Kimberley horse disease ("Walkabout disease")

C. R. Toop
From the earliest stages of its development, the cattle industry in the Kimberleys has been seriously handicapped by mortality in horses. A plentiful supply of good horses is essential for the successful operation of a cattle station, and when losses occur suitable replacements are often difficult to obtain and they are always costly.

The average station requires about 200 horses for mustering, droving and allied activities, and on one large concern near Fitzroy Crossing the total exceeds 600 head. Conditions for horses in this region are hard at the best of times. Temperatures are usually high and humidity is often excessive. Horses are not only required to work under these conditions but must also live off the country, and as the dry season advances and the quality of the grazing deteriorates, they steadily lose condition.

A large reserve of horses is thus essential to enable mustering and droving plants to be spelled and replaced by fresh horses as their condition declines.

Additional Cause of Mortality

A further and more serious cause of wastage is the mortality resulting from Kimberley Horse Disease or the so-called "Walkabout Disease" which is regarded by cattlemen as the principal cause of loss amongst horses in the northern areas. Official records date back to 1897 when the loss of 122 horses was reported as having occurred on a single property in five months, with a total of 300 deaths in...
six years. These losses have continued down the years and it was revealed by Army veterinary officers stationed in the Kimberleys during the War, that 1,419 horses died of the disease on 16 properties between 1942 and 1946.

Cases may be reported at any time of the year, but the majority of deaths occur during the wet season between January and April, and losses are heaviest in unusually wet years.

SYMPTOMS

The most characteristic symptom is an abnormal desire to walk, but this is not observed in all cases. In a typical case the animal appears sleepy and depressed and adopts a peculiar stance with the head depressed, the lips hanging loosely, the eyes half closed and the weight of the body thrown forward over the forelegs. Periodically it commences to walk—aimlessly and generally in a straight line, and may stand pushing its head against obstacles such as trees or fences which impede its progress.

These symptoms may continue for several days until death occurs, and in the final stages the animal becomes prostrate and is unable to regain its feet.

In the more chronic form of the disease, there is a slow but progressive loss of condition and the horse becomes emaciated and lethargic. Some of these cases are rather indefinite but a diagnosis can always be established by the microscopic examination of the liver. A post mortem examination reveals much evidence of liver damage. The pathological changes include necrosis or death of certain groups of cells, haemorrhages into the tissues, and depending on the type of case, a variable degree of fibrosis, but the feature of most significance is a marked enlargement of the liver cells which is described as megalocytosis and is diagnostic.

Investigations by Departmental officers at the turn of the century had suggested that the disease was due to impaction of the stomach, resulting from the consumption of the coarse herbage and the heavy infestations with stomach and bowel worms which were frequently observed, were also thought to play a part.

POISON PLANTS SUSPECTED

The possibility of plant poisoning however, was recognised almost from the outset, and although feeding experiments with suspect plants including the species eventually incriminated were attempted, they were too limited in design and scope to provide any information of value.

WHITEWOOD

The first scientific investigation was undertaken in 1927 and as the result of a series of feeding experiments, they had conducted, it was reported by Murnane and Ewart that Whitewood—a shrub or small tree with a wide distribution in the north had been incriminated. This finding was not, however, accepted by Kimberley cattlemen who were quick to point out that the disease was absent on some properties where Whitewood grew in great abundance, and that losses were heavy on others where it did not occur at all.

It was subsequently shown that Whitewood leaves could be consumed by horses in large amounts with impunity, whereas the seeds even in very small amounts were highly toxic, and it is obvious now that seeds had been included in the plant material fed, and that the condition produced had been mistaken for Walkabout disease. Whitewood seeds are unpalatable and are never eaten voluntarily by horses, so the matter is of no practical significance.

CO-OPERATIVE INVESTIGATION

There the problem rested for more than 20 years and losses still continued, until in 1949, a co-operative investigation by the C.S.I.R.O., the Animal Industry Division, Northern Territory and the Department of Agriculture, Western Australia, was arranged.

