts (and sometimes the feet) with green leaves of parsnips and then exposing the pigs to ultra violet light for 8 hours daily. There was reddening of the rubbed areas within 48 hours and vesicle formation within 72 hours. Contact with parsnips followed immediately by UV light exposure was required to produce the dermatitis as the photo-toxic psoralens (fucocoumarins) in the parsnips only lasted a short time in the bodies of the pigs. Lesions could also develop as a result of ingestion but were complicated by an excessive sunburn-like reddening on other parts of the body, notably the ears and the backs.

TRICHINOSIS (A.J. Forman, P. Hooper)

AAHL has supported the work of the Tasmanian Department of Agriculture on trichinosis in Tasmanian wild carnivores. This included infectivity experiments in pigs, rats, mice and chickens and the evaluation of an ELISA test. In summary, the quantitative infectivity experiments using digestion techniques for counting larvae showed that each of these species could be infected by ingestion of infected muscle or isolated larvae. However, there was a low yield in all species i.e. instead of having a large multiplication of numbers of larvae by reproduction in the test species, e.g. 1000 fold; the total yield was only of the order of the same number as originally inoculated.

Various tests were used, digestion and counting of larvae, squash preparations and histology, and histochemical work is still proceeding to identify the nature of the "capsule" surrounding the larvae in the muscles. Histologically and by squash preparation, this seemed to consist of an interesting material, seeming to be flexible, thin walled, and staining basophilically (H&E) with large round nuclei, presumably modified muscle fibres. The histochemical work will help to differentiate between Trichinella spiralis and Trichinella pseudospiralis.

REGIONAL VETERINARY LABORATORY - BAIRNSDALELETHAL HEPATOPATHY IN FRESIAN HEIFERS NEAR BAIRNSDALE (Kit Button, Ian Jerrett)

Twenty-eight of 30 heavily in-calf 2 year old Fresian heifers developed liver damage after grazing paddocks dominated by a lush growth of kikuyu grass. Early signs in worst-affected animals included dullness, heavy breathing, grunting, a staggering gait and prostration. Six heifers died within 48 hours of the onset of clinical signs.

Surviving heifers showed jaundice and photosensitization of paler skinned, areas, muzzles, freeze brand sites and udders. Eighteen heifers gave birth to premature calves which all survived with nursing care. Blood samples showed marked elevation of enzymes GLDH and Gamma GT as well as elevated urea, bilirubin and CPK. Necropsies on 3 heifers showed enlarged livers. Histologically the liver lesion was periportal hepatocellular necrosis and haemorrhage with sparing of periacinar areas. Four sheep placed on one of the 2 suspected paddocks for 6 days remained healthy with no change in liver enzyme activities. Water from 2 dams was without visible algal contamination and caused no clinical effects to 2 mice when provided to them as sole source of drinking water for 48 hours. Kikuyu grass and plant debris were negative for spores of Pithomyces chartarum by the wash method. Three similar outbreaks occurred this autumn in the Bega area of New South Wales. The Bega outbreaks all had a kikuyu-grass association with the same histological lesions as those from Bairnsdale as well as having high mortality rates.

A mycotoxin is suspected on epidemiological grounds.

SPRING PHOTOSENSITIZATION IN GIPPSLAND CATTLE (K. Button, K. Thomas)

Twenty nine submissions involving photosensitized cattle were received during the months of September and October 1988. There was no apparent breed or sex predilection with bulls, steers, heifers and cows of both beef and dairy breeds represented. All but 2 of the submissions were clearly hepatogenous with elevated Gamma GT (up to 795 U/l normal (50) and GLDH (up to 9380 U/l, normal (35)) activities indicating hepatobiliary and hepatocellular damage respectively. All the hepatogenous cases occurred in single animals whereas in one of two equivocal cases, 10 of 40 Hereford steers were affected. Cases were from all parts of Gippsland, the Mornington Peninsula and the southern coast of New South Wales. Hepatogenous "spring photosens" is well-recognised in Gippsland but the factors leading to liver damage have not been identified.

BOVINE VIRUS DIARRHOEA (Peter Mitchell)

Six cases of bovine virus diarrhoea have been identified in Gippsland so far this year.

- a heifer introduced at 7 months began scouring and losing weight at 12 months. Head and foot lesions were observed at 15 months.
- scouring and a nasal dermatitis were observed in a 7 month old calf.
- scouring and head lesions were observed in a 15 month old steer. Blood samples showed a lymphoenia and neutropaenia with a left shift.
- a 7 month-old calf commenced scouring, T40.1°C. Four days later, vesicles on the tongue and nasal discharge were observed. At 6 days, the temperature was normal. The calf died at 7 days. Two other animals had died in the previous 3 weeks with similar symptoms.
- a 12 month-old animal developed a mild scour with dehydration, erosions on the muzzle and a nasal discharge, T40°C. White cell counts were low but within the normal range, with a left shift.
- a heifer, bought at 10-12 months, developed foul-smelling diarrhoea soon after purchase. The animal lost condition and developed erosive lesions on the head and feet within one month of purchase.

