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MEMORIAL ADDRESS

JOHN ANDERSON GILRUTH, D.V.Sc., M.R.C.V.S., F.R.S.E.
(1871-1937)

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TO anyone who has stood in a storm on the cliffs of Auchmithie, a small rugged coastal village just above Arbroath on the East Coast of Scotland, it is not difficult to understand something of the character of John Gilruth. His sturdy forthright character, his inability to suffer fools, his easiness in the company of men and his shyness with women, his stamina and his physical and mental toughness, could readily be associated with the craggy surroundings into which he was born. His knowledge of the fauna of the cliffs must have come naturally, and inevitably gave him an interest in all animals. As he grew this was fostered by his shepherd friends of the district, for these were knowledgeable men where sheep were concerned, and they in turn made the boy John conscious of the habits and health of that important animal. Then too, with farming parents he must always have been able to handle and understand animals. We know from his own description of his boyhood that he found learning easy, probably an inheritance from his mother who was educated above the ordinary for women of that day who did not, as a rule, attend university. With an active brain, an enquiring mind and a strong growing body, it is not to be wondered at that the boy was somewhat of a handful throughout school life, but always he had the urge to learn and indeed, read avidly all the books which were available in his home or village.

When choosing a career he, ill advisedly, allowed himself to be indentured to the Law—but he soon realised his mistake and finally, upon matriculating, he found his niche in the Veterinary world. Glasgow College accepted him and taught him current knowledge of stock in health and disease. This was the great day of the horse, and Glasgow always turned students out with a special knowledge of lameness, but Gilruth, the student, wanted more than that, though for a thesis for his final examination in London he wrote on the Plantar Cushion of the horse's foot, in which he saw much food for further research. He emerged as a Member of the Royal College of Veterinary Surgeons in 1892 and at once applied for a position in New Zealand. It was the good fortune of the New Zealand stock owner and the New Zealand Government that Gilruth was accepted, thought it is now well known that he added a few years to his age when making the application. However, although young for the responsibility he assumed, he was a man of character and none not to be lightly put on one side. There was at that time one Veterinary Surgeon in Government employment in the Stock Division in New Zealand, but one finds that within a short time Gilruth had won a special place for himself. Naturally he set out to see what diseases were present in sheep, cattle, pigs and horses, and thus travelled widely amongst farmers. Shortly he was lecturing to audiences who could not understand the new science of bacteriology, but his terse and vivid description of disease conditions and the hard-headed commonsense displayed when questions arose, combined with a very real knowledge of sheep, quickly made him widely respected wherever he came in contact with stock owners.

John Gilruth spent fifteen years in New Zealand. During those fifteen years he built up the Veterinary Division of the Department of Agriculture in New Zealand. He made mistakes, but he made them with the best of intentions, and in a growing Division he tended to overcome politics and brow beat politicians.

The work of the Stock Division was first published in 1893, the year when Gilruth joined that Section, but by 1895 a Veterinary Division had been formed. As Gilruth's first interests were in sheep diseases he records Foot Rot, Gangrene, Lamb mortality (Pulpy Kidney) and Parasitism. In 1893, too, the Stock Act was written and came into operation. The following year Gilruth was stationed in Dunedin but travelled continuously over both Islands. He was interested in the fact that serious epizootic diseases were absent, there were no Glanders, rabies, foot and mouth disease, Pleuropneumonia, Scab in Sheep, nor was there Swine Fever then suspected in pigs. Tuberculosis, moreover, was recognised in a small percentage of dairy cattle. The main stock troubles were diatetic in origin or were due to toxic plants, but it took years of observation to get the story of many of these unravelled. The story of many stock diseases is partly the stories of the lives of Gilruth and Reakes. Gilruth had no facilities for studying disease problems; there was no Laboratory and no apparatus and he bitterly resented the fact that diseases could not be properly investigated. From 1894 onwards Gilruth fought for Laboratory facilities. In 1897 or thereabouts he got together a little apparatus and set up a room in the Government Buildings. Here he created so much a nuisance of himself by leaving sheep to rot on the roof that the Department provided a small laboratory in a building below Parliament Buildings and he worked with the Health Department as Bacteriologist. Even here he found he was unable to try out large animal experiments and finally in 1904 plans were produced to build a small Laboratory of five rooms at Wallaceville. In 1905 this became the headquarters of the Veterinary Division and was a going concern with sown grass paddocks by 1907. It was this building which was enlarged in 1929.