The first part of this investigation was concerned with a field survey to define the geographical distribution of the disease and to make a further study of its epidemiology. It ranged over 20,000 square miles and extended from the Victoria River in the Northern Territory to Wyndham and Fitzroy Crossing in the Kimberley Division. This was combined with a botanical survey which involved a vast amount of detailed work in the collection and identification of plant specimens.
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These surveys revealed that the disease occurred on some properties but not on others, that its distribution coincided with the major river systems, notably the Fitzroy, Ord and Victoria, and that its incidence was particularly high on areas subject to periodical flooding.

By a comparison of the species listed on affected and non-affected properties and a process of elimination, it was possible to reduce the number of plants that might be incriminated to four, including two species of Indigo and two of Crotalaria. The next step was to conduct feeding trials to determine their toxicity and it was necessary in these experiments to use horses which had never before had access to the vegetation of the area and to ship them, together with supplies of chaff from Fremantle, to Fitzroy Crossing where the work was conducted.

Two of the four suspect plants, *Indigofera trita* and *Crotalaria trifoliostrium* were fed in large quantities for a long period but produced no ill effects and could thus be excluded.

The second species of Indigo—*Indigofera enneaphylla*, commonly known as Birdsville indigo—had already been incriminated as the cause of "Birdsville disease" in Queensland and the Northern Territory, and when fed to a horse at Fitzroy Crossing it produced typical symptoms. It was thus established that Birdsville disease may occur in the Kimberleys as well as in other parts of northern Australia. It grows abundantly in some areas and may cause some deaths but does not appear to be a serious cause of horse mortality in the Kimberley Division.

The only suspect plant now remaining for investigation was *Crotalaria retusa* and because of its geographical distribution it fitted into the picture much more closely than any of the other species studied. Popularly known as the wedge-leaved rattlepod, it reaches a height of about three feet and has clear yellow pea-shaped flowers, and where the soil is suitable for its growth, it occurs in great profusion on areas which become flooded along the river systems. It was abundant on all properties where heavy and frequent losses in horses had occurred and where it was not found in horse paddocks, there was always evidence that affected horses had previously gained access to it elsewhere on the run.

It was also known that closely related species of *Crotalaria* had produced a liver disease in horses in the United States which appeared to be identical with Walkabout disease.

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doubt as the plant responsible. This result was subsequently confirmed in a comprehensive series of feeding trials conducted at Katherine in the Northern Territory in which it was shown that horses may need to consume the plant for two and some times three seasons before the disease occurs, and that deaths may not commence until weeks or months after feeding has ceased.

Analyses revealed the plant to contain the toxic alkaloid, monocrotaline, which slowly but progressively damages the liver until symptoms appear and death occurs. The information gained from these studies has enabled preventive measures to be employed. The mature plant is not palatable to horses but it is freely eaten in the seedling stage, and this occurs during the wet season when the majority of station horses are spelling in the horse paddocks.

PREVENTION

Thus by a re-location of horse paddocks or the erection of fencing so as to exclude low lying areas where Crotalaria retusa grows abundantly, it is possible to prevent mortality. This practice has been adopted on a number of Kimberley Stations, and it has been reported that the severe losses which occurred in former years have been eliminated.

Access to the plant cannot be prevented during mustering and droving, but by that time it has reached the flowering or seeding stage when it is not eaten and no risk is involved. Several other species of Crotalaria in the Kimberleys might also produce the disease, but because of their distribution or that they are unpalatable, they are probably of little importance.

(From an A.B.C. Country Hour broadcast made available by courtesy of the Australian Broadcasting Commission).

ERRATUM.

In the article on “Stored Grain Pests” in the Journal for November-December, 1957, the recommendation for Cynogas G (page 674, last line) should read “0.05%”, not “1%”. 

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