WILLIAM SAVILLE-KENT, F.L.S., F.Z.S., F.R.M.S. (1845–1908)

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(with an appendix)

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William Saville-Kent pioneered the scientific management of fisheries in Australia from 1884 to 1907. His wide-ranging research interest extended from infusoria to salmon and he worked in Britain, off Portugal, and in every part of Australia from Thursday Island in the north to Tasmania in the south. He cultured a number of marine species and was a leader in the movement to utilise the great Victorian public aquaria for scientific purposes. His prolific pen delineated Australia's commercial fish resources, and brought to Europe, for the first time, the diversity and scale of the Great Barrier Reef.

Key Words: Saville-Kent, fisheries, salmon, oysters, aquaria, Great Barrier Reef, Tasmania, Queensland, Victoria, Western Australia.

INTRODUCTION

William Saville-Kent was 38 years old when he was offered the post of Superintendent and Inspector of Fisheries in Tasmania and the opportunity to become a major figure in the early development of Australian fisheries.

He was born William Savill Kent on 10 July 1845 at Cliff Cottage in Sidmouth, Devon, the youngest of the ten children of Samuel Savill Kent and Mary Ann Kent (nee Windus). His grandfather, Samuel Luck Kent, had been a prosperous carpet manufacturer in London where William's father worked until becoming a partner in a company of dry salters. His mother was the daughter of a wealthy coach builder, Thomas Windus, who later became a Fellow of the Royal Society of Antiquaries; she was a well educated and a "gentle gracious woman" (Taylor 1979: 42). After some health problems, Samuel moved the family to Devon. He became Sub-Inspector of Factories in 1834, a highly paid and prestigious position, supervising the new Factories Act in southwestern England. In 1840 the family acquired a governess, Mary Drewe Pratt, for Mary Ann and Elizabeth, their two surviving daughters. Mary Pratt and Samuel Kent quickly formed an intimate relationship which was to have tragic consequences 20 years later.

The death in infancy of five of William's siblings, the seniority of his only brother Edward Windus (13 years older) and his commitment to a career at sea, ensured that William formed a deep bond and mutual commitment with his sister, Constance Emily, who was a little over a year his senior. As their mother's health deteriorated and their father's involvement with the governess grew, Constance's initial close friendship with the latter first cooled and then turned to hatred when her mother died in May 1852. Even whilst Mrs Kent was alive, her husband had openly consorted with Miss Pratt (and other women) and the governess had derided her to the children. In 1848, the family moved to Walton Manor and then to Baynton House in East Coulston, Wiltshire. Samuel married Miss Pratt a little over a year after his first wife died and by 1858 had three children by her — Mary Amelia born 1855, Frances Savill born August 1856 and Eveline born October 1858. The family home was now Road Hill House near Trowbridge on the border of Wiltshire and Somerset.

As her father and stepmother were now committed exclusively to the new family, the determined and mature Constance dressed in her brother's clothes and, after he had cut her hair, set off with the 11-year-old William in tow bound for Bristol and any ship that might take them to a new life. Two days later they were found at Bath and returned, William contrite but his sister defiant. (Taylor (1979: 58) believed their escapade inspired Dickens to write *Edwin Drood* in 1870.) Due to Samuel's financial position, Constance and William were being taught at home by their stepmother prior to this escapade but they were now sent off to boarding school, his in Worcester. In his early teens, William attended another boarding school in Gloucester, where he was in 1858 when his brother Edward died in Cuba.

In June 1860 the family was living at Road Hill House when the 16-year-old Constance murdered her stepbrother Frances Savill. She had considered killing her stepmother but killed the boy to cause greater agony to the woman who had tormented her mother. Constance and William and a servant were suspected of the crime. Suspicion fell on William "because of his close attachment to his sister" (Taylor 1979:191) but he was not seriously suspected due to his gentle nature and to the fact that when they had run away he "proved a most inefficient and unheroic partner".

A long and sensational investigation failed to allow committal of anyone for the crime. Samuel urged a reward be offered and openly stated his belief that a mentally unbalanced Constance was guilty. He blamed Constance's condition on his first wife, claiming she was insane and that insanity was prevalent in the Windus family. At this time such a claim, if believed, would have severely jeopardised the future opportunities of all four surviving children of Mary Ann including William. The publicity forced Constance to complete her education in France, after which, in August 1863, she found seclusion in a Church of England convent in Brighton under the name Emilie.

In 1865 she confessed her crime, first to Reverend Wagner at the convent and then formally to the authorities. In order not to prejudice William's career, she refused to accept the advice of her counsel to plead insanity: "her self-sacrifice did her great credit but denied her the possibility of a possible escape route from the hangman" (Taylor 1979: 294). Her plea of guilty was also "to clear those unjustly suspected". She was duly sentenced to death but the sentence was commuted to life imprisonment. At the time of her trial she was said to be the best known woman in England and her effigy stood in Madame Tussaud's Waxworks until 1877.

