

*Medical History***DR ANTON BREINL AND THE AUSTRALIAN INSTITUTE OF TROPICAL MEDICINE*****PART 2**

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Med. J. Aust., 1977, 1: 748-751.

DOCTOR ANTON BREINL was born in Vienna in 1880. The family lived in the town of Graslitz near Pilsen in Bohemia, and was of Sudeten German origin. His medical education was received at the University of Prague, and he took the degree of M.U.Dr (*Medicinae Universalis Doctor*) of Prague in 1904. In May of that year he came to England and did the course at the School of Tropical Medicine in Liverpool. Later, in a lecture to the Townsville Rotary Club, he gave as his motive for taking up tropical medicine the desire to travel, and also his interest in science. He always described himself as a scientist, and headed his lecture "Personal experiences of a Scientist in different parts of the world". He went on to say, "my scientific career started in 1905 after qualifying as a doctor and looking around for opportunities to see the world, a poor beggar naturally cannot travel, and Tropical Medicine seemed to offer a great opportunity". He had enough money to last him for three months when he arrived in Liverpool, and on July 31, 1904, received the certificate of the school signed by Professor Ronald Ross, who later became Sir Ronald Ross. Breinl always kept a volume of Ross's poems in his possession throughout his life. In fact, in spite of his medical eminence, Ross fancied himself more as a poet and mathematician than as a medical scientist. On August 20, 1897, he discovered the malarial cycle in mosquitoes and thereafter always called it "Mosquito Day"; he wrote to his wife the same day enclosing the following famous poem:

This day relenting God
Hath placed within my hand
A wonderous thing; and God
Be praised. At His command,
Seeking His secret deeds
with tears and toiling breath
I find thy cunning seeds;
O million murdering Death.
I know this little thing
A myriad men will save.
O Death, where is thy sting?
Thy victory, O grave?

Breinl also was artistically gifted, but as a musician. His family was associated with the manufacture of wooden musical instruments and also lace. It is said that Breinl was so talented

that he could have become a professional concert violinist. He was also gifted at languages, and spoke English and German fluently, and French fairly well, and he also had some knowledge of the Portuguese and Italian tongues.

Breinl, having received his certificate and now being out of money, had the good fortune to be elected the J. W. Garrett International Fellow of the University of Liverpool from 1904 to 1907. During this time he was associated with Dr H. Wolferstan Thomas in research on trypanosomiasis, directed particularly to the pathology and treatment of sleeping sickness. When he applied for the Fellowship, as a test he was asked to perform a post-mortem examination; this he did so well, that the Fellowship was awarded to him. His voluntary work as a student for two years in the pathology laboratory at Prague under Professor H. Chiari had paid off.^{9 15}

The Liverpool School of Tropical Medicine was founded in 1899; Alfred Jones, Head of the Elder Dempster Shipping Line, provided the money. Ronald Ross was the Professor of Tropical Medicine, and was paid £250 a year. The school was most active in sending expeditions to investigate tropical diseases throughout the world, but mainly in South America and Africa. Thirty-one expeditions were sent out up to 1914. Walter Myers died of yellow fever while investigating the disease at Para in 1901. John Everett Dutton, who had discovered *Trypanosoma gambiense* in 1901, died of tick-borne relapsing fever in the following year.¹⁶

It was now Breinl's turn to go on an overseas mission, and in August, 1905, he and Dr H. Wolferstan Thomas were sent as members of a yellow fever expedition to Manaos, 1,000 miles up the Amazon River in Brazil.¹⁵ There is some slight evidence that Breinl may have even gone to Iquitos, 2,330 miles up the Amazon. Before he left Liverpool he insured his life, and in rough notes we can still sense the dread: "Thomas got it first."⁹ The "it" was yellow fever, that particular strain having a mortality rate of 95%. Breinl then got the disease and was very severely affected. There may have been a complicating bacterial septicaemia, as numerous abscesses appeared and had to be opened under brandy as an anaesthetic. As a result of this illness, Breinl was left with a left facial palsy and sweating on that side of his face when he was eating—this caused him a good deal of embarrassment. Thomas also recovered, but Breinl spent only six months in Manaos, being evacuated back to Liverpool. The ship was wrecked near the mouth of the Amazon, and all the records and apparatus were lost; his only remaining possessions were his pyjamas and a toothbrush.

