AUSTRALIAN VETERINARY HISTORY RECORD

NOVEMBER 2000 Number 29

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ANNUAL GENERAL MEETING: MELBOURNE MAY 2001

Members of the Society have been advised by Trevor Faragher, the Convenor of the Melbourne meeting, of the details of the forthcoming gathering. There is a full program of historical papers and social activities including a visit to a Museum at Bundoora where bovine pleuropneumonia was first introduced into Australia. Trevor is still interested in hearing from members who would like to present a paper.

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ARTHUR F WEBSTER AM, FACVSc, BVSc, PhC
"The long distance race"
Arthur C. Webster 19-23 Bridge St Pymble 2073

[A paper presented at the Annual General Meeting Sydney May 2000.]

The Man

- A gentleman, quiet spoken, thoughtful, compassionate, but shy, which was interpreted by some as aloof.
- Artistic, he loved reading, music and the arts.

- Scientist and veterinarian, his depth of knowledge, innovation, practical common sense and tenacity ensured enduring success.
- Businessman. Not really, he was much more interested in the scientific development
- Employer who commanded strong loyalty from his staff by his availability and sympathetic understanding.
- Father and husband who found the time to be there and with his withering look or grunt retained family order.
- Received many awards from the nation, industry, AVA and University for his major contributions to veterinary science in the latter part of his long and successful career.

Towards the end of his life he likened his career to that of a marathon runner, "Always in the race, sometimes in the lead, and hopefully finishing somewhere around the middle of the field."

I have been asked here today to present an overview of the early years of my Father. I hope that in the following paper I give a glimpse of the life's "struggle" of an immensely proud Australian.

The early years

Born on the 8th May 1906 my father spent his youth above the family pharmacy on Burwood Road Burwood NSW. His father had been a pharmacist all of his professional life having received his training by serving his apprenticeship under other pharmacists. In those days pharmacy was almost entirely practical experience. The pharmacist who owned a chemist's shop took an apprentice who was in turn trained "on the job". It was apparently the same with dentistry. The chemist and the dentist were mostly one and the same in country towns. His father was both pharmacist and dentist for many years, neither with formal training. He spent all his formative youth living above and helping in the shop.

My father's formal education was gained at Scots College Bellevue Hill. He left school in 1923 having achieved with distinction academically, in music and on the sporting field. Being fleet of foot

he was a champion state athlete in the 100 yards, winger in the rugby school fifteen and a leg spin bowler in the first eleven.

Being generally expected of him to return to the family business, he graduated in pharmacy from Sydney University in 1926. His heart was never in it, because of the shop-keeping aspect. He developed however a bit of a long distance interest in bacteriology during his university years. There were just a few odd medical practitioners of bacteriology in those days, so he did a few short courses in the agricultural school, not with any definite aim. At about the time of graduation he was introduced by a mutual friend to a Frenchman, Francois Ray, who came to Australia as a young man (about 26) some years before (1906) as a representative of the Pasteur Institute to make PPLO and anthrax vaccines for cattle. This was quite a profitable business as there was little or no opposition until CSL commenced about 1917. Ray stopped this production in 1920 but continued a not very profitable business in producing and administering autogenous human vaccines for individual clients.

His recall of meeting Ray was that he was a not very prosperous man, who had some small human vaccine business and who drank too much. Father was working full time in the pharmacy, where he wiled away the hours (8am opening – 7pm closing although living above the shop on call 24 hours) by making a couple of violins, a viola and a cello which he played in a local orchestra. It is probably worth noting these instruments are still in the family possession and when played by skilled musicians apparently producing excellent sound. He also played the organ at the local church on Sundays and for weddings and other special services.

The induction

In 1928 father ceased full time work at the pharmacy to spend three mornings a week for a couple of years with Ray under a contractual work agreement, part of which required Ray to teach him bacteriology. Ray was apparently the only "practitioner" apart from university teachers of bacteriology and he only possessed a practical

knowledge of large-scale production that was unique in Australia at the time. Ray had no formal education gaining his knowledge and experience working as a laboratory assistant and sometime tutor at the Pasteur Institute. He knew a number of the classical names of the Institute and could tell all sorts of anecdotes about them, including Pasteur himself.

Towards the end 1929 father was informed that if he wished to continue to handle pathogenic organisms he had to be licensed. In addition authorities would not accept the practical experience of a non-formal course as adequate for a license so father had to look around to get some sort of formal report. (This represented the first regulation of an industry, which some 70 years on is totally controlled, by regulation).