After the murder, the family moved to Weston-super-Mare, where Florence Savill Kent was born on 19 July 1861 (Acland Savill Kent was born at Road Hill House on 30 July 1860). Shortly after moving to Weston-super-Mare, Samuel was advised that the headquarters of the Factories Commission were to be moved to Wrexham and that he would need to transfer to north Wales. In August 1866, William's stepmother died at the family's new home in Llangollen, Wales; his father moved north to Denbigh with the younger children, whilst William and his elder sisters, Elizabeth and Mary Ann, moved to London where, aged 21, he sought a career as a naturalist.

LIFE AND WORK IN ENGLAND

The attached bibliography indicates that Saville-Kent left a very substantial body of literature, including some personal correspondence, but it contains very little material to illuminate his persona. The author is indebted to the biographer of Constance Savill Kent (Taylor 1979) for most of the above information on Saville-Kent's boyhood and family.

William had spend much of his life near the sea and his father was a senior civil servant but, apart from these circumstances, there is no obvious reason why William should choose a vocation as a naturalist. At Kings College he qualified to enter the Imperial Civil Service. After further studies in biology and laboratory techniques under Prof. T. H. Huxley at the Royal School of Mines, he obtained his first permanent position at the British Museum in 1869 (Queensland University Enquiry 1891) under the distinguished naturalist Sir Richard Owen, superintendent of the natural history collections. Previously Saville-Kent held short-term positions in the museum of the Royal College of Surgeons and the Cambridge Museum of Comparative Anatomy. His association with the British Museum actually began in October 1868 when, aged 23, he was paid £50 to "name, arrange and make a manuscript catalogue" of the museum's collection of Madreporaires (stony corals). This task brought him into contact with Australian marine fauna for the first time and his competence so impressed Owen and the Keeper of the Zoology Department, Dr John E. Gray, that they arranged a permanent position for him as a junior assistant in the Department of Geology. The post carried a salary of £90 per annum and he took up the position in November 1869.

Saville-Kent was accepted as a fellow of the Zoological Society of London in December 1869, being at that time a curator in the Zoology Department of the Museum, and in May 1870 his supervisor, G. R. Waterhouse (Keeper of the Geology Department of the Museum), recommended that he be given five weeks extra leave to accept the offer of Mr Marshall Hall, F.G.S., to place his yacht *Norna* at William's disposal for the purpose of conducting an expedition to dredge for marine specimens and survey for fish in Vigo Bay, off the coast of Spain and Portugal. He had been introduced to Hall by Henry Lee, F.L.S., the President of the Croydon Microscopical Society. This survey, which was supported by a grant of £50 from the Royal Society of London, provided him with the material on

which to write his first scientific papers and the first opportunity to survey the marine life of a "new" area. The plan of the expedition was to start in Vigo Bay and work towards Lisbon and then to the deep-sea fishing grounds of Setubal where it was hoped to find specimens of the glass rope sponge (*Nature* 5 October 1871: 457).

In March 1871, in a letter to Dr P.L. Sclater, the secretary of the Zoological Society (Zool. Soc. files), Saville-Kent complained of the "lamentable stagnation of affairs at the British Museum" and stated his intention

> "to apply for the post of curator at the Leeds Museum ... Should I leave now I shall doubtless return again some day and the experience gained in the faithful discharge of the responsibilities of a small but independent position will further qualify me for one of still greater responsibility hereafter."

When not selected for the post in Leeds he continued at the British Museum until circumstances the next year again forced him to seek a more permanent and challenging position. In February 1872 his father died in Wales and in June he married Elizabeth, the eldest daughter of Thomas Randle Bennett, a London barrister of 5 Kings Bench Walk, Temple. By the end of the year he found an opportunity to study the new field of pisciculture as curator of the Brighton Aquarium. The Minutes of the meeting of the Trustees of the British Museum on 8 February 1873 record that Dr Waterhouse

> "called attention to the value of Mr Kent's services in the Museum and expressed his great regret that an inadequate salary should have obliged Mr Kent to seek elsewhere for a more favourable application of his acquirements."

The use of aquaria in the scientific study of fishes was one of his life-long interests and a particular ambition was to see established a British Marine Research Station along the lines of one already established in Naples. His first attempt was in Jersey through the Channel Island Zoological Station, Museum and Institute of Pisciculture Society Limited, 16 Royal Square, St Heliers. By February 1870, £1000 had already been raised and a further £500 promised from leading residents of the island. Saville-Kent approached the Royal Society for a small grant to aid the project in 1870. The aquarium was one of a succession of crazes associated with the Victorian interest in natural history. Barber (1980: 117) records the "invention" of the aquarium as occurring in 1850, and soon after they were a common feature of every drawing room. Although the home aquarium craze ended about 1870 it was replaced by a "sudden fashion in huge purpose-built public aquaria ... every large town in England was clamouring to have its own aquarium" (*ibid.*: 123). The later reduction of public interest in these facilities offered superb research opportunities generously funded by government grants and supplemented by entrance fees. Bertram (1873) stated