* The Forty-Sixth Jackson Lecture, delivered at the Twelfth North Queensland Medical Conference on Monday, September 13, 1976, in Rockhampton.
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The reason for this expedition was the great loss of life in the Amazon rubber boom of 1906 to 1912. It is said that every ton of rubber cost a man's life. Most of the labourers were imported from Portugal and Spain, but most of the capital was English. Breinl notes that they were allotted space for the laboratory in the section reserved for prostitutes at the Manaus Hospital.⁹

Breinl was promoted to be the Director of the Runcorn Research Laboratory in May, 1907. His research there was directed towards tick fever, sleeping sickness, and the life cycle of *Piroplasma canis*. Altogether while at Liverpool he was associated with the production of 21 published papers and one book.¹⁵

Probably his most significant achievement was in the treatment of sleeping sickness. Arsenic had been used by the explorer Dr David Livingstone, who was the first to use arsenic for the illness of horses and cattle caused by the bites of the tsetse fly, but of course the *Trypanosoma* carried by the fly was as yet undiscovered. The preparation used was an inorganic arsenical, but Thomas and Breinl were the first to try an organic arsenical. They used Atoxyl, a product of the German dye industry which had been available since 1900, and was used for skin diseases and anaemia. Thomas resolved to try Pentavalent Atoxyl in trypanosomiasis in 1905, and to Thomas and Breinl belongs the credit for having, after careful investigation, introduced the drug as a curative agent in sleeping sickness.¹⁷

At that time Dr Paul Ehrlich of Germany was also working on the chemotherapy of trypanosomiasis, and on hearing of this work came over to the Runcorn Laboratory to see the results. Ehrlich then resolved to try organic arsenicals in the treatment of syphilis, and by 1907 had developed salvarsan (606), a trivalent arsenical which cured syphilis, one of the most dreaded diseases at the time. Ehrlich did not announce his success until 1910. Hence, these three—Thomas, Breinl and Ehrlich—were the pioneers of the present enormous subject of chemotherapy.¹⁸

In applying for the Townsville position, Breinl secured a testimonial from Paul Ehrlich. In fact there were eight testimonials which, as well as that of Ehrlich, included one from Chiari and one from Von Jaksch. Ehrlich wrote:

I have known Dr Anton Breinl very well indeed for some years, both personally and scientifically. I regard him as a very prominent investigator, who carried out his work with admirable zeal, regardless of his personal convenience. For the last few years he has been mainly engaged on the question of the treatment of Trypanosomiasis and Sleeping Sickness, and has advanced our knowledge considerably in this direction. As I have been greatly interested in this question for some time, I have for many years been continuously in scientific communication with him, and consider him one of our most prominent experts. As an investigator, with extensive experience, he is at present at the height of his development, and is one of the leaders in modern chemotherapeutical work.¹⁵

Incidentally, Ronald Ross in his certificate wrote: "I now merely give Dr Breinl a formal certificate to the effect that his conduct throughout has been entirely satisfactory, and that his capacity as a teacher, research worker, and administrator of his department is of the highest." The other testimonials and certificates mentioned his great capacity for work which was always subsequently noted, and his popularity with students and staff.¹⁵

The development of Atoxyl treatment at that time was indeed fortunate for Breinl, as in 1907 a rat, experimentally infected with trypanosomiasis, bit his finger and he contracted the disease, hitherto always fatal. Among his papers is a temperature chart showing the dramatic effect of Atoxyl, while on the back of the chart scientific observations concerning the course of the disease and the medication are written in Breinl's handwriting.

Breinl arrived in Townsville to take up his appointment on January 1, 1910. In that same year he was awarded the Mary Kingsley Medal of the Liverpool Institute. He was given a small timber, iron-roofed building by the Townsville Hospital which had previously been a wardsman's quarters. This building was about 30 feet by 18 feet, and was divided into three rooms. An eight-foot wide verandah surrounded the building. Mr J. W. Fielding, the laboratory assistant, described the arrangements as being even less pretentious than their cottage laboratory at Runcorn from which they had come. Fielding arrived by separate ship about the middle of January, 1910. Fielding remained with the institute from its inception until he died in 1954. At the suggestion of Mr J. E. Claffey, Fielding wrote a manuscript account, totalling 120 foolscap pages, covering the history of the AITM from its inception to the time of its transfer to Sydney in 1930. The manuscript is a mine of information, giving the names of all members who ever served on the staff, including some biographical details, and also a bibliography of all the publications that emanated from the institution. Fielding was paid £100 a year.¹⁹