As his bacteriology training under Ray had a veterinary focus it seemed that The Veterinary School course was the most appropriate, so he approached the School. Professor Stewart would not allow a student to take only the bacteriology subjects. He then approached the Registrar who being pushed a bit agreed that there was no legal reason to prevent his attendance, and very much against Prof. Stewart's inclination he forced his way into the year. Prof. Stewart was a man of great energy and assertiveness exemplified by the Sydney Veterinary School remaining open largely because of his ability to encourage students into the faculty at a time when the appeal of being a vet was not as it seems today. Some might say his continued Professorship depended on his having enough students to keep the school going.

Although father excelled both in the practical side of the course and in the exams, the faculty failed him. This was in 1930. Having by this time made a personal commitment to a career in bacteriology he was forced to return the following year and enrol in Veterinary Science, then a four year course. He sat his final exams in 1935 whilst continuing to work with Ray over the four year period. Towards the end of the course they were approached to make some

sheep vaccines in the small laboratory in Randwick. As a result of this approach Ray and he started a partnership, Ray & Webster, working from the same location.

My father's time was split with his studies, the pharmacy and Rays business, which was proving to be very unsatisfactory. Ray was most unreliable, with his drinking habits and dishonesty making it almost impossible to run a business, so when he graduated (got his license) my father decided to establish his own company. This decision coincided with his father's retirement and sale of the pharmacy in Burwood. The whole family moved to West Ryde in 1936.

The commencement

Websters started in an ordinary residential street in a very ordinary (rented) home with a fairly large back yard and most importantly a largish (20ft sq) garden shed and a couple of smaller outhouses. These were used to house mice and chickens for quality testing (my mother also often complained the laundry was also used similarly to house animals). He fitted out the shed with the basics some of which he purchased from Ray the remainder purchased second hand, for sterilising and incubating on a small scale. His father provided sufficient funds for the first few months for him to establish the business. He had resigned himself to the fact that his son was not destined to be a pharmacist and apparently quite enjoyed helping him get started in the new venture. Two years after making this move he married Eva Marion Knox on 26th September 1938. He had met Eva some 12 years earlier through her brother Bob Knox who had studied pharmacy in the same years as him.

Improvisation and good engineering skills remained a hallmark of his industry with he and his father constructing a "coolroom" store from fibro with sawdust filled cavity wall for insulation and attaching a small compressor to cool it!!!

The first products were poultry vaccines. There were two major diseases – Fowl Pox and Infectious Laryngotrachitis. They were the main stays of the business. He produced about 1 million doses of each a year and sold them to the half dozen practitioners including names such as Evans, Nosworthy, Rose Lynn Furness and Paul Hardman servicing the poultry owners as well as direct to owners themselves. Len Hart who started at The Department of Agriculture in 1932 was approached to join the Company in the early 40's. He felt that as Senior veterinary Officer (and no doubt with job security in mind) he regretfully declined the offer. Len made a tremendous contribution to the developing understanding of poultry disease until his resignation in 1949 to "head bush". Infact the 30's had been a very productive period at Glenfield. Prof Carne, Arthur Clay, Joe Hutchison, WJB Murphy, Len Hart and Tom Hungerford all making significant contributions to understanding diseases such as ILT, (first diagnosed in NSW on a farm in Glenfield in 1935 by Len Hart), pullorum and fowl coryza. Hutchison actually left the Department in about 1932 to set up his own laboratory in Parramatta, consulting with the poultry industry, remaining closely in touch with father through their common interest in the species and the fledging industry.

In 1935 Macfarland Burnett succeeded in growing ILT virus in embryonated eggs. This new technique was (and remains) profoundly important to virology in general and to control of ILT in particular. My father was quick to take up the process and move from tracheal exudate virus to cultured antigen in the following years.

Livestock were the second species for which bacterial vaccines were made. The CSIRO workers Turner (Vic) and Bennetts (WA) had published their developments on two basic sheep clostridial vaccines against enterotoxaemia and black disease including full disclosure of methods and trials. My father applied his knowledge of large-scale bacterial techniques to these developments to produce these first products which were grown in large Winchester bottles (5 litres)

about 50 at a time. This production technology was to be later scaled up to 20 litre carboys in the late 40's.

The production facility had to be inspected and hold a Noxious Microbes License. The Department of Agriculture Chief Veterinary Officer Mr Max Henry was responsible for carrying out these inspections and delegated joint responsibility to Prof Stewart from the University. I can recall my father telling the story of how dismayed he was when it was suggested that it might be a good idea if the shed floor were cemented on grounds of good hygiene. An early beginning of codes of GMP no doubt.

Two of the remarkable traits of my farther were his individual thought processes and innovation. For instance in the late 30's it was generally conceded that there was only one strain of fowl poxvirus and vaccination was by controlled exposure. He proceeded to develop variants in turkeys, ducks and pigeons attenuating the strains in an empirical way enabling the safer use of fowlpox vaccine.