> "The Brighton and Crystal Palace aquaria will do much to spread a correct knowledge of the life and habits of all kinds of fish ... I am in hopes that real good work will yet be achieved by means of these aquaria, and that many points of fish life and economy, especially as regards our food fishes, will be determined by Mr Lloyd at Brighton and Mr Saville-Kent at the Crystal Palace. In particular I hope that one or other of these gentlemen will solve a great many of the questions which have been promulgated during late years in regard to the acclimatisation in this country of various kinds of foreign fish ... The real value of these institutions will consist in their solving the problems connected with our food fishes" (*ibid.*: 295-296).

During Saville-Kent's time at Brighton he carried out research and wrote a guide book to the Aquarium. Several articles in *Nature* (see Appendix) record his observations of a diverse range of marine animals ranging from porpoises to sea horses and octopus. His research included the detailed observation of the behaviour of the species held for display; one such study, observation of the copulation of the octopus, eventually led to his resignation. The circumstances are described in a reply he wrote to a request from Professor Sir Richard Owen for details of the octopus behaviour (Owen Correspondence, Vol.XVI, B.M.N.H., 1 July 1873). He had been supported in his application for the Brighton position by a Mr Lee, the effective director of the facility, but Saville-Kent with his enthusiasm and drive was soon looked on by the Board "as their chief officer ... responsible for the entire management of the tanks and their contents". Lee's earlier sponsorship of the young scientist became tinged with jealousy when the Board planned to introduce his protege to the King of the Belgians as "curator and chief officer in charge". Later, after witnessing the intriguing sex life of the octopus, Saville-Kent reported the details to the Board and "sent a brief note to several of the papers". By his account, Lee suggested they write a joint paper of the observations and he agreed but did not tell of his letters to the papers as he

"thought it rather hard that I might not reap the credit of my own observations". When Lee read one of these letters in *The Times* he accused Saville-Kent of "duplicity and disingenuousness" which left the latter with "no option, in the light of our former friendship and services but to resign". He did not appeal to the Board and his resignation was accepted but when his father-in-law heard of the events he concluded that William "had been the victim of a cowardly plot" and vowed to have the Board reconsider his appointment. Bennett was successful, in that the Board reviewed the situation at its next meeting, but Saville-Kent did not seek reinstatement. On leaving Brighton he published an article describing the facility, its construction and recommendations for overcoming some of its deficiencies (Saville-Kent 1873c).

Judging from the comments of Bertram (1873), Saville-Kent left Brighton to hold briefly a similar position at the Crystal Palace in London. In June 1873 he had been elected a Fellow of the Linnaean Society of London and with his new qualification and experience at Brighton he took control of the Manchester Aquarium in Alexander Park. Some appreciation of his work there can be gained from his guidebook published in 1875, his paper on the culture of lobsters which reported the work he had done in the summer of 1874, and an article in *Nature* concerning echinoderms (1883a). The death of his young wife Elizabeth in 1875 after only three years of marriage probably caused him to leave Manchester and move to the aquarium at Great Yarmouth in Norfolk and then return to Jersey.

The Channel Islands project was slow to develop and in March 1877, after another unsuccessful approach for support to the Royal Society, he took a temporary position with the Zoological Society restoring their Aquarium and Fish House in Regents Park. On 26 October 1877 he excitedly wrote to Sir Richard Owen (Owen Correspondence, Vol.XVI, B.M.N.H. 26 October 1877:) that

> "at length a definite prospect of accomplishing what I may say has been the main object of my ambition during my several years 'Apprentice-ship' as naturalist to the leading English Aquaria. Namely the establishment of an institution specially devoted to the interests of marine zoology and pisciculture and that I shall place at the disposal of British Naturalists facilities for pursuing marine biological research which under existing auspices can be obtained no nearer than Naples."

He expressed disappointment that the facility has to be financed by way of a public company rather than "private munificence" but acknowledged that "now-a-days [science] must make the most of such opportunities that present themselves".

The aquarium was to be financed by public shares valued at £1 each. The company was registered in Jersey in October 1877 and Saville-Kent expected "that by January next we shall be in a position to commence active building". He invited Owen to be a member of the Technical Committee that would be appointed to advise on research priorities. In early 1878 he was confident "of starting the technical department ... a number of rooms for the use of students had been equipped together with a depot for supplying specimens for various museums and schools". By April he was confident of commissioning the permanent buildings and hoped that, as the British Association had recently donated £100 to the Naples laboratory, "charity would be as judiciously bestowed nearer home". But the project could not be firmly established and in 1879 he took up a position of curator at the new Brighton Aquarium.