In all cases, both diarrhoea and head lesions were seen, and virus was isolated from blood samples.

REGIONAL VETERINARY LABORATORY HAMILTON

SALMONELLOSIS IN FAIRY PENGUINS (Cor Lenghaus)

On 28 July last, the live-sheep carrier "Al Quarain" collided with the wharf at Portland Harbour and split a fuel tank. An estimated 160 tonnes of bunker oil was discharged into the harbour. Floating booms contained the spill, except for a quantity which escaped underneath the jetty. The rock wall at the end of the jetty was also the site for a small colony of Fairy or Little Penguins (*Eudyptula minor*). During the next two weeks 22 penguins were brought to local Wildlife Officers, with oil contamination of their feathers. All attempts to remove the bunker oil with progressively lighter oils proved futile. The oil was finally removed with detergent, which meant that the birds had to remain housed until preening with their natural oils had restored their water proofing.

Six birds died soon after admission from what were considered to be non-specific, stress-related conditions. Only one bird, which had an acute nephrosis, was submitted to the RVL.

At post mortem the carcass was very 'sticky' and dehydrated. There was localised peritonitis about the gall bladder, which was distended with gelatinous, semi solid bile. The stomach/proventriculus contained creamy white material overlying a reddened mucosa. The remainder of the alimentary tract was empty and otherwise unremarkable. The spleen was pale tan and swollen, cylindrical in shape, 3cm x 1cm diameter. The kidneys were a similar colour and also appeared swollen.

Histologically there was extensive erosion and ulceration of the proventriculus with numerous bacterial colonies present. There was similar localised bacterial ulceration of the wall of the gall bladder. Numerous bacterial colonies were disseminated in septic emboli and foci of necrosis in the liver and spleen. There was a focally severe nephrosis without significant bacterial invasion of the kidneys.

23.

A week after this signal case of Salmonellosis many of the remaining birds started to sicken and die. Signs seen were as before: intermittent vomiting and ultimately food refusal, prostration and death. All but 3 birds died in 4 days. Diarrhoea was not a feature, although most birds submitted had vents soiled with crusty, white urates. All birds were severely dehydrated. Localised peritonitis around a distended gall bladder was a constant finding, with the gall bladder adherent to both the wall of the proventriculus and to the ventral body wall. Hyperaemia, erosion and ulceration of the mucosa of the proventriculus were also common to all birds. Most birds had minute, white foci <1mm diameter scattered throughout a swollen liver. These could only be seen grossly on close inspection and in good light. There were varying degrees of diffuse pallor and swelling present in the spleen and kidneys. While some birds had a localised distension and hyperaemia of the intestine, only in one bird was there a grossly obvious diphtheresis of 2-4cm lengths of intestine.

Group B Salmonella sp. was isolated in heavy pure growth almost at will from effected tissues. The source of the Salmonella is still being debated. Salmonella was not isolated from food and water sources.

JOBLINE

TEMPORARY POSITION - ARMIDALE (N.S.W.) R.V.L.

The Armidale (N.S.W.) laboratory is looking for an experienced pathologist to assist with routine diagnostic work from mid April to the end of August 1989. Those interested in a short spell in the laboratory during this period should contact Dr Malcolm Smeal on (02) 217 5267.

FROM OUR NORTH AMERICAN CORRESPONDENT

SUBSTITUTE PATHOLOGIST

The Department of Pathology seeks an experienced DVM pathologist (board certification preferred) to substitute during a 12 month sabbatical leave period (September 1989 through August 1990). Qualified candidates will have the following responsibilities:

- (1) to supervise the Necropsy Service (approximately 2000 accessions per year), and act as Pathologist-in-charge for both the Necropsy Service and the Surgical Pathology Service (by rotational assignment),
- (2) to participate in the department residency training program by supervising Senior Residents and Residents in service activities, and
- (3) to be actively involved in the departmental professional training programs.

Interested and qualified candidates should respond to Dr. Bendicht U. Pauli, Professor and Chairman, Department of Pathology, New York State College of Veterinary Medicine, Room 215 Veterinary Research Tower, Cornell University, Ithaca, New York 14853-6401 (Tel. 607-253-3300).