The business progressed slowly over the next four years and outgrew the shed. This forced my father to move and he acquired 15 acres at Telopea in 1940 with the financial help of a £5,000 bank loan. He and his father helped a local carpenter construct a fibro home, and two other fibro buildings to house production and laboratory animals. This was to be both home and business for the next twelve years. The business remained a struggle for survival as most of this period was affected by the war economy. As he was almost blind in one eye from early youth he was associated with the war effort for the duration in a local/district capacity.

Father joined the Veterinary Surgeons Board of New South Wales in January 1951 during a period of great turmoil in the profession regarding unregistered foreign veterinarians practising veterinary science. He also became very involved with the AVA having been a

member since graduation. Father worked on the AVA committee and also served a term as AVA President.

The business was still founded on poultry and livestock vaccines. The logistics of distribution was always a problem so he and a neighbour lobbied to gain permission to build a small station beside the rail line at Telopea. Somewhat surprisingly approval was granted so they set about construction and Telopea Station was built, giving him access to a rail link. At about the same time he met the owner of Buchanan Stock Feeds. Mr Buchanan sold a range of stock feeds particularly dairy cattle and calf feeds across Australia. This turned out to be a symbiotic relationship to the extent that Buchanan sold Webster's livestock vaccines to the dairy industry and father helped with stockfeed formulation and technical advice. I recall accompanying him to Granville on many occasions at weekends and in the evenings as a youngster "helping" with the stockfeed work. Buchanan was also a good businessman so demand for the Webster vaccines spread.

The entrepreneur scientist

By the late 40's the demand for livestock vaccine was such that capacity became an issue. The solution was to be found with deep culture fermentation of clostridial vaccines. The business remained significantly undercapitalised and only marginally profitable so the need for scale up from 20 litre carboys became a serious problem. Two pieces of luck provided a solution. He learnt of a series of autoclaves being decommissioned at Homebush abattoirs in the processing area so he offered to take them off their hands. This opportunity allowed a better-controlled sterilising cycle for the carboys in one process. The second some little time later was an auction at a Mudgee brewery. He was able to acquire 4 x 1000-gallon stainless steel tanks and a large steam boiler for only a few pounds as demand for such second hand equipment was low. So started the first deep culture fermentation of clostridial vaccines in Australia and probably the world. He progressively constructed the pipe work connection to each vessel himself and worked out the

processes demanded to go from 20 litres to 4,500 litres. The culture medium was ox heart, ox liver and pig maw infusion so he was a familiar figure at the Homebush abattoir collecting meat each Monday sometimes with children in tow. He applied the lessons and processes he had learned from Ray to scale up culture volumes and was almost immediately successful with tank fermentation and the down stream processing.

These innovations demanded the employment of fulltime staff, having relied on family up till this time to help out. One of the first qualified employees was Dr. Ozols (a Professor of Microbiology at the Vet School in Latvia and worked in their Department of Agriculture as well) who came to Australia with his young family as displaced persons. I can just recall them arriving at Telopea station carrying all their possessions with them. They moved into a very small, basic fibro cottage build on the property for them. This remained their home until Dr Ozols died many years later and Mrs Ozols elected to move to live with one of their children. Dr Ozols worked on product development and in product quality control making a significant contribution to the struggling business.

Competition came from a veterinarian named Roy Stewart an equine practitioner and vaccine producer who was to become a significant influence in my father's life in the late 50's. Stewart lived and worked in Randwick. He was not well liked by both staff and customers because of his difficult personality. He was infact an almost impossible man to work with at any level. His company was named The Biological Institute of Australia (BIO as it was known) which was also servicing the poultry industry. As a colleague manufacturer there was a great competition between BIO and Websters in the 40's and 50's. BIO had a focus on and mastered the production of antigens in embryonated chicken eggs. This allowed them to keep pace with Websters in the manufacture of poultry vaccines.

In 1942 my parent's first child was born and sadly they lost it at birth. Two years on Patricia was born, I arrived two years later and my younger sister, Judith, was born in 1948.

During this decade he had not forsaken his love for music, purchasing an instruction manual he set about building himself a pipe organ. Although it took him almost 10 years the result gave him many pleasurable hours of playing his music.

In 1950 the Housing Commission approached Father wishing to buy the Telopea property. Their offer was refused. A short time later they returned with a notice to evict, at a price well below market value. This action forced yet another move for the business, this time as a matter of urgency. The financial impact on the business was to prove even more profound. As the move was imposed and as the compensation paid by the Commission was not market value, the acquisition of the Windsor Rd Northmead site and the transfer of the plant and equipment in 1952-53 caused significant financial distress to the family and the business. The Northmead property had housed a dried herb business and had one building the construction of which resembled an aeroplane hanger. It was however large enough to house most of the business activity.