Early in 1883 he was pleased to note that "a fine series of marine and freshwater tanks" being built for the International Fisheries Exposition would be left in position and "their final destiny having alone to be decided on" (1883). He proceeded to nominate a range of options which would see this facility incorporated in one of the nearby institutions, but again it seems his high hopes appear not to have eventuated. In January 1884 he gathered together a group of leading marine biologists including W.H. Flower, President of the Zoological Society, Professor Mosely of Oxford, and G.J. Romanes, Secretary of the Linnaean Society, who were prepared to support his proposal to convert the Brighton Aquarium into the British Marine Research Station. A printed circular was prepared and he addressed the Zoological Society on the subject. His appointment to Tasmania forced him to "leave the future of the project in the hands of my friend Dr Romanes", but his interest in these facilities continued in Australia, where he built a research station in Hobart and successfully reared and studied a number of local species; he also urged the Queensland Government to establish another on Thursday Island.

His interest in fisheries as distinct from marine biology appears to have begun early in 1870 with the cruise of the Norna and then progressed through his association with the various public aquaria. When Spencer Walpole left the post of British Inspector of Fisheries to become Governor-

General of the Isle of Man in April 1882, Saville-Kent sought the position through his friend Sclater, and probably Huxley who also held such a position.

He married Mary Ann Livesey in the spring of 1876 — "a young woman of some financial means ... who was to become a great champion of his work" (Taylor 1979: 352). At the time of his appointment (1884) they were living in London at Aston House, 87 St Stephens Avenue, Uxbridge Road, Shepherds Bush, and he was working under Huxley at the Buckland Fisheries Museum in South Kensington. In writing to Dr Sclater on 24 March 1884 he said "I have unexpectedly been offered an appointment in Tasmania ... I intend to accept and will leave in June."

TASMANIA

Following a Royal Commission in 1882 the Tasmanian Government had commissioned the Chief Inspector of Irish Fisheries, Thomas Brady, to recruit "someone who understood both pisciculture and ostreiculture". Brady consulted Huxley who recommended Saville-Kent and Brady immediately offered him the position. A formal contract between him and the Tasmanian Government was signed on 17 April 1884 in London, requiring him to work until 28 May 1887 at the exclusive direction of the Chief Secretary "or other duly authorised officer". Saville-Kent left Gravesend on 28 May 1884 and after a passage of seven weeks on the Orient steamer *John Elder* reached Melbourne. He arrived in Launceston with his wife and 29-year-old step-sister Mary Amelia, by now a governess, on the *Mangana* on 15 July. They immediately travelled on to Hobart, arriving the next evening.

The acquisition of Saville-Kent by the Tasmanian Government was greeted with acclaim. His writings to date included an authoritative three-volume monograph on infusoria and another on British fishes commissioned by the London Fisheries Committee, together with the guidebooks to the Manchester and Brighton Aquaria, and 19 scientific papers. He was clearly familiar with the new oyster culture techniques developed by Coste in France and Hubracht in Holland, both being based on much earlier developments in Lake Fusaro in Italy, and brought to England by Buckland. Whilst he may not have had practical experience in oyster culture, he had cultured the European lobster whilst working at the Manchester Aquarium in 1871 and presented a paper describing the technique at the International Fisheries Exhibition held in London in 1883. He was reported to be the first person to demonstrate that the popular "whitebait" was in fact the juvenile stages of the herring.

The *Hobart Mercury* (26 July 1884) announced that he

> "enters upon his duties as Inspector of Tasmanian fisheries with very ample qualifications and the colony appears exceedingly fortunate in obtaining the services of one who has such a wide practical knowledge not only in the particular branch of science to which he will ... direct his particular attention, but in all departments that may serve to aid him in his researches".

The *Tasmanian Mail* used similar words in its article of 2 August 1884. E.N.C. Braddon, M.H.A., referred to him as "a gentleman who was second to none ... as an expert". In the same debate, E. Shoobridge, M.H.A., related how in a recent visit to the U.S.A. "he had interviewed one of the professors of the Smithsonian Institute on the subject and he had said they had in Mr Kent one of the best men in the world for this sort of work" (*The Mercury* 12 September 1884). With the endorsement of Huxley, these comments were amply justified.

The introduction of European oyster culture techniques was perhaps Saville-Kent's best known contribution to Tasmania. Within three months of his arrival he had visited the Little Oyster Cove beds established by Captain Stanley's Tasmanian Oyster Culture Association and comprehensively reported on their condition and how new techniques could be applied. In his first year he spent ten days studying the east coast oyster beds and made visits to Cloudy Bay. He described his work in a paper he wrote for the meeting of the Australasian Association for the Advancement of Science held in Christchurch, New Zealand, in 1891, entitled "On oyster and oyster culture in Australasia", and in the reports of the Fisheries Department between 1884 and 1888 (see Sumner 1972). He cultured both the Sydney rock and New Zealand oysters in an attempt to improve the industry; however, his work in aquaculture was not confined to oysters. Immediately upon his arrival he recommended the establishment of saltwater ponds to culture local species such as the real trumpeter (*Lates hecateia*), the freshwater species (*Prototroctes marana* known as the grayling or cucumber mullet) and the giant freshwater crayfish, to restore overfished stocks. The introduction of exotic species is now known to have produced catastrophic effects in the ecology

