Riding For a Fall

The genetic time bomb at the heart of racing

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Contents

Summary	**5**
The Breeding Stallion - Worked to Death	**7**
The Mare's Burden - Production Line Pregnancies	**9**
Mares 'doped and raped'	
The Violence of Embryo Transfer	
Malformed Foals	
Cloning on the Agenda	
Throughput and Output	**13**
A Downward Spiral	
The Offspring - 'We Are Ruining The Breed'	**14**
Hard 'Remedies' - The Drugs, the Whip and the Lethal Experiments	**17**
Lethal Experiments on Live Horses – the Role of the Animal Health Trust	**19**
Raced to Death – 300 Every Year	**21**
The Grand National	**21**
When Racing is Over – Thousands Disposed of Every Year	**21**
References	**23**

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Published by Animal Aid, March 2003
ISBN: 0-9508990-7-0

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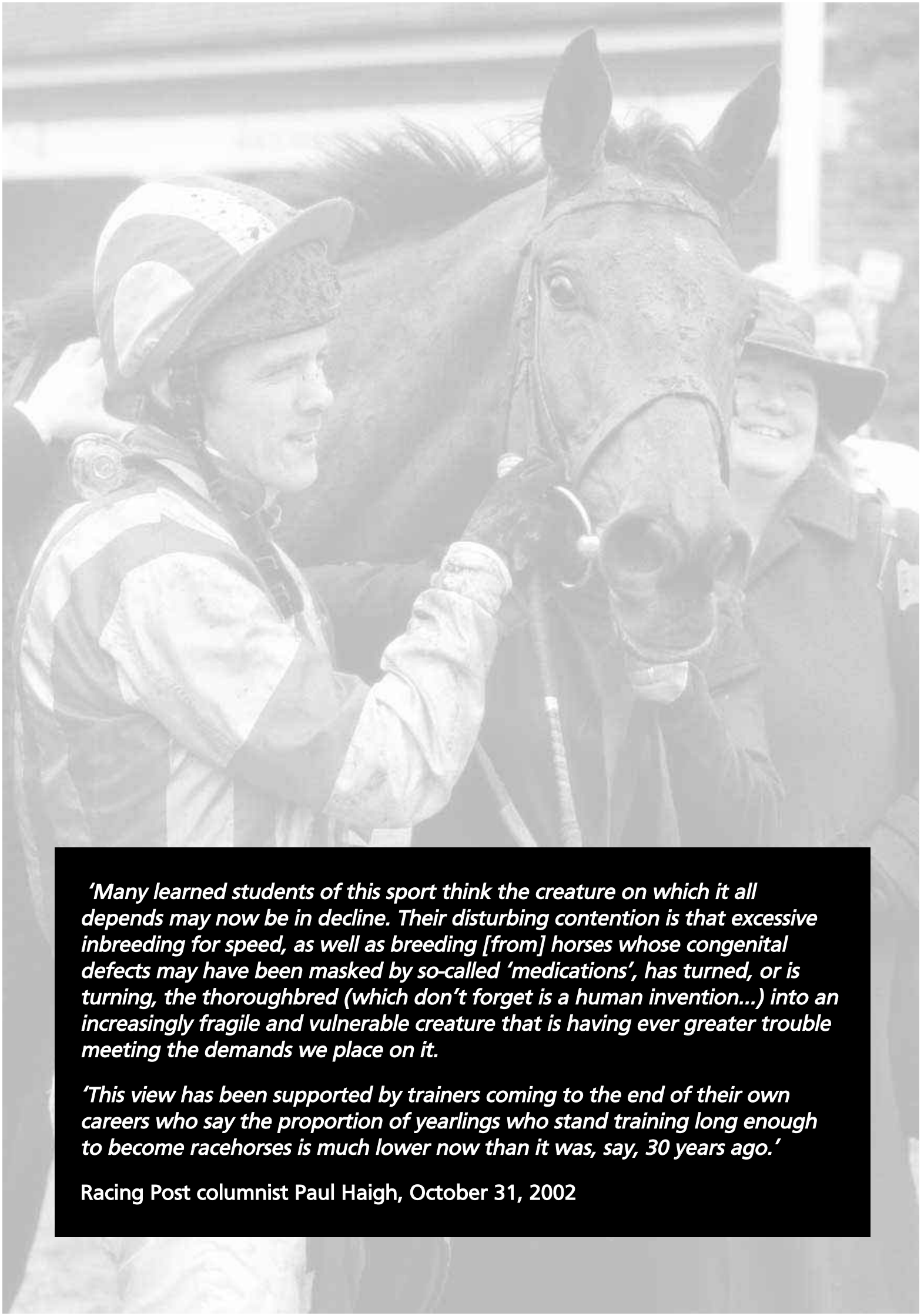