In 1895 tuberculin was first tried out in New Zealand and the demonstration was entirely successful. Had New Zealand commenced control at that stage the expense to which we shall now be put would have been obviated. Official vision, however, was entirely lacking, but regulations did insist on a certificate of freedom in imported stock. It was not until 1899 that compensation was paid for stock seized and destroyed.

It is interesting looking back from 1952 to see that eversion of the vagina in ewes, ante-partum paralysis with twin lambs, Rape Scald, Pulpy Kidney, were all live problems in 1895. Farmers already knew that these diseases were seasonal and associated with the condition of the animal. They knew that ante-partum paralysis could be controlled by putting the flock on young green crop. All we have done since is to find an organism partially responsible for pulpy kidney. Gangrene of sheep, too, was known, and was recognised as being due to an anaerobe thought to be *Vibrion septique* or the Bacillus of Malignant Oedema. We now believe that *B. chauvoei* is the specific organism with *Vibrion septique* as a secondary, but this disease caused great loss in the turnip feeding areas of the South Island and was only prevented in recent times when vaccination became established. It was said prior to 1900 that it was not safe to be a pig in North Auckland. Gilruth had the idea that Swine Fever existed, mainly from circumstantial evidence and because he regularly found button ulcers in the intestine. We know this disease now as Salmonellosis but considerable slaughter took place for some years all over New Zealand in the attempt to stamp out the supposed Swine Fever.

As the meat export trade was developing, Gilruth was very dissatisfied with the method of inspection and the poor slaughter facilities. In order to improve his knowledge in this direction he asked for leave of absence in 1896 for two reasons, one to study meat inspection and plans of up-to-date abattoirs in Europe and United Kingdom, and the other to improve his bacteriology at the Pasteur Institute, then the centre of bacteriological and immunological research. He carried out these studies and returned to put into force the Slaughtering and Inspection

Act and registration of slaughterhouses and abattoirs. This Act has, by and large, stood the test of time and has assured for many years that the name "New Zealand" on meat is the hallmark of purity and cleanliness.

With increasing laboratory facilities and the inclusion of Messrs Park and Reakes in his investigational and inspection work, Gilruth took considerable interest in pathology as well as bacteriology. His most persistent work about this time, 1895 onwards, was on Winton disease. After a great deal of experimental feeding and close field observation, together with his ability to sift the opinion of farmers, he realised that Ragwort was causative of Winton disease. He was able to include cattle in his work and so led opinion on a subject which proved of world-wide interest.

Parasites too became a subject of interest—tapeworms in dogs with the attendant hydatids in sheep, fluke in Hawke's Bay first seen in 1897, Bots in horses, tapeworms and stomach worms of sheep. Experimental treatment led to much dosing of sheep with Copper sulphate and other drugs. While studying parasites, Bush Sickness came to the Department's notice for the first time and remained one of the most interesting conditions in the research field until many years after Gilruth left for Australia. It led, too, to the employment of a chemist in the Department and with the advent of a chemist some of the poisonous plants were studied, "tutu" being one of them. Rabbits were, even in 1894, taking serious toll of the grassland of the South and parts of the North. Work in Europe was suggesting that rabbits could be controlled by spread of disease. Gilruth therefore brought Chicken Cholera virus from the Pasteur Institute and tried for years in closely guarded warrens to kill rabbits en masse. He found, however, as many have found since, that the habits of rabbits do not readily permit disease spread and this work finally petered out.

Mastitis and contagious abortion were early recognised in New Zealand amongst dairy cows, as was Milk Fever and acetonaemia. Time consuming efforts to understand and control these diseases did not lead to beneficial results until long after this first burst of energy in New Zealand, but much was written and much known of the state of dairy cow diseases. Blackleg became prevalent from unsterilised imported bone flour and vaccine production of the dried muscle type was carried out for Taranaki and the Waikato where regulations preventing travel of unvaccinated stock were put into effect. Even then it was recognised that a good vaccine given to fat young animals caused blackleg but it was not recognised that the muscle vaccine did in fact actually spread the disease.

About 1899, six Veterinary Officers were engaged for control of meat inspection in New Zealand, so bringing the official list of Veterinary Surgeons to ten.