of several countries, but the latter half of the nineteenth century was a period when exotic species of both plants and animals were still being established in Europe and abroad. Saville-Kent arrived in Tasmania with the intention of expanding the acclimatisation programme, started with salmonids, to encompass prized marine species from European waters such as cod, herring, soles, flounder and lobsters. (With the benefit of hindsight it is perhaps fortunate that he left the State before these imports arrived as the destructive effect of trout on the indigenous fresh-water fauna was already noticeable.) Saville-Kent also proposed to send the "trumpeter", which he had successfully cultured at Battery Point, to England for introduction into the waters off the Devon coast. The Tasmanian flounder was also reared at this research facility and both these species are again being considered as subjects for aquaculture research 100 years later.

He described many new species of fish and was an active member of the Royal Society of Tasmania and a contributor to its meetings. His contribution to the establishment of salmonids is confused by the controversy with the Salmon Commissioners, which eventually lead to him leaving Tasmania. Nevertheless, at least in his first few years, he spent much time improving the technology of salmonid culture, expanding the Plenty facility and designing new hatching troughs. During his first year in Tasmania he made 19 separate visits to the Salmon Ponds, working in harmony with the staff of the Commission. His paper to the Royal Society in 1887 (see bibliography) described suggestions to overcome the critical problems facing the acclimitisation programme and demonstrated his knowledge of the salmonid disease then affecting fish at Plenty. He also proposed using the Battery Point establishment to rear and hold brood stock of salmon in sea water. He did succeed in culturing the cucumber mullet, being assisted by Lt C.E. Beddome, R.N., and restocked some rivers.

His most lasting contribution was not in the field of aquaculture but in laying the foundation of government management of wild fisheries. Rejecting the claims by some fishermen of the "destructive nature" of crayfish pots, he strongly supported the introduction of a legal minimum size for crayfish and succeeded in having the Act for the Protection of Crayfish approved by Parliament in December 1885. This legislation has ensured the protection of crayfish stocks for over 100 years despite intensive pressure in the past 30 years — the present legal minimum size is still close to the same overall length. He also supported the claims of commercial fishermen in their campaign to obtain a more reasonable balance between their needs and the protection of salmonids in estuaries. He recognised the need for both enlightened management policies and effective enforcement of them — in early 1885 he spent two days as an expert witness in a "test case" on illegal netting heard at New Norfolk.

The management of fisheries depends on accurate and comprehensive statistics on fishing methods, areas, fishing effort and landings. Saville-Kent began the routine collection of such information from fishermen, building on the early work of R.M. Johnston for the 1882 Royal Commission. As part of the data collection he proposed that all fishing vessels be registered and identified by numbers (a device introduced in England in 1868 and throughout Europe after 1902). This scheme was authorised by the *Fisheries Act* 1889 and has continued thereafter. The editor of the *Tasmanian News* eloquently endorsed his achievements following the tabling of his report for 1885–86 and particularly praised his endeavours to fight the pollution of the Derwent, where not only was sewerage a problem but chemical pollution from industries such as the gas works was contaminating and killing fish.

His commitment to improved technology was characteristic of his outlook and reflected his breadth of knowledge and receptivity to new ideas. He brought to Tasmanian the blossoming fisheries technology and research occurring in Europe in the last quarter of the nineteenth century, and fostered in Tasmania some of the public interest in fisheries epitomised by the great Exhibitions held in London, Edinburgh and several European cities.

> "Now in order to keep abreast of the times in association with the profitable utilisation of nature's productions, it is incumbent at the present day, to abandon the unskilled and haphazard methods of former years, and conduct every operation on a thoroughly scientific basis" (Saville-Kent 1891).

He demonstrated that the trammel net was far superior to the seine net which had until then been the mainstay of the industry. In 1886 he imported and demonstrated the otter trawl and also introduced the long-line to Tasmanian fishing. He was probably the first "developer" to discover the deep conservatism of Tasmanian fishermen, "[they] do not want to increase the supply of fish ... [and] the introduction of new methods ... would not be acceptable" (Fisheries Department Report 1886).

After leaving Tasmania he reflected on this subject, in his Presidential Address to the Royal Society of Queensland in 1889 (published 1891) referred to above:

> "Doubtless due to the true conservative instinct that distinguishes fishermen all over the world, the great majority of those engaged in this important industry will be content to continue working along the same groove with which they are alone familiar reaping all they can of the grand harvest of the sea from where they have not sown and without the slightest care or compunction for the reapers that follow after" (*ibid.*).