'Many learned students of this sport think the creature on which it all depends may now be in decline. Their disturbing contention is that excessive inbreeding for speed, as well as breeding [from] horses whose congenital defects may have been masked by so-called 'medications', has turned, or is turning, the thoroughbred (which don't forget is a human invention...) into an increasingly fragile and vulnerable creature that is having ever greater trouble meeting the demands we place on it.

'This view has been supported by trainers coming to the end of their own careers who say the proportion of yearlings who stand training long enough to become racehorses is much lower now than it was, say, 30 years ago.'

Racing Post columnist Paul Haigh, October 31, 2002

Summary

Horse racing provides immense rewards for the leading owners, trainers and jockeys. Never in the history of the 'sport of kings' has so much money and prestige been on offer to those who reach its summit.

Yet beneath the glossy façade, the very foundations of the sport are being threatened, due to the reckless manner in which the industry is exploiting its most precious resource: the Thoroughbred horse.

A comprehensive analysis by Animal Aid of industry data, reports in scientific journals and commentaries by leading racing insiders, demonstrates that the modern Thoroughbred is buckling under increasing and relentless pressure.

The headline figures tell their own story:

- Some 15,000 foals are bred for racing in Britain and Ireland every year, but only one third are deemed sufficiently strong and healthy actually to be entered into racing.[1] Most of the rest are discarded. This compares with the 1920s when far fewer animals were produced, but when more than 80% of foals are reported to have made the grade.[2]

- Whereas bone fractures in animals racing on the flat were comparatively rare 20 years ago, the attrition rate is now approaching that of jump racers. Amongst a typical group of 100 flat-racing horses, one fracture will occur every month.[3]

- Serious racing-related illnesses such as bleeding lungs and gastric ulcers are now endemic. 82% of flat race horses older than three years of age suffer from exercise induced pulmonary haemorrhage (EIPH), which can cause blood to leak from the nostrils.[4] Gastric ulcers are present in no fewer than 93% of horses in training, in whom the condition gets progressively worse. When horses are retired, the condition improves.[20]

- The top breeding stallions are so over-worked that two of the three most coveted males both died in 2001 from suspected exhaustion. Breeding females are subjected to artificial treatments to control and speed up reproduction – a regime that compromises their welfare. And pressure is building to introduce previously prohibited technologies, such as artificial insemination, embryo transfer and cloning.

- Rather than confront the endemic problems that lead to thousands of horses every year failing to make the grade and hundreds more dying from race-related injuries and disease, the industry is looking for 'answers' by commissioning grotesque laboratory experiments on live horses. Recent examples include animals being made to walk for months on treadmills and then killed for analysis; others being subjected to deliberate wounding or to infection – while pregnant – with viruses that cause paralysis and abortion. There have also been a series of surrogate birth experiments where embryos were switched between ponies and Thoroughbreds. Some of the offspring were born with muscle wastage and freakishly long, deformed legs.

- The picture that emerges from this Animal Aid investigation is of a racing industry that now has much in common with livestock production. Both enterprises are committed to profit-driven mass output of progeny and the acceptance of a high 'wastage' rate. In both industries there is an excessively heavy burden on breeding stock and high rates of endemic disease and musculoskeletal injury. The key difference is that the fate of sheep, cattle, pigs and chickens is limited to being mass produced, killed and eaten. They are not also required to serve as high-performance athletes.

- Though Thoroughbred horses are inherently fine runners, the increasing burdens placed upon them by the racing industry militate against their ability to perform, and amount to extreme, cruel and unsustainable treatment.

The Breeding Stallion - Worked to Death

A select number of high performance males are retained at the end of their racing careers to serve as breeders. They are kept at commercial studs, to which 'high quality' mares are brought so that they can be 'covered'. Twenty years ago, Shergar, the most desired stallion of his generation, had a 'book' of around 40 mares. Today, successful sires are required to impregnate hundreds of mares every year. Supreme Leader and Pistolet Bleu covered, respectively, 325 and 335 mares in 2001.[5] Both died from what leading racing commentator, Alastair Down, surmised was exhaustion.[6]

'The real question,' he wrote, 'is whether these sorts of backbreaking loads are a good thing at all. ...Go to any sale of young jump stock and you will hear the word "overproduction" muttered darkly from beneath cloth caps with the implicit criticism being that it will all end in tears.