By this time he had a small staff of 8 semi-skilled technical people working in production and in the care of laboratory animals. They set about the mammoth task of transferring the facilities without interfering with the business, an almost impossible task. By 1954 the company was re-established at the new site and not withstanding the financial distress it was surviving. As the business settled down at its new home BIO (in Randwick) was also under serious threat. It was sited in Stewart's family home, land locked and the Randwick Council was applying pressure for BIO to move out. The pressures on both companies were such by the late 50's that Roy and my Father were forced to complete negotiations and to find a deal that would merge the two manufacturing businesses at Webster's Northmead site in a new legal entity Vaccines Pty Ltd. After about

two years of haggling an agreement was reached in 1960. The new company manufactured products under both the BIO and Webster label for some years. It is worth noting that one particular BIO staff member Mrs Inge Reinhardt joined Vaccines from BIO. She became the first research technician for Father and over the next 20 odd years (until Father's retirement in 1980) worked with him in some of the most exciting and innovative poultry and companion animal vaccine developments. This collaboration would in the future improve the company's chance of survival, and much later contributed to its more rapid growth and financial stability. Stewart's equity was purchased from his estate at the time of his death. The old pressures largely remained on the new entity. Father was continuing to work long hours, his health deteriorated and he had his first of a series of heart attacks in 1962.

Vaccines did benefit technically from the combined know how of the embryonated egg technology held by both companies. This pooled knowledge allowed for the rapid advances in development of new antigens eg embryonated distemper vaccines for dogs, attenuated ILT, mild fowl pox strains and IB vaccines for poultry. It also contributed to the general skills base for tissue culture products in the following decades. This exciting work led to the need to store and distribute live viral products in a stable package. In recognising the need Father returned to the workshop as soon as possible. Using his engineering skills he constructed the precursor of a freeze drier. This was a "Heath Robinson" machine made from copper pipe and rubber tubing that allowed desiccation of live virus culture. Father would take 1 ml ampoules of the vaccine hand spin them in a slurry of dry ice and alcohol so as to snap freeze the contents around the ampoule wall, then attach this onto the "sows belly" (his description) and quickly draw down a vacuum on the apparatus. This process desiccated the contents and thus provided the first "dried" virus vaccines. Having perfected this process he then set about building the company's first cabinet style free-drying unit needed to meet the expanding demand. This first freeze-dryer remained in service from around 1965 until well into the 80's.

In 1965 the economic future of the business was such that without a significant cash injection the company would to fold. Ever the realist his hand was forced yet again to make major adjustment to the business. Father embarked on a visit to the major USA and UK veterinary companies hoping to find a new partner. Glaxo UK not only expressed an interest in but ultimately took up a 49% equity in Websters providing what was a "lifesaving" capital injection into the business. Initially this was a happy marriage as Glaxo had strong market positions in the vaccine business in the UK particularly and whshed to expand into Australia. They also saw Websters as a source of new products for the European market place.

Towards the end of the 60's Glaxo Board in the UK became increasingly disenchanted with their animal health business, in comparison with their highly profitable human pharmaceutical side that was so successful. This meant that their financial commitment to support any animal health initiatives ceased and capital was no longer available from them no matter the soundness of investment or its commercial justification. The result of this change in Glaxo's global strategy was a frustrating period for the company. The launch of inactivated canine hepatitis and feline panleucopaenia vaccines in to late 60's and footrot vaccine for sheep in the early 70's offered new opportunities for the whole business but funds for expansion were desperately required.

In 1970 the company had a staff of about 27 and annual sales of almost $1 million. Later in this year I joined the Company as Technical Director and about a year later my elder sister, Patricia, joined the firm as Company Secretary. The family had control of the Board but with an unwilling minority shareholder decision making was painful.

The economic downturn of 1972-73 on top of Glaxo's changed interest in the business provided the Webster family an opportunity

to make an offer to buy Glaxo's 49% equity back on extremely favourable terms.

In 1973 the family regained full ownership of the business. The resurgent livestock sector (both cattle & sheep), launch of Footrot vaccine plus improved the company's cash position. The successful trials of the new Mareks Vaccine in poultry in 1972-74 and the re-launch of poultry vaccines produced from SPF eggs from our own SPF poultry flock over the following two years saw greatly improved financial returns from this sector of the industry underwrote the family equity buy-back.