RESIDENCY IN VETERINARY PATHOLOGY

The College of Veterinary Medicine, North Carolina State University, announces residency positions in veterinary pathology, one will begin approximately January 1, 1989 and another position will be available beginning July 1, 1989. The program will emphasize competence in veterinary pathology to prepare the trainee for certification by the ACVP. Individuals successfully completing the training program will be encouraged to continue their training in a research program leading to the PhD degree. Applicants must possess a DVM or equivalent degree; previous experience in pathology is desirable but not mandatory.

24.

Stipend is \$18,392. Applicants should send a curriculum vitae, a statement of goals and interests, complete transcripts and 3 letters of recommendation. Closing date for applications for the position starting January 1st, is December 15, 1988 or until a suitable applicant is identified and January 15, 1989 for the position starting July 1, 1989. Send communications and all application materials to the Office of Associate Dean for Services, Director of Internship and Residency Programs, North Carolina State University, College of Veterinary Medicine.

VISITING INSTRUCTOR IN ANATOMICAL PATHOLOGY

Visiting instructor - Anatomical Pathology. Department of Microbiology, Pathology and Parasitology, College of Veterinary Medicine, North Carolina State University has an opening for a visiting instructor in Anatomical Pathology. This is a non-tenure track position with an annual appointment. Candidates should possess a D.V.M. or equivalent degree and have completed formal training (residency or graduate program) in anatomical pathology. Candidates should have partially or completely met the eligibility requirements for certification by the American College of Veterinary Pathologists. This position is intended for an individual wishing time to prepare for board certification without having the full responsibility of an academic position. About 50% of time will be devoted to supervising anatomical pathology residents and participating in the necropsy and surgical pathology service program of the College of Veterinary Medicine. Remaining time may be devoted to preparation for board certification, pursuing research interest, training with industrial and government toxicologic pathologists in the Research Triangle area, etc. Salary range - \$27,000 to \$30,000 per year. Starting date, July 1, 1989. Applicants should send letter of application, curriculum vitae and names of 3 references to Dr. Talmage T. Brown, Jr., Professor of Pathology, Department of Microbiology, Pathology and Parasitology, College of Veterinary Medicine, North Carolina State University, 4700 Hillsborough Street, Raleigh, North Carolina 27606, (919) 829-4258. North Carolina State University is an Equal Opportunity/Affirmative Action Employer.

RESIDENCY IN ANATOMIC AND DIAGNOSTIC PATHOLOGY

The Zoological Society of San Diego is offering a full-time residency in anatomic and diagnostic pathology at the San Diego Zoo to be available July 1, 1989. Requirements include a DVM or equivalent degree, and at least one year of diagnostic pathology including necropsy and strong competence in histopathology. Approximately 10% of the resident's time will be available for seminars at the University of California, San Diego facilities. There are about 1,200 accessions annually. The resident will be expected to learn the anatomic variations and the diseases that occur in a wide variety of exotic animals (including amphibians, reptiles, birds and mammals) and will be required to prepare at least one manuscript for publication on a specific disease or diseases affecting a particular species. Maximum salary (taxable income) for the residency is \$19,500. Excellent fringe benefits including employer paid insurance and generous vacation/sick leave. Send a resume, three references (name, address and phone), copy of university transcripts and a letter of intent to Dr. Marilyn P. Anderson, Diplomate ACVP; Director of Pathology, San Diego Zoo; PO Box 551; San Diego, CA 92112-0551. Applications accepted through November 7, 1988.

POSTDOCTORAL TRAINING IN VETERINARY ANATOMIC AND CLINICAL PATHOLOGY

Colorado State University has positions for postdoctoral training in anatomic pathology and in clinical pathology. The core program includes applied pathology training, research, and course work designed to culminate in the MS and PhD degrees and ACVP board certification. Training in morphologic and/or clinical pathology includes experience with food, companion, and laboratory animal species. A variety of research programs are available including toxicological pathology, radiation pathology, viral oncology, immunopathology, experimental haematology, neuropathology, ophthalmic pathology, bone pathology, molecular pathology, and wildlife and parasitic diseases. Additional opportunities exist for research in environmental pathology in conjunction with the Lovelace Inhalation Toxicology Research Institute (ITRI), Albuquerque, New Mexico. Stipendiary support is available from multiple sources on a competitive basis; levels depend on prior experience and funding source. Applicants should have a DVM or equivalent doctoral degree. Applications must include CSU Graduate School GS-1 form, a curriculum vitae, a

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statement of goals and interests, complete transcripts and three letters of recommendation. Applications are due by December 1, 1988 for positions open July 1, 1989. Send communications to Dr. Edward A. Hoover, Chairman, Department of Pathology, College of Veterinary Medicine and Biomedical Sciences, Colorado State University, Fort Collins, CO 80523 (303-491-0986).