'One wonders,' Down added, 'about the mental state of some of our modern stallions, particularly the jumps stallions who seem to be saddled with a workload of heroic proportions.'

He went on to ponder the inevitable 'deleterious effect on the breed' that this scale of activity will have. '...Is the obsession with short-term gain blinding [the breeding industry] to the fact that the ringing of the till could soon become the tolling of a bell?'

Another leading commentator echoed Down's concerns.[5] 'There is serious over-employment among the [jump] stallion ranks, often involving horses whose credentials as prospective sires of hurdlers and chasers are difficult to discern...Breeders seem quite content to abandon any thoughts of applying discernment and are readily sucked in by deals offered by big studs, often over horses who, in more enlightened times, would not have been allowed in the breeding population.'

Even damaged and 'flawed' stallions can become the most coveted of breeding machines, despite the prospect of their weaknesses being passed on to their offspring. Three superstars of flat racing in 2000 were Dubai Millennium (now deceased), King's Best and Kayf Tara. Each retired to stud, even though the first two did so with broken legs and the latter with a recurrence of a serious leg injury.

Artificial Insemination by Another Name

Racing's governing authorities around the world – including the Jockey Club - have always insisted that foals be produced by direct contact between stallion and mare, rather than by artificial insemination (AI). Artificial impregnation has been resisted because, the argument goes, it opens the way to a potentially catastrophic narrowing of the gene pool as a result of literally thousands of mares being impregnated by a single highly-prized stallion.

Ironically, the workload faced by top stallions results in the equivalent of a low-level version of AI. But, in any case, there is nothing low tech about the reproduction

methods used by commercial race horse breeders – and, in particular, the regime to which the mare is subject. (See 'The Mare's Burden'.)

Racing's authorities have, furthermore, always been ambivalent on the question of the deepness of the genetic pool from which it draws its 'stock'. There is the curious reality that all modern Thoroughbreds can be traced back some 230 years to just three individual stallions: all of them Arabians, one of whom was captured from the Turks in Hungary, and is referred to as the Byerley Turk. Equally, the female contribution to the line derives from a mere 30 to 40 so-called foundation dams. And there is an additional deliberately introduced element of in-breeding practised by top breeders in search of extra speed: any two horses who are brought together for mating will share one common ancestor, when looking back four generations. Sometimes, they even share two.

The Mare's Burden - Production Line Pregnancies

Left to their own devices, mares in the wild have one foal once every two years, or perhaps twice every three years. They deliver in the spring, after a pregnancy lasting 11 months. The racing industry forces mares to produce a foal every year and as soon after January 1 as possible. The first day of the year is the official birth-date of all race horses, no matter how much later in that year they are born. The commercial advantage of being born close to January 1 arises from the fact that horses can be entered into the crucial yearling sales as soon as they reach the age of one. A horse that is, in real terms, only 9 months when the sales come along, is disadvantaged against animals a few months older and stronger.

To achieve the earlier birth, breeders bring forward the mare's oestrus cycle - the period when she is receptive - from May, when it would naturally occur, to February or March. This is done by exposing her to months of artificial lighting lasting, not uncommonly, 16 hours a day.[7]

Where the mare 'stubbornly' refuses to come into season, powerful drugs (prostaglandins) are used to kickstart her.

DEADLY BIRTH TESTS

There have even been efforts[11] to speed up the gestation period itself. In a Newmarket experiment, which resulted in the birth and rapid death of 80 foals, some of the offspring were induced before 300 days and the rest at between 300 and 320 days. A normal gestation lasts about 340 days. All emerged weak, ailing and exhibiting tremors and twitches. Some had marked facial paralysis. Fifty-eight foals died within 90 minutes of birth, but some lingered for seven days. It is not known whether such experiments have been repeated.

Extreme Breeding 'Efficiencies'

Advancing the time of oestrus is only the beginning. To control when actual ovulation occurs within the two to eight day season, multiple injections of artificial hormones are administered. Following delivery of the foal 11 months later, the objective is to re-inseminate the mare within 10 to 30 days.[7]

Another 'efficiency' is surrogate feeding. This is a system whereby Thoroughbred mares, after delivering their foals, are not detained by having to suckle them but, rather, that job is given to non-Thoroughbred females. What of the foals these 'common' mares must have had in order to provide milk for the more expensive progeny? It would seem that a proportion of them, at least, is simply sent for slaughter. Hillside Animal Sanctuary (www.hillside.org.uk) reports[8] having rescued a common foal from just such a fate last year.