Tempering this early transition to a sound financial position was the changes in Government regulation for the manufacture and registration of biological products. The Federal Governments Department of Health formed a new Department called The National Biologicals Standards Laboratory (NBSL). NBSL approached the task of rewriting national standards for veterinary biologicals with and almost evangelical zeal. As a direct result of their efforts many small companies were put out of business as the regulatory standards bar was raised. The NBSL attitude was comply or go out of business. This was a watershed period for the biologicals industry. A seriously tough period for all with the only survivors of the old Australian firms being CSL and Websters. Looking back it seemed that each decade brought new and often unexpected and life threatening financial challenges to companies in this business. The current move to globalisation provides new challenges so the challenge for the Australian industry remains even in this first decade of a new century.

The profession, the industry and the nation formally acknowledged Father's lifetime of service and contribution to all of them by awarding him honours of which he was immensely proud. I do however believe on reflection that his greatest pleasure came following his retirement as Managing Director in 1980. His retirement gave him the freedom to turn his mind almost solely to

research & development as an honorary member of the research team. He spent much of the next decade at the office or in the Lab "being available" to support, council and guide the growing team of young scientists employed in the company often working in exciting R & D programs embracing the new era of molecular biology and genetic engineering projects. This "retirement" period truly gave him tremendous personal satisfaction.

[I wish to acknowledge the material provided me by my sister, Patricia, who took the trouble to have father plus some of his contemporaries interviewed in the early 1990's. Much of the early information comes from these records]

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QUEENSLAND GOVERNMENT VETERINARY LABORATORY SERVICES : Lionel Laws, 35 Sprenger Street, Fig Tree Pocket, Qld 4069.

[A paper given at the Annual General Meeting in Brisbane in 1997.]

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Establishment of the Queensland Stock Institute 1893

The 1888 deputation of stock owners to the Queensland Colonial Secretary, The Honourable B Moreton for establishment of a Stock Institution had no immediate result. In 1890 a proposal was put to the Intercolonial Stock Conference for an Intercolonial Stock Institute in Sydney. There was unanimous support from Queensland, New South Wales, Victoria and South Australia but later Victoria and South Australia reneged and the proposal lapsed.

In 1893 the Queensland Graziers and Stock Breeders Association with the support of the Queensland Stockbrokers Association pressed for an Institute. The Graziers feared that unless an institute was built soon there would be protracted delays from lack of funds

as in the previous year the Brands Fund has been depleted to build meatworks

Mr P R Gordon, the Chief Inspector of Stock at the time was a very strong advocate in favour.

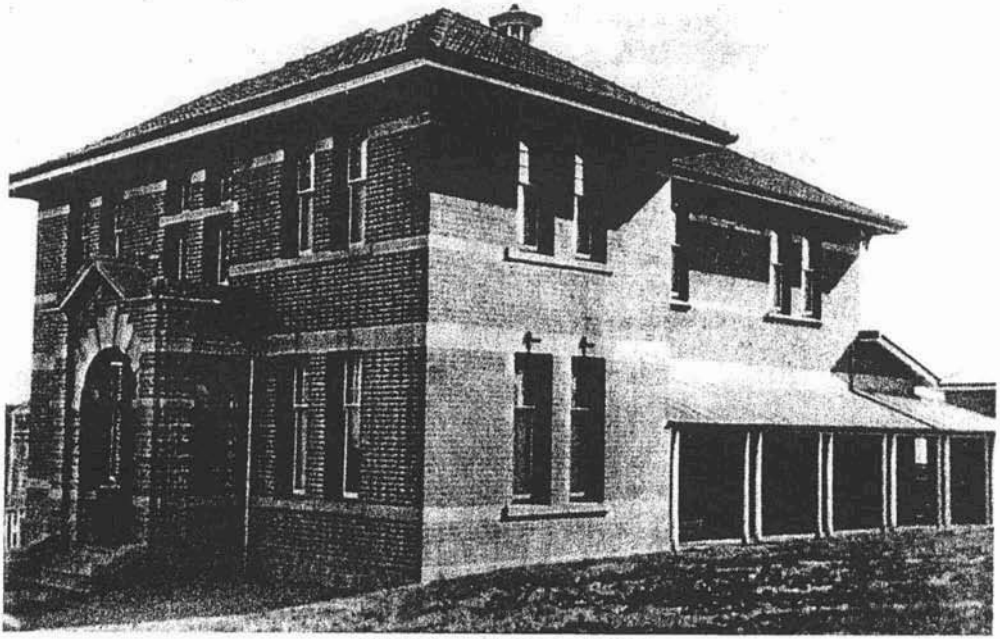
The Minute of the Colonial Secretary recommending the establishment of the Institute was "It is recommended that in view of the valuable results which have been obtained from bacteriological investigations into the diseases of stock carried out by scientific experts temporarily engaged by the government for this purpose and of the benefit which must accrue to the colony from possession of a permanent organisation for the continuance of such investigations a Stock Institute be established in Brisbane having as its object the discovery by means of experimental research of the nature and origin of diseases in stock and the means of their prevention. The cost of the establishment and maintenance of the Institute be defrayed from the Brands and Sheep Fund"

Mr Charles Joseph Pound, FRMS on a salary of 400 pounds per annum took up his appointment in December 1893 in a rented building in Turbot Street near North Quay. At this time stock numbers in the colony were horses 0.5 M, cattle 7.0 M and sheep 22.0 M.

