

five years ago when a guinea pig was brought in with a fractured tooth. It seemed a shame to take it out, so she got a dentist to remove the nerve and fill the tooth.

Having seen what could be done, she then went to the USA to study under Peter Emily, a Denver dentist who has been doing animal dentistry for 25 years and is director of animal dentistry at Colorado State University. It is a field in which the USA is years ahead of the UK. One of their innovations is toothpaste flavoured with malt, chicken and beef.

The main difference between animal and human toothpastes is that the animal variety cannot contain the foaming detergent humans value so much. Ms Penman pictured the scene as Tramp the mongrel dashed off down the road, mouth foaming after having his teeth brushed, doing a very good impression of a rabid dog.

Brushing your pet's teeth may seem to be overdoing things, but 85 per cent of dogs and cats more than three years old have some degree of periodontal (gum) disease. As an animal gets older, it may develop chronic dental problems which can interfere with its feeding. And this does not take account of the fact that the animal might be in chronic pain which could manifest itself as lethargy, bad temper, or difficulty in eating.

But where do you start when a dental problem is suspected? Examination and diagnosis are difficult while the patient is awake. The difficulties are magnified with zoo animals — where the patient is, say, a polar bear — so any problem often goes unnoticed until the symptoms become gross, such as pus from the jaw. The keeper may only see the problem when the animal roars at him.

For zoo animals, a full general anaes-

thetic is necessary for even a cursory examination — and for a large and valuable animal that means an Immobilin dart and the attentions of a personal anaesthetist.

Some groups of animals have particular problems: marsupials and rodents have a peculiar reaction to broken teeth or bad periodontal infections, which somehow leads to a deep bacterial infection, which can be extremely difficult to treat and can easily lead to the death of the animal.

Long-beaked birds have a tendency to catch their beaks in their enclosure wire, breaking them. As they use both upper and lower beaks to eat, they need help to survive. One solution, as with toothless humans, is to make an artificial prosthesis which can be fixed to the remains of the real beak. The longest-lasting device is a preformed acrylic replacement cemented to the beak stump with a composite dental cement after acid-etching the surface to aid retention. Metal beaks have also been tried, but the weight can be too much to bear. The trouble with all this cleverness is that the root cause of the problem is a behavioural one, which often makes the poor bird do the same

thing again. But all is not lost. Beaks grow back in time in the same way as fingernails, although if broken right off they may grow back deformed.

Kiwis have a more dramatic problem: their beaks have sensory organs at the tip which locate insects when the beak is poked into likely looking holes. If the kiwi fractures its beak, the nerves in the sensory organs do not regenerate and the bird is unable to feed. There is currently no remedy and the bird will die.

Human teeth do not continually erupt (that is, keep on growing) — if they did, visits to the dentist might be a lot easier since we would not be trying to hang on to our second set of teeth for life. But continual eruption also has its troubles, especially for domestic rodents and horses. If the teeth do not meet (occlude) properly, there is nothing to stop the tooth continuing its growth into the opposing gum and sometimes through the tissue of the lip. This stops the animal eating properly, and the only remedy is to file the teeth down. If this is not done in time, or is overlooked through ignorance, the results can be catastrophic. In one recent case, an expensive racehorse in Texas died when an over-erupted and

misaligned tooth pierced a blood vessel.

Farmers too have long been concerned about the problem of "broken mouthed" sheep. Being herbivores, sheep have lower front teeth which do not bite on a top set of teeth, but on a specially roughened dental pad. At three to four years of age, these teeth often start to loosen and drop out, and the animal cannot eat properly. Wool and meat quality drops, and the sheep cannot — or will not — breed. One remedy tried in Australia was to fit the sheep with dentures so that the animals could feed properly. Individual results appeared encouraging, but the project failed because of the difficulty of maintaining false teeth for sheep over a few million square miles.

Sue Penman has had requests to fit crowns for police dogs, but the reality is that the dog can bite just as hard with a stump — and would probably break the artificial crown anyway if it had contrived to break the immensely strong original.

In zoos, the big cats and bears seem to have a predisposition to break or shatter canine teeth, and they simply refuse to breed until the problem is resolved — although they show no outward signs of pain. But the logistics of dealing with

such problems can be awesome, as many of these teeth are much longer than the human equivalent and have a very different structure.

It is sometimes forgotten that an elephant's tusks are nothing more than elongated teeth, and dealing with a broken tusk presents something of a problem: in one case in the USA handled by Peter Emily, the broken tusk, being vital and supplied with blood vessels, bled very badly and needed a pulpotomy to seal the cavity. A restoration was needed on top of this, but the elephant kept knocking it off. With some lateral thinking coupled with desperation, the eventual solution was to cement the brass ferrule from a chair leg on to the end of the tusk, which lasted until the tusk had regrown.

Animal dentistry is not a fad, nor is it an excuse for loving owners to lavish money on their pets. The modern diet is as damaging to our pets' teeth as it is to our own. But perhaps the 40 per cent of the population who do not visit a dentist regularly should put their own house in order before we can expect them to have the same consideration for pets.

The writer is a (human) dentist.

Sue Penman, president of the British Veterinary Dental Association, treats a Labrador patient. She studied in the US, where animal dentistry is well-established