Embracing the Brave New Reproductive World

Despite approving these extreme measures, would the racing authorities embrace AI along with other reproduction technologies such as embryo transfer? A top researcher at the Thoroughbred Breeders' Association's Equine Fertility Unit - a registered charity based at Cambridge University in Newmarket - has recently gone on record calling explicitly for an end to the AI ban.[9] Furthermore, Professor William 'Twink' Allen insists that a project to map the genome (or genetic composition) of the Thoroughbred horse will enable bad traits to be bred out and thereby open the way for the busting of the ultimate taboo – the mating of stallions with their own daughters, and brothers with their sisters. A geneticist at the Animal Health Trust (AHT) - a veterinary charity also based in Newmarket - is a leader of the mapping project, while Allen's team is providing it with animal tissues. The AHT's work, he says, is proceeding 'way ahead of the rest of the world'.[10]

Confirming that the project is in large part about producing better performing animals for the racing industry, Allen told *Racing Post* in February this year: '...if the map can tell you, "Boy that mare's got some bloody good speed genes", you say, "OK, let's make sure we fix that into that family".'[10]

Mares 'Doped and Raped'

Allen supports his case for AI by pointing to the horrors of modern, high-throughput conventional breeding methods. 'First, if you have a young maiden mare who's frightened of the stallion. You've seen it in the covering yards. Well, she has to be screwed down and doped and raped. And that's dangerous for her, and particularly dangerous for the stallion exposing his crown jewels. That could all be overcome by artificial insemination.'[9]

The professor is already busily experimenting in the area of 'assisted' pregnancies. He was reported in April 2001 to have produced the world's first test tube foals, named Quickzee and Eezee.[12] And a scientific paper he published that same year with two colleagues, describes their search for 'low dose' methods of mare insemination 'that offer a practical means of exploiting new breeding technologies' such as sex-sorted semen.[13] (See below - 'Lethal experiments on live horses'.)

The Violence of Embryo Transfer

Allen – father-in-law of jockey Frankie Dettori - also headed a team that has experimented with another 'advanced' reproduction method that the racing authorities currently prohibit – embryo transfer (ET). Already used in non-racing equine circles, ET maximises the output from a single prized horse by flushing several eggs from her at once. These are then grown in other less valuable horses. The various steps involved in ET are not pretty. They call for deep probes into and manipulation of the rectum and vagina, repeated internal flushings using litres of water, the administration of hormones and other drugs, sometimes the surgical removal of the ovaries, and the 'exteriorisation' of part of the womb called the uterine horn – this last procedure involving an incision being made in the flank of the recipient mare so that part of her uterus can be pulled through the opening.

Malformed Foals

In the case of the professor's ET experiments, rather than getting a low value Thoroughbred to grow an embryo obtained from a more valuable animal, embryos were switched between ponies and much larger Thoroughbreds. This resulted in several stillbirths, abortions and the delivery of nutritionally deficient, mutant foals.[14] Among the bizarre justifications advanced by Allen for these experiments is that they would help understanding of the foetal origins of adult diseases in humans.

Cloning on the Agenda

But if Allen's AI, father-into-daughter and womb swap agenda is already alarming racing's traditionalists, let alone the general public (the *Sunday People* billed his embryo transfer work with the headline: 'Horror Prof rips the foals from wombs of racehorses'[15]), he is far from chastened. Allen now wants to proceed with horse cloning (see 'The Horse is Man's Product...').

'THE HORSE IS MAN'S PRODUCT...'

In evidence on February 5, 2002 before the House Of Lords Select Committee on Animals In Scientific Procedures, Professor William 'Twink' Allen, director of the Equine Fertility Unit, a registered charity based at Cambridge University, declared: 'There are groups I know of who are actively trying [cloning] in other parts of the world. There is quite a race on between us at the present time. There are a number of reasons to want to clone horses. There are individual wealthy people who want to reproduce their favourite horse and if that produces funds for research then I say, jolly good, we are the first to line up to try and do it. As well as that, I think the things that can be learned from a cloned animal are tremendous, in a horse particularly things like behaviour... and performance.

'We are dealing with an athlete in a horse and the idea of nurture versus nature is very pertinent as to whether you can reproduce that physical athletic excellence and how much of it is genetic and how much is induced by how the animal is raised and treated. Of course clones would answer that so quickly. I am very keen on it in that respect. It also would provide us with very valuable experimental animals to work with... Yes, cloning will come in; it should come in; and the sooner we can do it the better.'