In 1886 he returned to England for a brief time apparently to be present when his sister was finally released from gaol and when he returned he was accompanied by Constance who would hereafter call herself Ruth Emily Kay and claim that she arrived in Australia in 1868. She remained with William and Mary Ann until 1889.

The circumstances under which Saville-Kent left Tasmania were tragic for its fisheries and reflected no credit on the Government of the day. From his arrival in Tasmania to the end of 1886 he was in no doubt that his contract would be extended if he desired to stay but as the time approached he began to experience difficulty in getting the formal agreement. On 16 April 1887, he lodged another formal request for a new contract; when he had received no reply a month later he obtained leave to visit his brother Acland in Sandhurst (now Bendigo) in Victoria. Despite many members of the new Government being past supporters, E.N.C. Braddon being the most fervent and a key minister, the Government decided not to renew his contract (at least as a full-time position) and advised him by telegram whilst he was with his brother in Victoria. In editorials published on 2 and 7 June 1887, *The Mercury* called the decision "a serious mistake", warning that the government will "make a very grave mistake if they carry out their expressed intention"; it blamed the Salmon Commissioners and reminded readers of the Parliament's lack of support for them in 1886. "We are afraid the Ministers have been listening to a number of idle tales without taking the trouble to get the facts." The *Tasmanian News* was more definite in naming the Salmon Commissioners as the cause of Saville-Kent's trouble in the first of four editorials within three weeks on the subject published on 9 June:

> "It is well known that the Salmon Commission have always regarded with a feeling of disappointment and dislike the engagement under which Mr Saville-Kent came to the colony ... it is more than probable that the Salmon Commission have had something to do with the course of action regarding Mr Kent decided upon by the Government. We do not say that it is so. But if any want of cordiality exists, and it has become a question whether Mr Kent or the Salmon Commissioners are to be dispensed with, then there should be no hesitation about the matter. If the fisheries of the Colony are to be developed as they should be, then the department must undoubtedly have at its head a man of good scientific knowledge, and who can devote the whole of his time to the work. It cannot be expected that the Commissioners — some of whom occupy offices in the Civil Service, the duties connected with which must, or at least should, necessarily occupy their full attention — will be able to do this, and therefore to dispense with Mr Kent would be a very false step indeed. The Commissioners have rendered some excellent service to the Colony, and undoubtedly deserve a large amount of praise for the work they have done, but considerations of this kind must not be allowed to stand in the way of the efficient management of our Fisheries Department. The Commissioners paved the way for the department over which Mr. Kent was placed, and the continuation of the work they commenced may now very well be left in his hands. To do otherwise then retain the services of Mr. Kent — at least until Parliament expresses its will upon the question — in face of the very strong expression of opinion upon the subject that is being made, would be for Ministers to lay themselves open to a charge of acting from other motives than consideration for the proper management of a very important public department.
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> "One only has to turn to the annual reports of the Superintendent of Fisheries to see that he is the right man in the right place; that his heart is in his work, and that if more work has not been done it has been through no fault of his own."

Saville-Kent's later time in Tasmania had been punctuated with clashes with some members of the Salmon Commission which at that time was desperately attempting to convince the world that it had succeeded in establishing the salmon *Salmo salar* in Tasmania. Although the Commission had been responsible for urging the appointment of an Inspector of Fisheries for Tasmania, it seems likely

that the members envisaged an inspector in the style of the rather eccentric naturalist Frank Buckland, who held the position of Inspector of Fisheries in Great Britain until 1881, not that of his successor, the much more scientific Thomas Henry Huxley. From his arrival in July 1884 Saville-Kent consistently rejected the claims that adult *S. salar* existed in Tasmanian waters. He established, and justified, that position in his first report in September 1884 and regularly confirmed it in three successive annual reports. The acclimatisation of salmonids has been widely studied over the past 100 years and this view has been confirmed together with the cause — the fish after leaving Tasmanian rivers for the ocean are unable to find their way back. Nevertheless, he continued to suggest methods that might lead to genuine success and finally suggested that other species of salmon, such as the quinnat or king salmon from North America, should be imported in place of *S. salar*. (Three years after he left Tasmania the Fisheries Board imported another American species — the rainbow trout. The introduction of the king salmon is again being considered today.)

It was unfortunate that the question of Saville-Kent's reappointment should have coincided with the death throes of the Agnew Government, although this and his advanced age do not absolve Dr William Agnew, widely acknowledged as one of the best informed men in Tasmania at that time, for his part in the loss of a most gifted scientist. This responsibility is shared with his successor as Premier, Phillip Fysh, who observed to the Royal Society

> "that their meetings were attended by scientific men, professional men and commercial men ... those connected with scientific pursuits were working with those engaged in professional pursuits. If science gave the commercial community any light as to the path of usefulness, commerce would surely follow."