IMMEDIATELY PRIOR TO THE ASVP A.G.M. & CONFERENCE

Australian Perspectives in Veterinary Virology

Thursday, 11 and Friday, 12 May, 1989, Australian Animal Health Laboratory, Geelong

Aims: To make a major contribution to the knowledge of Veterinary Virology in Australia; to assess the future research needs of Australian animal industries.

The symposium will mark the retirement of Bill Snowdon, Chief of AAHL. Prominent researchers, industry representatives and politicians have agreed to contribute and a full program will be available in the New Year.

PROGRAM

OPENING ADDRESS

SESSION FOUR:
THE INTENSIVE LIVESTOCK INDUSTRIES

SESSION ONE:

AUSTRALIA - THIS ISLAND CONTINENT

1. Exotic disease status
2. Feral Animals

SESSION TWO:

THE EXTENSIVE (GRAZING) LIVESTOCK INDUSTRIES

1. Introduction
2. Arboviruses
 - a. Overview
 - b. Vector ecology
 - c. Bluetongue
 - d. Akabane and Simbu serogroup
 - e. Bovine ephemeral fever and Australian rhabdoviruses
3. Herpes viruses
 - a. Overview
 - b. Equine herpesviruses
 - c. Malignant catarrhal fever
4. Neonatal viral diarrhoea
5. Foot-and-mouth disease

SESSION THREE:

THE FISH INDUSTRY

1. Poultry
 - a. Overview
 - b. New vaccine technology
 - i. Pox viruses
 - ii. Herpesviruses and adenoviruses
 - c. Exotic poultry diseases
 - i. Avian influenza
 - ii. Newcastle Disease
2. Pigs
 - a. Overview
 - b. Aujeszky's disease
 - c. Pestiviruses

SESSION FIVE:

AUSTRALIA AND INTERNATIONAL TRADE

1. Overview
2. Role of quarantine
3. Emerging technology for disease diagnosis
 - a. Gene analysis
 - b. Antigen analyses
 - c. Electron microscopic analyses
4. The role of AAHL

CLOSING ADDRESS.

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A dinner, to thank Bill Snowdon for his contribution to animal health, will be held on the first evening. The symposium by a meeting of the Australian Association of Veterinary Pathologists on 13 and 14 May.

The registration fee will be \$60 including morning and afternoon tea, lunches and a copy of proceedings. The dinner for Bill Snowdon will cost \$30. Attendance will be limited to 200.

Organising Committee

Tony Della-Porta	Convenor AAHL	Bill Geering	BRR, DPIE, Canberra
Marion Andrew	AAHL	Keith Hughes	University of Melbourne
Trevor Bagust	CSIRO, Animal Health Parkville	Ian Parsonson	Ocean Grove
Kevin Doyle	AQIS, DPIE, Canberra	Paul Selleck	AAHL
Tony Forman	AAHL	Toby St George	CSIRO, Tropical Animal Science
Eric French	Mount Eliza	Michael Studdert	University of Melbourne

For further information please contact the Secretary, "Australian Perspectives in Veterinary Virology", P.O. Bag 24, Geelong, VIC. 3220.

DIARY DATES, 1989

March 27-April 1	<u>Australian Veterinary Association</u> Conference Perth.
May 11-12	<u>Australian Perspectives in Veterinary Virology</u> (see accompanying notice for details) - AAHL, Geelong
May 13-4	<u>Australian Society for Veterinary Pathology</u> , A.G.M. and Conference, AAHL, Geelong.
June 25-30	Fifth International Symposium, <u>World Association of Veterinary Laboratory Diagnosticians</u> , Guelph, Ontario, Canada. Final registration 15 th April. For Further details contact WAVLD Conference Office, University of Guelph, Guelph, Ontario, Canada NIG 2W1 or Secretary ASVP, Phone (08) 228 7322.
July 23-29	<u>Third International Symposium on Poisonous Plants</u> - Logan, Utah, U.S.A.
October 30-November 3	<u>American College of Veterinary Pathologists</u> 40 th Anniversary Celebrations and A.G.M., Baltimore U.S.A. Scientific programme on inflammation. Papers invited for specialty group sessions (abstracts by 1 st June). Further information from Dr. Helen Acland, University of Pennsylvania, School of Veterinary Medicine, New Bolton Centre, 382 West St. Road, Kennett Square, P.A. 19348, U.S.A. Australian pathologists welcome.

New Phone Numbers

The Editor of VPR has a new phone number (08) 226 0571 and facsimile number (08) 226 0476, while the Treasurer can now be contacted on (08) 226 6478. The postal addresses remain unchanged.