'IF A CLONE IS BORN ABNORMAL, WE WILL PUT IT DOWN .....'

Despite the extremely high number of abnormal foetuses and sickly newborns arising from all current animal cloning experiments, Allen did not see any 'ethical or welfare considerations'. He told the committee: 'If an abnormal animal is produced we will put it down. I take the view, and I hold to it, that a domestic animal is man's product essentially for man's use. It would not be there unless man had decided to produce it. We either eat it, have entertainment with it, ride it, use it for sport, or whatever. It is beholden upon us never to cause suffering unnecessarily to that animal, but I do not hold that it has ethics in its own right at all.'

'MY PERFECT CHAIRMAN...'

A Home Office Inspector was currently resisting Allen's application for a licence to clone horses. But Allen told his Lords 'inquisitors' that Lord Soulsby - the chairman of the local 'independent' ethical review panel charged with overseeing his experimental work - had 'very kindly helped to gather together' four top level Cambridge University cloning enthusiasts to bend the ear of the unco-operative man from the H.O.

Lord Soulsby - whom Allen described as a 'perfect chairman...I am very lucky' - was also, on the House of Lords Scientific Procedures Committee before whom Allen was giving his evidence last February. The other members of his local ethical review panel were a local solicitor and the 'lady owner of a stud farm'.

Throughput and Output

In 1957, precisely 7,826 mares were retained for breeding purposes at the end of their racing careers in Britain and Ireland. Together, they produced 4,254 live foals.[16]

By 2001, the figures had more than tripled. 25,146 mares were employed and produced 14,701 living foals.[16] Of this annual 'output', only around 5,000 actually came through training to race on the track.[1] The fate of the 'failures' is one of racing's dirtiest and best-kept secrets. (See 'When Racing is Over ...')

A Downward Spiral

While there was never a time when every new Thoroughbred foal progressed to racing, the proportion falling by the wayside has risen exponentially over the decades. Around one third currently make the grade. In the1920s, when far fewer animals were produced, more than 80% of foals progressed to racing.[2] What these figures expose is a rapidly declining rate of return – many more females being impregnated by severely over-worked stallions to produce proportionately fewer racers. Add to this the fashion for horses with unfeasibly thin, long legs – legs that move fast but which fracture more easily - and the result is a self-defeating downward spiral.

The Offspring - 'We Are Ruining The Breed'

One top trainer, Ian Balding, summed up the crisis facing the industry when he told Racing Post: 'We get far more injuries than we used to. During the 1970s, as many as 90 to 95% of my two year olds ran at least once in the first season. In the 1980s, it dropped to 75 to 80% and in the 1990s it's dropped to 65 to 70%... The only reason for not running is due to injury.

'These figures tell a depressing tale... Shortage of labour has decreed... horses rarely get ridden for more than an hour. We scarcely do any roadwork with flat horses which is good for strengthening bone and hardening-up tendons and ligaments, because of increased traffic... The fashion now is for speed and more speed. We have gradually lost [the] strength, stamina and durability, temperament, extra bone and courage that those horses have. If we carry on like this, then slowly but surely we are ruining the breed.'[17]

The problems Balding identifies arise from the irrational and self-destructive breeding practices, combined with the relentless demands thrust upon modern performance animals. When not racing, they spend up to 23 hours of their day stabled, deprived of the herd contact and freedom of movement that would ensure physical and mental health. Their lives are akin to those of secure unit prisoners. The longest time they spend out of their stables is when called upon to compete, and with racing now international, that often means travelling long distances by plane and road.

Feeble and Sick

The consequence, according to one expert, has been 'big increases in equine health problems', such as shipping fever.[18] The last 35 years has also seen the spread of infectious, stress-related diseases, such as equine herpes and influenza. Exercise induced bleeding lungs is one more condition that is rife among the Thoroughbred racers. The lung-bleeding phenomenon has been studied by independent animal welfare researcher Dr Tim O'Brien, who notes: 'A Japanese study in the Journal of Comparative Pathology [19] examined racehorses performing low-intensity exercise on a track at running speeds up to 8.5 metres per second, and found that more than three-quarters of the horses suffered haemorrhaging into their lungs. 8.5 metres per second is around 19 miles per hour. In race conditions, horses may frequently be required to achieve speeds in excess of 35 miles per hour.'