Pound was considered an admirable choice for Director as he had trained in laboratories in London, Paris (Pasteur Institute) and various European laboratories and was considered one of the most expert microscopists in England. He was experienced in Australian stock diseases as for two years he had been employed by the NSW Central Board of Health investigating diseases of stock at Sydney abattoir and Homebush saleyards. He spoke the language.

It soon became evident that the buildings in Turbot Street were unsatisfactory; approval for removal was given in 1895, a site was chosen, contracts let in November 1898 and the Institute moved to a

building in College Road, Normanby adjacent to the Boys Grammar School in July 1899.



Stock Institute in 1899

Pound's 1897-99 report outlines main activities as preparation of tuberculin (he was the first to produce this in the southern hemisphere), tick fever and its prevention and cure, tick identification, supply of bovine pleuropneumonia vaccine (54,000 doses), cultures of the organism causing chicken cholera for use in rabbit destruction, bacteriological examinations of specimens, preparing museum specimens, lecturing to farmers as far north as Rockhampton. (He was a noted lecturer of scientific matters and with a bubbling personality a regular performer of humorous sketches at concerts).

Mr Charles Pound FRMS in his laboratory in the Stock Institute

In early 1900 the Stock Institute was renamed the Bacteriological Institute and administration passed to the Home Secretary's Department for the proper examination of typhoid, diphtheria, tuberculosis and other bacteria and microscopic examination of tumours. Pound was redesignated as Government Bacteriologist.

In 1907 the Bacteriological Institute was transferred to the Department of Agriculture.

Stock Experiment Station, Yeerongpilly 1909-1932

This station became operational in August 1909. Mr Sydney Dodd engaged in England in 1907 was in charge as Chief Veterinarian and Bacteriologist. Because of dispute regarding his responsibilities he resigned from 31 March 1910.

Stock Experiment Station, Yeerongpilly, 1910

On 1 May 1910 Pound took over directorship with the title of Government Bacteriologist. A H Cory, MRCVS was responsible for supervision of veterinary work at the station. Pound remained at Yeerongpilly until he retired on 1 July 1932. During Pounds 22 year tenure little determinative research was done although some was done on tick fever therapy, balanitis of sheep, internal parasitism of cattle, horse mange, pneumonia of swine and plant toxicoses, This is not surprising as with a small staff a good deal of diagnostic and service work was achieved, eg in the period 1922-1932: 800 stud cattle inoculated for tick fever, in excess of 150 bleeders were prepared, 34,219 doses of tick fever vaccine were dispatched, 726,634 doses of bovine pleuropneumonia vaccine, 25,500 doses of blackleg vaccine prepared and dispatched. Some 4,500 diagnostic

specimens were processed, tuberculin was prepared for all field officers and hundreds of cultures of lactic acid producing bacteria were sent to cheese factories

Pound continued lecture tours north to Rockhampton. In 1915 Warble fly was detected in imported cattle and in 1920 field smears were accepted for tick fever diagnosis. In 1922 the agglutination test for pullorum was used and in 1923 the agglutination test for bovine brucellosis was conducted on serum or milk.

North Queensland Stock Experiment and Quarantine Station, Oonoonba, Townsville 1915-1937

This station was opened by the Minister for Agriculture on 1 August 1915. George Tucker MRCVS was appointed Northern Deputy Chief Inspector of Stock and Officer in Charge Stock Experiment Station on 11 August 1915. On his death in 1918, Mr McGowan was appointed temporarily and in June 1920 J Legg was appointed Director. In fact he was appointed in 1915 but did not take up duty until he had finished service in the army. Tucker's main duties were inoculation of stud stock for tick fever, preparation of bleeders and the surgical treatment of horses. In 1916, a chemist, Mr Montgomery White was appointed to test dips for arsenic content and specimens for arsenic levels. He prepared iodine solutions to check arsenic levels in dips in the field. Legg's appointment meant an escalation in research on tick fever and his 1930-31 report states evidence has been produced which incriminates more than one parasitic form of tick fever. In 1921 a new laboratory was built at Oonoonba. It is interesting that in the diagnostic work botulism of cattle was frequently suspected

In 1931-32 the station was transferred to the Commonwealth Council for Scientific and Industrial Research (CSIR) for a period of five years to investigate animal health problems common to northern Australia. In this period Turner, Campbell and Dick developed the BVFOS broth culture of M mycoides vaccine for control of

contagious bovine pleuropneumonia and the Complement Fixation test for its diagnosis. Legg was seconded to CSIR and continued working on tick fevers, particularly organism identification and vaccines.