Anthrax had been noticed in 1895 and was becoming more widespread in 1900. Obviously the seat of the trouble was the introduction of raw bones from Australia and India. This trade was later discontinued and proper certificates of sterilisation were demanded both from India and Australia for steamed bone flour, but it was not until inspectors were placed in the Sterilisation Plants that a reliable product was received in New Zealand. Anthrax outbreaks have occurred on farms where bone flour was used in early days 50-60 years ago, and on several occasions since. New Zealand is, however, singularly free thanks to the early recognition of the cause of the outbreaks.

One of the curious failures in Gilruth's diagnostic work was with Facial Eczema. He saw several outbreaks of photosensitivity first in association with rape when the name facial eczema was given to the scabby condition of the face, and later, about 1905, on pasture. Gilruth never mentioned the liver damage associated with the photo-

sensitivity on pasture but he persisted in efforts to implicate a contagious specific organism. Undoubtedly he mixed up contagious ecthyma with this facial eczema. Possibly too he thought that affected sheep were showing cirrhosis due to ragwort if a question of liver damage arose. The early reports of the Department showed that more and more diagnostic work associated with research was passing through the Laboratory keeping both Reakes and Gilruth, and later Reid, busy classifying the disease of stock of the Colony. This work proved a very useful background to later diagnostic officers, but again with increasing knowledge of physiology, virus disease and related sciences, the work of later diagnosticians has become more difficult. One might say that Gilruth took the first cream off the pan of undisturbed knowledge of disease and that successive layers have been taken in successive generations, leaving a very thin layer indeed for workers now in the field, and even now many of the diseases considered by Gilruth are not scientifically settled, although we may have a practical solution to them.

The growth of the Veterinary Division was hastened when the Slaughtering and Inspection Act was passed in 1900. In 1901, twenty-one Veterinary Surgeons were added to the Division for Inspection work, amongst them such men as Lyons, Young, Clayton, Kerrigan, and Reid, who have unfortunately all passed away. Round 1900 too, many horses were required for the Boer War and though the Stock Inspection staff did a great deal of the buying yet the Veterinary force was very active in inspection and shipping with surprisingly small losses during the long voyage to Africa.

Gilruth in 1901 became one of the Chief Commissioners in a Royal Health Commission set up by the Government, and reported on and detailed experimental work in Bubonic plague, which was at that time not recognised as being associated with the rat flea, though found present in rats at the Auckland wharves.

With the increasing Veterinary staff, Gilruth fought for two things, a better recognition of the Veterinary Surgeon by increase in a very low salary, and the building of a Veterinary School, together with Registration of Veterinarians. It was not till 1946 that Registration at last came into force and even yet the scheme for a Veterinary School advocated by so far-sighted a man as Gilruth has not eventuated.

From 1905, Wallaceville was active in many lines of research for it had space for large animals, a farm with 80 acres of pasture and with 1800 planted ornamental trees, trees which can still be seen round the plantation as adult addition to the beauty of the grounds as visualised by Gilruth. In 1906, two totaras were transplanted, one on each side of the main gates and it is hoped will remain there in recognition of the service of their transplanter.

Caseous Lymph-adenitis of sheep, contagious mastitis, contagious abortion, contagious ecthyma and other suspected contagious diseases were studied by the growing team which included Reakes, Reid, Seddon as assistant, and the well-known assistant Barker who occupied the Laboratory house. As well, five Veterinary Field Officers were based on Wallaceville, which made diagnostic work of first rate importance and carried much new knowledge to the field.

In 1907, a Division of Livestock and Agriculture was created to deal with Stock Inspection, brands, noxious weeds, rabbits, etc., and the Veterinary Division worked in with the Livestock Division in an advisory capacity. Later the two were merged under Reakes, but it is doubtful whether Gilruth agreed with this situation.

During a trip to Great Britain and Europe in 1907 Gilruth gained the award of F.R.S.E. for his splendid service in the Veterinary and Public Health fields. He was a famous ambassador for New Zealand and his work with the British shippers had New Zealand meat recognised as a high-class product.