Another endemic condition is chronic gastric ulcers. Notes O'Brien: 'A study in Virginia, USA, reported in the Equine Veterinary Journal in 1996[20] found gastric ulcers in 93% of horses in race training; in horses who had actually raced, the incidence was a staggering 100%. A study from Hong Kong, reported in the same journal, [21] found that the stomach lesions appeared to be chronically progressive during training, but regressed if the horse was retired. This ulceration may be related in part to the high-cereal, high-energy diet given to racehorses - more acidic than the animal's natural pasture-based diet, to which they rarely have free access.'

The Yearling Sales

The yearling sales (for horses aged between one and two) are a vital money market that see the top prospects sell for a good return but thousands of under par horses weeded out and rejected. There are no publicly available statistics to indicate where and how these animals are jettisoned. But seasoned industry watchers, such as Kareena Grey who runs an investigative organisation called Discover Racing Death (KareenaGreyDiscoverRacingDeath@hotmail.com) is convinced that thousands are simply shot and fed to hunting hounds or turned into pet food.

Vanity Surgery

There have been many notable changes to the way yearlings are prepared for sale. One is the fashion – more common in the US than Europe – for animals with perceived 'angular limb deformities', such as knock-knees, to be subjected to leg-straightening surgery. Yet recent research by the president-elect of the American Association of Equine Practitioners determined that such interventions could cause serious leg problems. 'We found that a degree of carpal valgus [knock knees] protects a horse from knee injuries. Study findings suggest that 'corrective' surgery may do more harm than good'.[22]

The surgery itself is not without hazards. One technique involves inserting screws and wire or staples on one side of the knee or ankle. Another requires peeling back the edges of connective tissue that surrounds and protects the bone, in order to stimulate growth.

Trading Bone for Speed

The legs of race horses are already in a vulnerable state due to breeders having systematically traded bone for speed. Those bones contain a spongy, honeycomb section inside, which acts as a shock absorber. The structure is necessary, notes welfare expert Dr O'Brien, 'because, when galloping at speed, the force on the lead foreleg as it hits the ground is over one and a half times the total bodyweight of the horse. Dr Thomas Tobin, of the Department of Veterinary Science at the University of Kentucky, has shown that horses' bones actually become weaker during the course of a race, sometimes by over 40%. The results can be appalling.'

'The Right Leg Snapped...'

In September 1999, in the United States, 23-year-old jockey J.C. Gonzalez and his four-year-old mount, Wolfhunt, died within minutes of each other. As they rounded the final turn of a one mile race, Wolfhunt suddenly fell, throwing jockey Gonzalez to the track. A racehorse trainer 50 feet away described what happened next: 'The horse tried to stand, and first the right leg snapped, right between the knee and the ankle. Then he tried to put weight on the left leg, and it went above the knee. I could barely take my eyes off this horse trying to stand with these bloody stumps.' Jockey Gonzalez, with massive head injuries, was pronounced dead minutes later. Wolfhunt was destroyed on the racetrack.

Hard 'Remedies' - The Drugs, the Whip and the Lethal Experiments

The racing industry has two main remedial approaches to the ailments arising from its patterns of breeding, housing, feeding, training and competition. One comes under the heading of chemical and physical inducements. The other involves lethal experiments on live horses.

Chemical and Physical Inducements

The first category includes a range of drugs that often mask pain and suppress symptoms of injury. This allows a rapid return to racing but often at the cost of long term damage. One such substance is a powerful steroid called MPA, which is commonly given to young race horses who suffer lameness due to their punishing training regime. Administration is often by injection into the inflamed joints. There is evidence that such steroids weaken the bones and predispose them to fractures.

These substances actually appear on a very long list of drugs banned by the racing authorities in Britain – or rather it is an offence for these substances to be found in the urine of horses when they are tested post-race. Apart from the limited amount of testing that is done, the prohibition does not extend to animals – young or old – while they are training rather than racing.

'Butes', 'Milkshakes' and Snake Venom

In a similar vein and also on the banned-for-racing list, is phenylbutazone (or 'bute'), a non-steroidal anti-inflammatory drug (NSAID) that is widely used in Britain to treat bone, tendon, joint and muscular injuries. Again, its use masks the pain that is a natural and protective reaction to injury.