North Queensland Stock Experiment and Quarantine Station, Oonoomba, Townsville, 1915

Animal Health Station/Animal Research Institute, Yeerongpilly 1932-1953

On 1 August 1932 the Stock Experiment Station became the Animal Health Station and Mr J Rudd, Acting Director was confirmed as Director.

Early in this period discipline specialisation began to develop and had greatly escalated by the end of the period. From veterinary officer, bacteriologist, entomologist, pig and poultry nutritionist to pathologists, microbiologists, protozoologists, histopathologists, serologists, parasitologists. In 1936 J Legg was seconded from Townsville to apply his research results to vaccinate valuable stud animals for tick fever. Rudd retired in 1941 and Legg was appointed Director of the Animal Health Station. In 1944-45 the Department reorganised and a Division of Animal Industry with appropriate Branches was created.

Legg was appointed Acting Director of the Division and F H S Roberts was Acting Director of Research at Yeerongpilly. In 1947 Legg was appointed Director Research Branch at the Animal Health Station, Yeerongpilly. This included administration of the laboratory at Oonoonba and in 1948 Roberts resigned to become Officer in Charge parasitology Laboratory, CSIRO, Yeerongpilly. CSIRO occupied the original timber Stock Experiment Station as the departmental staff had moved into the brick building erected in 1938 as the University of Queensland's Veterinary School. This had been occupied by the United States army during the war and vacated by them after the war.

In 1946 the Faculty of Veterinary Science erected and occupied wooden buildings at the Yeerongpilly site and remained there until 1960. Groups from the Animal Research Institutes staff then occupied these buildings.

During the period 1951-1953 the biochemical and toxicological sections of the Agricultural Chemists Laboratory, Division of Plant Industry under the supervision of J M Harvey and W R Winks respectively were transferred from Head Office to the AHS Yeerongpilly. They remained part of the Division of Plant Industry.

In 1953 the Animal Health Station became the Animal Research Institute, Yeerongpilly. Throughout the period disease diagnosis and research escalated.

Tick fever research and service continued as a significant component of the work. Legg's findings were that Babesia bovis (called Babesiella argentinum at first then Babesia argentina)and Anaplasma marginale were more pathogenic than B bigemina. This fact helped to rationalise treatment and control of tick fever in Queensland.

Research on internal and external parasitism continued for some years and in the 1930's research in nutrition of poultry for egg and meat production and of pigs for meat production was conducted. The appointment of G C Simmons, a science graduate as bacteriologist in 1946 greatly contributed to the quality and quantity of the microbiological diagnostic and research output of the laboratories.

In 1932 vaccine doses prepared and supplied were mammitis 15,444 (ceased in 1939), tick fever blood 8,135, BCPP natural virus 81,352, blackleg 1,560, tick fever bleeders for field 117 and stud animals inoculated 125, infectious labial dermatitis vaccine dispatched 1947 - 274,000 doses.

In 1935 cultured CBPP vaccine replaced the "natural virus vaccine". It was prepared by CSIRO Melbourne and dispatched from the Queensland laboratories.

Animal Health Station, Oonoonba 1937-1957

On 1 October 1936 the station was returned from CSIR to the Department. C R Mulhearn was appointed officer in charge and also administered field services in north Queensland. In 1936-37 the

laboratory despatched 70,000 doses of pleuro vaccine, examined 580 specimens, research was done on the epidemiology of ephemeral fever, tick fever control, plant toxicoses and peg leg of cattle whilst staff tested cattle for TB under the Cairns-Atherton tuberculosis free herd scheme. Animal production research included fattening of cattle on coastal pastures, influence of seasonal calving on production, cattle bruising on rail and spelling before slaughter on condemnations. During the 1939-45 war a considerable portion of the station was taken over by the armed services and many of the activities including some defence measures were diverted to fulfil the requirements of the National Securities Regulations. Normal activities had resumed by 1946 with resultant escalation in diagnostic services, tick fever service work and dispatch of vaccines. In 1946 L G Newton was OIC, 1954 A T Bell, 1955 W T Hall.