The Director, on the good principle that time spent in reconnaissance is seldom wasted, set out to survey the health problems of his wide territories, and in 1910 made two journeys to the north, including Torres Strait. Also, of course, he had to go to Brisbane to meet the leaders of the profession there. It was there that he met Dr E. S. Jackson, whom we commemorate in this lecture. Jackson was the doyen of the profession and was held in great regard and affection. He came to Brisbane from Melbourne in 1882, and was appointed Superintendent of the General Hospital in that year. He remained Superintendent until 1898, and his great contribution to medicine was the institution of the first school of nursing in Queensland. Jackson had one great battle with the nursing staff; he thought it was unhygienic to have dresses which swept the floor, which was the fashion at the time. He decreed in 1889 that the skirts of uniforms were to be 12 inches from the ground. There were shrill protests from the nurses at having to show so much leg. Jackson won the "battle of the skirts" and the Matron also lost her train.²⁰ Jackson does not seem to have had any direct connection with North Queensland, but no doubt as a surgical consultant he saw many patients from the north. Certainly, his eldest son, Dr J. H. S. Jackson, after a time in New Guinea was medical officer to the Palm Island Aboriginal settlement for many years. He was the Jackson who, in 1926, commenced the course in tropical medicine at the AITM but had to withdraw after a severe attack of dengue fever. He practised eventually in Baralaba, and died in Rockhampton, where he is buried. Another son, Dr C. S. Jackson, did general practice in Tully from 1926 until 1935, and from 1935 to perhaps 1940 worked in Townsville as an ear, nose and throat surgeon. A grandson, Dr R. C. S. Jackson, practised in Rockhampton from 1952 to 1953 in conjunction with Dr Norman Talbot.²¹

A special meeting of the Queensland Branch of the BMA, at which 18 members were present, was held in Brisbane to welcome Breinl on December 9, 1910. The President, Dr E. S. Jackson, was in the chair. Jackson was president in 1895, 1911 and 1926. Dr Jackson, in welcoming Breinl, pointed out that the AITM was of direct importance not only to the tropical parts of Queensland, but also to the southern subtropical area, in which Brisbane was included. He referred to some diseases which he thought merited immediate attention—namely, hookworm infestation and filariasis, and mosquito-borne diseases in general. He also spoke of infectious granuloma. Dr McLean thought that there was much need for a careful study of acute febrile diseases. Dr Gibson, Dr Turner, and Dr Salter referred to cases of lead poisoning. Dr Elkington emphasized the grave

risks to Queensland and Australia arising from exotic epidemic disease in Eastern Asia and its dependant islands. Dr Row referred to his experiences in North Queensland and stated that in his opinion there were many diseases prevalent there, the true nature of which required investigation. Dr Robertson pointed out that malaria usually occurred with the construction of railways in tropical countries. Dr Butler said that the institute had been founded at the psychological moment to assist Australia to keep the north predominantly white—the most vital problem affecting the nation.

Breinl replied that the success of the AITM would depend upon wholehearted cooperation from the profession in Queensland. He had already surveyed some of the Queensland problems, and mentioned how different Queensland was from other tropical countries, in that there was no large reservoir of disease in a numerous native population. He thought the institute should investigate the existing diseases. He said there was a great deal of filariasis, the importance of which seemed to be underestimated. A certain amount of benign tertian malaria was present. Tropical dysentery was rare, but sprue was common, particularly in the Innisfail district. Dengue fever was common, beriberi was frequently seen among the divers and crews of the pearling boats at Thursday Island, and hookworm infestation was prevalent. Diseases of the eyes were common throughout Western Queensland. He stated that a good many other diseases also occurred, such as ulcerative granuloma, indefinite fevers, typhoid of a peculiar type, leprosy, and many more. He was worried lest yellow fever be introduced, as the mosquito vector was present all along the Queensland coast from Torres Strait to Brisbane. Tropical medicine was regarded by him as being concerned not so much with treatment, as with prevention of disease. He pointed out in particular the great strides made by the Americans at Panama.

Breinl mentioned that there was a further aspect to the institute, namely. . . .

. . . the White Australia question, which is certainly more than a simple political question in Tropical Australia, but which has a great bearing on the economic development of the world. Is the white race capable of propagating and living in the Tropics? Is the offspring as healthy and fit as in a temperate region? North Queensland is the ideal country to investigate and decide these questions, as it is a tropical country, without native servants where the white men live under analogous conditions to those in a temperate climate. Does the white organism undergo any changes with regard to composition of the blood; does the metabolism become changed?