If the Premier was praising the Society for bringing together young men from science, commerce and the professions to the benefit of the culture of Tasmania, as seems to be his intent, it does not seem entirely consistent with his decision five months earlier to dispense with one of the colony's new "men of science" because his work was "impractical". The Premier's desire to save money by cutting out scientific research related to fisheries did not inhibit him from offering a £500 government grant to the Royal Society sponsored scheme to foster scientific research in the Antarctic in the same year.

Perhaps the tragic events of 1860 should not be entirely dismissed as a possible factor in Saville-Kent's fall from influence. Despite the total absence of any reference to the crime during the time he was in Tasmania, the case was so prominent in England 20 years before it would not be surprising if someone in Tasmania made the connection. The Inspector had made enemies and the sister of the murdered child had come to Tasmania with William and Mary Ann. In addition he had made a trip to England the previous year and returned with Constance herself using the alias Ruth Emily Kay. Although Constance seems to have successfully hidden her identity during the remainder of her life, a mystery woman arriving from England might well have stimulated comment.

VICTORIA

After finishing his full-time appointment in Tasmania, Saville-Kent provided advice for the Victorian, Queensland and Western Australian Governments. After discussing future employment with the Victorian Government in Melbourne he returned to Hobart in June 1887 to complete his full-time employment at the end of September and commenced a two-month assignment in Melbourne in November. This was later extended for a further two months to complete a report on the potential fisheries of that colony.

Three Saville-Kent papers were tabled in the Victorian Parliament on 4 July 1888; the first was a report on the sponges of the Bahamas exhibited at the Fisheries Exposition in London five years before and is of little relevance. The other papers again reflected his far-sighted and practical approach to fisheries development, stressing the potential of oysters. He considered Westernport to have the potential as an oyster growing area to rival Arcachon in France. The local anchovy and pilchards were considered to have potential for canning — the latter as sardines. Artificial propagation and acclimatisation of indigenous freshwater fish and "desirable exotic species should also be examined".

The final report recommends a Fisheries Department with a skilled expert as director and urges the establishment of six government oyster farms (reserves) to "resuscitate and redevelop" the oyster industry. He stressed the need to import and demonstrate the new fishing techniques such as long lines, trammel nets and trawling and to introduce refrigerated rail cars to transport fish to

Melbourne. The second paper contains a long section, prompted by his uncertain position in Tasmania, in which he reviews the administration of fisheries in other Australian colonies and a number of countries, and the finance provided for their work (Saville-Kent 1888).

QUEENSLAND

Having spent two months back in Tasmania continuing his oyster work in March and April 1888, Saville-Kent returned to Melbourne and apparently participated in the Centennial Exhibition as a representative of E. P. Levy a furniture maker, although it is not clear why. In August he was invited to study the oyster beds in Moreton Bay, Queensland, and to join the surveying cruise of H.M.S. *Myrmidon* off northern Australia. Before leaving Brisbane he wrote to and later met the Premier Sir Thomas McIlwraith offering his services; the approach was favourably received and the Premier sought a detailed proposal. Leaving Brisbane on the *Tsinan* William travelled to Port Darwin where he joined the *Myrmidon* on 9 September. The cruise ended on 14 November when he rejoined the *Tsinan* for the trip back to Brisbane, observing and collecting specimens along the way.

He returned to Tasmania to finish his last report in January 1889. In February he was staying in Sydney, having been referred to the Premier Sir Henry Parkes by a mutual friend, the eminent painter, author, naturalist and critic, Louisa Anne Meredith who "hoped that his government would make better use of Kent's talents than its Tasmanian counterpart had done" (Ellis 1979: 210). Parkes did not take up the suggestion but Saville-Kent was asked to examine the oyster beds in the Georges River.

On leaving Tasmania he was immediately appointed Commissioner of Fisheries for Queensland where he remained until 1892. Taking up the position in March 1889 he embarked on an amazing programme of intensive work. By the end of April he had written his first report entitled "Food fishes of Queensland" (Saville-Kent 1890), a comprehensive assessment of all of the State's commercial species. In July he presented a report on Brisbane's fish supply, analysing the distribution system and reasons for high prices and poor quality. Within another month a report on the oyster fisheries of Moreton Bay was sent to the Treasurer. While in Moreton Bay he tested the set nets he brought from Tasmania and did some experimental trawling which revealed two valuable species of prawns. As the trawl was inefficient he ordered the newest design from England. Immediately that work was completed he went to Torres Strait at the special request of the Treasurer: it seems likely that his expertise in oyster culture was the reason for his appointment in Queensland. For two months he stayed at the Government Residence on Thursday Island, explored the main pearl shell grounds and studied the oysters. Contrary to the views of the industry he demonstrated that pearl oysters could be relaid to new beds and opened the way to resuscitate overfished areas. He wrote a preliminary report whilst at Thursday Island which reached Brisbane early in January 1890. On his return trip south he evaluated Cooktown, Port Douglas and Townsville as sites for oyster culture. In April 1890 he acceded to a request from the Chamber of Commerce of Maryborough and Bundaberg to survey the fisheries potential of Wide Bay. The report on Wide Bay finished, he set off again in April from Brisbane aboard H.M.S. *Rambler* for Thursday Island for the second stage of the pearl shell work. This time he stayed four months and extended his studies to the beche-de-mer. On returning to Brisbane, he delivered his Presidential Address to the Royal Society of Queensland (Saville-Kent 1891), the comments of members at the end of which attest to the regard in which he was held. In this address he strongly advocated the scientific approach to fisheries research and the desirability of establishing a marine research station: he urged that this facility should be established at Thursday Island. The next year he vigorously supported a university for Queensland before the Parliamentary Commission investigating the proposal. Whilst in Queensland from 1889 to 1891 he wrote five scientific papers and prepared four reports for the Colonial Treasurer.