There is little recorded of the last phase of his life in New Zealand in official records. He suddenly resigned at the end of 1908 owing to the way in which he was treated by the Prime Minister, and took up a post as first Professor of the Veterinary School in Melbourne. So ended the Gilruth influence on New Zealand Veterinary science. With him went Seddon as a Laboratory assistant and later Carey, his secretary at Wallaceville, joined his superior in the Northern Territory.

Gilruth in Australia.

As those who knew Gilruth expected, his change to wider Veterinary spheres did not find him wanting. His native commonsense and his driving force made him at once a respected member of the Victorian University. He gathered round him a fine staff. The Professor of Veterinary Science held the position of Director of the Veterinary Research Institute and this Institute carried out diagnostic work and research work for the Department of Agriculture. What a delightful set up, teaching, research, and diagnosis, and how Gilruth must have enjoyed building up the School under these conditions. As first Professor he was granted the degree of D.V.Sc. The School gave Gilruth the opportunity to employ his "keen, original and fertile mind, the dogged tenacity and resourcefulness of purpose of action, and the happy—even gay—spirit which swept all before it and certainly was a never-ending stimulus and encouragement to everyone associated with him."

So deeply had he impressed University and State Authorities that in 1911 he was despatched to the Northern Territory in a preliminary survey of the stock position of that area. Tick and Worm nodules were diseases of major importance in cattle and they probably acted as a challenge, for early in 1912 he accepted the position of Administrator of the Northern Territory. The Victorian University were, of course, loath to lose him to become, as a New Zealand paper put it, "the Scotch Tzar of the Northern Territory." This position he held from 1912 to 1920, battling against great difficulties created by climate and inertia of stock owners and politicians. Little can be said of his fall from grace. The subsequent investigation of supposed maladministration could never implicate Gilruth, who was so essentially honest himself that he could not see dishonesty in others. From 1920 to 1926 was an era of despondency when Veterinary positions were apparently closed. Gilruth, nevertheless, found who were his friends in the Profession and, although engaged in various business positions, was yet able to keep abreast of increasing Veterinary knowledge. At this time New Zealand could have reclaimed him but there is always fear of driving energy in Government Departments and so that chance was missed. However, after those years of exile, and possibly with the advice of Gilruth when he became Chairman of the Meat Preservation Committee of the Australian National Research Council, where he insisted on Australia sending forward only well graded prime beef as he had previously done in New Zealand, greater activity was shown by the Council in animal health. When the Division of Animal Health was formed Gilruth acted first as Consultant and then was made the first Chief of the Division. It has been well written that "he brought to his work an authority and a wealth of wide experience, a sympathy with the needs of the livestock industry, tempered by sound scientific judgment, an organising ability, enthusiasm, and tireless energy that made him the ideal chief to weld the formerly isolated workers into an efficient research organisation. Under his inspiration and leadership the activities of the Division grew, the more pressing practical problems were attacked, and the results disseminated in a way that gained the wide support and respect of pastoralists and State Governments alike."

Under his guidance two outstanding pieces of work come to mind; Blowfly research in connection with sheepfly strike and the introduction

of Zebu cattle for crossing in tropical Australia. Many of the senior staff relied strongly on the criticism of Gilruth in their fields of activity. Bennetts in W. Australia, Bull and Marston in S. Australia, Legg in Queensland, Turner in Melbourne, to mention a few only, and their work benefited greatly by using Gilruth as a sounding board for their ideas. He rarely imposed his will, but took great pride in sharing his experiences and guiding work along correct scientific lines by suggestion. In 1935 his term of office expired and while acting as Consultant during the amalgamation of the Division of Animal Nutrition and Animal Health his health broke down.

The months of difficult illness faced with indomitable courage since he knew he would not recover, brought many friends to his bedside to tell him of the continuance of the work which he had so ably commenced. On 4th March, 1937, Gilruth died at the age of 66, leaving a wife whom he had married in New Zealand and three grown-up children, none of whom had entered the Veterinary Profession.

The Veterinary Profession recognised his great worth by calling for subscriptions to have a portrait painted by Sir John Longstaff, and this was unveiled at a moving ceremony when the portrait was handed to the C.S.I.R. to hang in their new headquarters adjacent to the old Veterinary School.

New Zealand and Australia gained a strong position in Veterinary Science from the basic ability of John Gilruth, and the torch lit by him is still and, we hope, always will be, held aloft by those worthy to follow so great a man and to those privileged to know him as a firm friend.