He also mentioned that if the subsidy was increased as promised, the institute would be able to enlarge its scope and adopt a teaching role.²²

In 1911, he took part in an expedition to the Northern Territory and this resulted in a report detailing medical conditions at that time in the Territory.²³

In 1912, between July and August, he investigated the coastal belt of Papua from Port Moresby through Samarai as far as the Mambari River on the border with German New Guinea. In 1913, he journeyed from Port Moresby westward on foot and by canoe to Daru. On this journey he walked 500 miles and the rest of the distance was by canoe. At one stage the canoe overturned and all his possessions were tipped into the water. A paper described the diseases met with on these journeys in Papua.²⁴

In 1911 Professor W. A. Osborne, Professor of Physiology at the University of Melbourne, visited the AITM to make a report on its activities, and advised that the scope of the institute should be enlarged. Dr J. S. C. Elkington, who had taken up duties as Commissioner of Public Health for Queensland on

the same day that Breinl commenced duties at the AITM (January 1, 1910), had been on the AITM Committee from the outset, and was in favour of expanding the institute. Cilento knew him well and said of him: "In Elkington it was an absolute belief in the capacity of the white race to colonize the tropics—at a time when the idea was held universally to be absurd—and an all-consuming urge to force it into recognition."²⁵

In April, 1911, F. H. Taylor took up duties as entomologist—his salary was paid by the Queensland Government. In September, 1911, the AITM Committee, Dr J. S. C. Elkington being present, met in Sydney and decided to approach the Federal Government for an increased subsidy to widen the scope of the work to include investigation into physiological and anthropological problems associated with the white population living under tropical conditions. The committee was successful with its representations to the Commonwealth Government, and it was decided to build a new laboratory and animal house. For this purpose the Townsville Hospital Board decided to hand over portion of their land. Mr Jacob Leu was President of the Hospital Board. Authority to draw up plans for the new buildings was received by Breinl in 1912.

Professor T. Anderson Stuart and Professor H. B. Allen, from the universities of Sydney and Melbourne respectively, attended a Congress of Empire Universities in London in 1912, and while there, both being on the committee of the AITM, appointed the following members to the staff: Dr W. Nicoll as parasitologist, Dr W. J. Young as biochemist; and Dr H. Priestley as bacteriologist.¹⁹ Young was later to become Professor of Biochemistry at the University of Melbourne, and Priestley Professor of Biochemistry at the University of Sydney. Priestley was to write Breinl's obituary in the *Australian Journal of Science* in 1944.

The new buildings were occupied some time before the official opening on June 28, 1913. The old building reverted to wardsmen's quarters but the Hospital Board gave another small building closer to the new institute as a media room. Bishop Frodsham was not there to see the official opening of the enlarged institute. He left for England late in 1912 suffering from a "painful affliction" which, his medical advisers in London had told him, meant that he could no longer live in a tropical climate.⁸

Sir William MacGregor, Governor of Queensland, a medical practitioner himself with a high reputation for work in tropical countries, opened the institute. Professor T. Anderson Stuart was the only one of the original founders of the institute to be present at the opening, though Dr W. Love, the original representative of the Queensland Government on the Committee was present.

At that time the Panama Canal was on everybody's mind, as it was to be opened to shipping the next year. Professor T. Anderson Stuart, in his introductory remarks, stated that:

. . . in the early efforts to construct the Canal 1,000 negroes were imported to do the work, and every man was dead in six months. It was then thought the Chinese might survive, but in six months every Chinaman was dead. Then thirty years later when the French tried to construct the Canal, a quarter of the workers died each year, and it was the health conditions and not the engineering difficulties that led to the abandonment of the scheme. When the United States took up the work this was recognized, and they had so successfully overcome the position that Panama, which had been the grave of so many people, had now become a health resort for the people of the United States.