Then there is sodium bicarbonate, given two to three hours before a race, via a stomach tube, to delay muscle tiring. Known as a milkshake, it works by increasing blood CO_2 levels, which in turn triggers the expulsion of lactic acid from the horse's muscles – the build-up of which, during exertion, creates the sensation of fatigue. This artificial expulsion of lactic acid 'fools' the horse's physiology into thinking it is not really fatigued, thus allowing the exertions to continue; a dangerous game. An added attraction of sodium bicarbonate is that, by altering urine PH, it can prevent certain drugs from being excreted, thereby making them undetectable. In this way, milkshakes serve as potential masking agents.[23] The extent of their use in Britain is not known.

A Jockey Club-approved 'remedy' for exercise-induced lung bleeding is to dose the victim with rattlesnake venom.[24] The logic behind the alleged cure – exposed by Kareena Grey - is that, because a bite by a rattlesnake causes massive internal haemorrhaging, a small amount of venom can help build immunity to bleeding.

'My horse was thrashed...'

A more physical corrective applied to a poorly performing horse is the whip. Champion jockey Willie Carson spoke with admirable clarity about how he encouraged his mount, Alhaarth, to second place at Newmarket in 1996: 'I gave him six cracks, and I wouldn't like to lie down on that side tonight.'

Then there was the evocative account of whip use given by the owner of a young filly in a letter to *Racing Post* in the winter of 2002.[25] Wrote Jasmine Chesters of Braunton, North Devon: 'When she came out for her first race this year, the only words I can use are that she was thrashed. Not by other horses but by her jockey. She was hit at least 12 times inside the last furlong and a half and finished third. Her rider was suspended for two days but the harm he did to my horse is incalculable. She has never run the same since. She breaks well but on reaching about the four-furlong pole, when she is nearly always in the first four or five, as soon as she is smacked to push her on, she drops herself out. Her emotions must be in turmoil. She must be expecting to be thrashed again. We have nursed her all season but to no avail. Now I have to make the decision as to what to do with her.'

Lethal Experiments on Live Horses – the Role of the Animal Health Trust

There is a less than noble tradition of lethal experiments on horses, designed to yield solutions to the numerous ailments suffered by modern race horses, as well as to increase their efficiency. Notable in this area is the aforementioned Newmarket-based veterinary charity, the Animal Health Trust – subject of three previous major exposés by Animal Aid. A number of the AHT's experiments, which often involve low-value Welsh mountain ponies, have been wholly or partly funded by commercial racing interests. In fact, the AHT jointly established in May 2002 a new company called Equine Genetics Research Ltd (EGR).[26] This is the enterprise, referred to above, that is working on mapping the equine genome in order to eliminate genes that give rise to 'defects'. The AHT's partner, and principal investor in the project, is the British Horseracing Board.

Also active in horse vivisection, as we have seen, is Cambridge University, especially its Thoroughbred Breeders' Association Equine Fertility Unit.

Animal Aid has two principal objections to horse experiments:

1) We believe that no animal, or group of animals, should suffer with the intention of enhancing the health of another group of animals - just as we would oppose experiments on any group of humans for the supposed 'greater good'.

2) The high incidence of limb damage and infectious diseases to which the experiments are directed, results from the extreme stresses to which modern performance horses are exposed. That is the unequivocal message the AHT – a veterinary charity, no less - should carry back to the industry, rather than colluding with it and thereby providing a kind of legitimacy for current exploitative practices.

Examples of Recent Experiments:

- To study cartilage damage caused by strenuous exercise, 12 young female Thoroughbreds were exercised on treadmills – gently or hard – for 19 weeks, during which time they were kept indoors. All 12 were then killed and their lower legs sawn off for analysis. (AHT)[27]

- Many horses suffering limb pain and swelling are injected with steroids into their inflamed joints rather than being allowed to rest and recover. To test the impact of a commonly-used steroid on bone structure, eight young female horses were injected with the drug 16 times and exercised on a treadmill for 13 weeks. They were then killed.(AHT)[28]

- Eight horses were subjected to large full-skin-depth wounds at the back of both their front legs. Healing took between six and 12 weeks. One leg was treated, the other left untreated. (Jointly by the Universities of Cambridge and Sydney)[29]

- To measure horses' responses to low levels of oxygen, five animals were restrained in stocks for 70 minutes, while breathing through a face mask and simultaneously having their blood sampled and monitored via catheters inserted into their jugular veins and carotid arteries. (Co-funded by the AHT)[30]