In 1957 Oonoonba despatched 310,000 doses of pleuropneumonia vaccine, 10,388 doses of tick fever blood, immunised 68 stud animals and processed 675 batches of specimens. In processing the specimens some 12,118 serological tests were done for brucellosis, CBPP, leptospirosis, vibriosis and melioidosis.

The Laboratories 1953-1997

Table 1 - Laboratories Establishment and Name Changes

1893	Queensland stock Institute, Turbot Street, Brisbane
1899	Queensland Stock Institute, Normanby, Brisbane
1900	Bacteriological Institute, Normanby (Home Secretary's Department)
1907	Bacteriological Institute, Normanby (Department of Agriculture)
1909	Stock Experiment Station, Yeerongpilly, Brisbane.
1932	Animal health Station, Yeerongpilly, Brisbane
1953	Animal Research Institute, Yeerongpilly, Brisbane

1990	Animal Research Institute, Yeerongpilly Veterinary Laboratory
1915	North Queensland Stock experiment and Quarantine Station Oonoonba, Townsville
1921	New Laboratory
1931-36	Transferred to CSIR
1933	Animal Health Station, Oonoonba, Townsville
1977	Oonoonba Veterinary Laboratory, Oonoonba, Townsville
1966	Tick Fever Research Station, Wacol
1978	BTB Building, Rockhampton
1987	Rockhampton Veterinary Laboratory
1987	Toowoomba Veterinary Laboratory

In this period the veterinary laboratories comprised three branches: Pathology, Husbandry Research and Biochemical/Biochemistry within the Division of Animal Industry. The period witnessed major expansion in facilities, staff and programmes in these laboratory branches; the establishment in 1957 of Husbandry Research Branch and its demise in 1981 with staff incorporated into field branches.

Finally in 1992 the Department restructured to a matrix system, with disbandment of Divisions and Branches. The organisation was regionalised. Staff were incorporated into programs and a Bureau of Animal Health was established. One program was Animal Health Laboratories within the Bureau with R J Rogers, Manager, Animal Health Laboratories. The four laboratories involved were the Oonoonba Veterinary Laboratory, Rockhampton Veterinary Laboratory, Toowoomba Veterinary Laboratory and the Yeerongpilly Veterinary Laboratory. The Yeerongpilly laboratory included staff of old Pathology Branch and staff from two of the many programs into which Biochemistry Branch staff had been incorporated. Each laboratory reported to a different Regional

Manager as well as to the Manager, Animal Health Laboratories. In 1996 a further reorganisation has resulted in the establishment of an Animal and Plant Health Service with development of seven species institutes, eg. beef, poultry, etc. Generally the components of animal health relating to disease regulation and diagnoses, etc. are not part of Institutes and the laboratories continue to report to regional managers and the executive of the service.

Most of Biochemistry Branch's staff previously incorporated into programs are included in an institute appropriate to their program and remain located at Yeerongpilly.

Tick Fever Research Centre became part of the Beef Subprogram and reports to the Beef Subprogram Regional Manager.

Administration of the Animal Research Institute

For the period 1957-64 the Branch Directors reported independently to the Director, Division of Animal Industry; from 1964-68 to the Director Veterinary Research J W Ryley; from 1969-81 to Director, Division of Animal Industry and from 1982-1992 to the Director Animal Laboratories stationed at ARI viz R J W Gartner, L Laws, T McEwan, and R E Nieper.

Pathology Branch - Directors: L G Newton, J W Ryley, W T K Hall, L L Callow, R J Rogers. After 1953 discipline and species specialisation continued with appointment of haematologists, mycologists, electromicroscopists, virologists and epidemiologists. Until 1982 all staff were involved in diagnostic work as well as research. Then L L Callow and his two Assistant Directors on review formed three groups: Diagnostic Services including the regional laboratories reporting to one Assistant Director and two others, Research Group and

Epidemiololgy and Control reporting to the other Assistant Director. The Tick Fever Research Centre and the Brucellosis and Tuberculosis Laboratory reported to the Branch Director. This originally had a mixed reception but over time was well received and successful.

Buildings - 1968 CSIRO transferred to new buildings at Indooroopilly. Pathology occupied this building; 1960's Medium Security Animal House Oonoonba; 1966 Tick Fever Research Centre, Wacol; 1972 Oonoonba laboratory destroyed by fire and was replaced in 1977; 1976 BTB building, Yeerongpilly; 1978 BTB building, Rockhampton; 1977 Electron Microscope installed; 1981 Conventional poultry and medium security poultry building; 1987 Toowoomba and Rockhampton Veterinary Laboratories. In 1974 there was some damage to buildings at ARI during the major flood in January.

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