At that time, as well as White Australia being well to the fore in all thinking about the future of the country, the story of the triumph of sanitary engineering in Panama was a pointer to the control of disease in other tropical countries of the world. General Gorgas was of course responsible for the Panama

success and used to say, with reference to the successful sanitation of the Isthmus, "A revolution in human history for it throws over the hitherto accepted truth that white men could not live in the tropics".¹⁸

At the opening, the Queensland Governor gave a long speech. He mentioned that the universities of Sydney, Melbourne and Adelaide had contributed to the institute £150, £100, and £50 respectively. The Colonial Office gave £400, and W. K. D'Arcy £1,000. At that time, the Commonwealth Government have an annual endowment of £4,000, and the Government of Queensland £500. The £400 from the Colonial Office was really a refund of the sum given to it some years previously by the Commonwealth Government to encourage the study of tropical medicine in England. The White Australia question was again mentioned, and the Governor is reported as saying: "The policy of reserving Tropical Australia as a home for a purely white race is one of the greatest and most interesting problems of modern statesmanship. A final proof of whether this is practicable, time alone will furnish, for history does not supply experience to settle the question." He also said: "It is a matter of common knowledge that a considerable number of white men have lived and worked hard for many years in inland Tropical Australia, and have enjoyed good health even under conditions that had been by no means as favourable as they can be made in the future." He agreed with Professor Allen's report on health conditions in Panama: "There tropical diseases, although important, occupy only a secondary place, and the main problem is whether conditions of heat and light will permit the establishment of a working white race." He stated that heat and light took the first place because they were inevitable and had to be endured. Diseases came second because they were incidents and could be cured.

Sir William MacGregor also mentioned the plight of women in the tropics:

With the disappearance of the Aboriginal race, with a prohibition on other domestic servants of colour, and the practical

impossibility of obtaining white servants, it should not be expected that the mother of young children can live in the north in a house, the walls and roof of which are of galvanized iron, where she has to do the cooking, the washing, the mending and the ironing of clothes, and to tend to the ceaseless round of domestic duties early and late inseparable from the family household. It is therefore, absolutely essential that everything that is possible be done to lessen the labour of the white woman in the north and make her life more comfortable.

The Governor also said, speaking again of the White Australia policy: "If the policy is to succeed, special inducements must be held out to settlers, for it is well known that the tropics are not regarded as being the most congenial places for permanent occupation by those of European descent."²⁶ Fielding makes some wry remarks about the inducements mentioned above, by pointing out his magnificent salary of £100 a year.¹⁹ The Director was paid £600 a year.

The enlarged institute busily engaged itself in research on many aspects of tropical disease and tropical living. Much effort was also put into the identification of the parasites of various native and domestic animals, and to research into diseases of veterinary importance. As a result a new genus of filaria affecting marsupials was discovered and called *Breimlia*. There were many others discovered.

In Breinl's time (from 1910 to 1920) 57 published scientific papers are recorded; Breinl either wrote or played a part in writing 22 of these papers.²⁸ Towards the end of his time his main interest was in the physiological study of the effects of a tropical climate on Europeans. In these studies, he and Young collaborated and they were the first in the world after Haldane in England to undertake such investigations. They were helped very generously by the local waterside workers, who acted as the guinea-pigs for their experiments. This type of work was very time consuming, and a lot of measurements were made for very little result.

(To be concluded)

Short Papers

Med. J. Aust., 1977, 1: 751-752.

TOBISPRAY IN NASAL SURGERY

MOST of the established techniques of nasal surgery involve postoperative packing of the anterior nares with resultant discomfort to the patient and a protracted stay in hospital. Moreover, the pack itself often predisposes the patient towards infection, secondary haemorrhage and formation of adhesions.

This short paper describes an alternative technique used in a series of 100 patients who underwent nasal surgery in a Hobart practice in the last 12 months. In these patients bleeding was controlled by diathermy and the postoperative application of a nasal aerosol, Tobispray.* Tobispray is a dry, metered-dose

nasal aerosol containing a vasoconstrictor substance (tramazoline), together with a steroid (dexamethasone isonicotinate), and an antibiotic (neomycin sulphate). This combination of medicaments is well suited to postoperative application, as the vasoconstrictor and anti-inflammatory component tend to lessen mucosal oedema while the antibiotic checks the invasion of pathogenic bacteria.

METHODS AND PATIENTS

One hundred consecutive patients who needed nasal surgery entered the trial. There were 51 males and 49 females with ages ranging from 5 years to 64 years. The operations performed included adenoidectomy, antral proof punctures, intranasal antrostomies, polypectomies, rhinoplasties, septoplasties, submucous dissections and resections, and surgery to the nasal turbinates. The patients were advised of the nature of the surgical procedure before operation and instructed in the postoperative application of Tobispray. Instead of packing the nose, haemostasis was secured by diathermy applied by means of a rubber-sheathed metal sucker at the conclusion of each

* Boehringer Ingelheim.

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