- To study the long term effectiveness of influenza vaccines, 30 Welsh mountain ponies were infected with the flu virus – some suffered fever and coughing.[31] And 18 Welsh mountain ponies were infected with EAV (equine arteritis virus). They were kept indoors for a month and studied. The six 'control' ponies suffered severe fever, depression, diarrhoea, conjunctivitis and nasal discharges.[32] (Both AHT)

- 19 mares were subjected to embryo transfer, involving the implantation of Thoroughbred embryos into much smaller ponies and vice versa. Two mares aborted and the foals of two others were stillborn. One pregnant mare was killed when she broke a leg. The Thoroughbred foals who were incubated in ponies suffered muscle wastage and freakishly long and malformed legs and hooves: their ankles were bent right over on the ground. It was claimed that the project would advance understanding of human illness.[14]

- 74 mares were used to find the most efficient way of insemination. It was discovered that valuable sex-selected semen can be made to go a long way by delivering the semen to a particular part of the neck of the uterus. Seven of the mares were shot after insemination and their reproductive tracts removed for study.[13] (Both Univ Cambridge Equine Fertility Unit)

Raced to Death – 300 Every Year

Despite the racing industry's often extreme 'remedial' activities, large numbers of horses continue to be raced to death every year – either dying on the course itself or shot soon after because of injury or a dip in performance that makes them commercially non-viable.

The Jockey Club commissioned a major study of deaths from jump and flat racing that occurred on all 59 British racecourses throughout 1996, 1997 and 1998.[33] The fatalities resulted from breaks or fractures to the legs, backs and shoulders, or they followed heart attacks. The total number of fatalities was 657 – an average of 219 per year. This 219 didn't include point to point racing deaths – calculated by Kareena Grey of Discover Racing Death at more than 100 during each five month season. Nor did the Jockey Club count the off-course deaths of horses who began the season but did not finish it.

Animal Aid conducted its own study of all the fatalities that occurred during the 1999/2000 National Hunt season. We identified and named 247 jump horses who died or were killed, a tally that represented one out of every 31 who competed during that season.[34] One hundred and fifty six of those 247 fatalities resulted directly from racing injuries. The remaining horses – 37% of the total – were killed, not from old age, but because they were considered of no further commercial use. Applying this finding to the Jockey Club survey, we can add 37% to the 219 deaths per season figure, to arrive at a total of around 300 horses raced to death every year.

The Grand National

The tradition of horse killing continued at last year's three-day Grand National meet at Aintree, with four equines losing their lives. During the Grand National itself, The Last Fling broke his back and Manx Magic fractured his neck in a race that saw just 11 out of 40 starters complete the 30 jump, four and a half mile course. Since 1997, the Aintree meet has claimed the lives of 27 horses on the course itself.

When Racing is Over – Thousands Disposed of Every Year

To the total of horses who are raced to death, must be added the far larger annual number who – having reached the end of their careers - are simply killed or jettisoned. Around 5,000 leave racing every year – the same number who enter it. Only a comparatively small proportion of the older animals go on to be breeders and an even smaller number enjoy a decent, properly financed retirement. The racing industry's own retirement fund was started only in 2000 with a budget of just £200-250,000. The Big Three bookmakers, who are reported to make anywhere between £200 and £400 million annually from betting on racing, at first refused to give a single penny to the scheme.[35] After further consideration, a token, collective sum of £30,000 was offered.

An indication of the scale of the problem and paucity of industry support, is the plight of the few major horse retirement centres. Carrie Humble, who runs the Thoroughbred Rehabilitation Centre in Nateby, told *The Guardian* [36] that she is still forced to raise more than 70% of the funding she needs herself and had, when interviewed, 23 horses waiting for a place in her yard. She turns away two or three every day. 'It's getting worse, not better. Once again this proves that there are people within racing who are going to bring the whole of the sport into disrepute.'

Many of the spent horses end up as pet food, are fed to hunting hounds or are exported or sold from owner to owner in a downward spiral of neglect. Because of their personal histories and temperament, retired racehorses make difficult 'pets', hence the tendency for them to be taken on and then quickly offloaded.

Horse racing is embedded deep in our culture. The face the industry presents to the public is benign and sentimentally upbeat. But this Animal Aid report shows that beneath the façade is a ruthless industry motivated by vanity and commercial gain. Caught in the middle is the Thoroughbred horse – a 'resource' that is regarded as being easily mass produced and discarded. Yet the evidence points to a level of exploitation that now threatens the fundamental well-being of the equine racer and, with it, the very foundations of the racing industry.

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Animal Aid exposes and campaigns peacefully against all animal abuse, and promotes a cruelty-free lifestyle.

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