His period in Queensland was crowned by the publication of his comprehensive and definitive book on the Great Barrier Reef published in 1893. The book was illustrated by excellent photographs, mainly stereoscopic pairs, which he took himself and 48 pages of paintings of fish, corals and other reef organisms. The *London Times* referred to it as "sumptuous" and *Nature* said it was "an edition *de luxe* ... nothing finer in the way of book illustration has come under our notice". A copy was presented to Queen Victoria by the author.

WESTERN AUSTRALIA

In December 1891 Saville-Kent resigned from the Council of the Royal Society of Queensland "to return to England". His contract with the Queensland Government completed, he revisited Hobart in January 1892 for the fourth meeting of the Australasian Association for the Advancement of Science where he presented a paper entitled "The marking of fish with relation to their ancestral or phylogenetic origin". The paper gave him the opportunity to again comment on the salmon acclimatisation debate.

William and Mary Ann returned to England in 1892 and took a house *Glenmore* in Chiswick Lane, Chiswick. He exhibited photographs, sketches and oysters at the Royal Society of London in June and worked on the Barrier Reef book which was finished in February 1893 and dedicated to the late Premier of Queensland, Sir Samuel Griffith.

The book was completed after he had gone to Western Australia to become Commissioner of Fisheries, where he stayed until March 1895. He commenced his work with a thorough review of the fisheries of Western Australia (Saville-Kent 1894a) in which he evaluated the edible fish, pearl oysters and exotics such as turtles and beche-de-mer. He was, of course, still particularly interested in edible oysters and in acclimatising "suitable freshwater fish for the rivers of Western Australia" (*ibid.*, Appendix 3). Following the methods he used in Tasmania he established an oyster breeding reserve at Albany along the same lines as those he started in Spring Bay, Tasmania, and later in Queensland (Saville-Kent 1894b). He then set about stocking the rivers of the southwestern part of the State with exotic species. He visited Tasmania, Victoria and South Australia in the summer of 1893–94 and returned on the *Cintra* via Adelaide, and Albany with specimens of Murray cod, Murray golden perch and the silver eel for release in the upper reaches of the Swan River in March 1894. At this time he was also contemplating the introduction of the Murray River crayfish (*Astacopsis serratus*) and the Tasmanian blackfish (*Gadopsis marmoratus*) together with salmon and trout. To prepare for the latter he built a hatchery at Bunbury similar to the facility at Plenty in Tasmania. The first brown trout ova arrived from Tasmania in August 1894 and were successfully reared and 600 young fish were released in each of seven rivers in the southwest in October.

About the beginning of 1890 Constance left Queensland for Melbourne and, during a typhoid crisis, began training as a nurse, a vocation begun in the convent 30 years before and continued in prison. On completing her training at the Alfred Hospital in Melbourne, Constance moved to Perth in August 1892 and was appointed matron of a private hospital. It is not clear whether she went to Western Australia first, and William followed, or vice versa. However, it seems likely that she was reluctant to return to England with William in early 1892 but, on hearing of his appointment to the post in Western Australia, she resigned from the Alfred Hospital to join him. In November 1893 they both returned to the east coast, she to join the Prince Henry Hospital in Sydney and he to spend a summer vacation in Victoria and Tasmania. During his vacation he was invited to stay in Hobart with Louisa Meredith. At this time she was 82 years old and living in Byron Street, Sandy Bay, in a cottage she called *Wren's Nest*. She was cared for by her grand-daughter also Louisa Anne Meredith, then 21 and a "high spirited girl capable of coping with her grandmother's domineering and demanding manner". Ellis (1979), relying on four pages of notes written later by the younger Louisa, recorded her "falling head over heels in love with a visiting scientist and dashed off to begin a new life with him in another state". Saville-Kent was the scientist and it seems they left for Western Australia where he had more than another year to serve to complete his contract. (The relationship appears to have been short-lived as she married a Mr Norville in Adelaide in December 1896.)

RETIREMENT

After his term as Commissioner in Western Australia, Saville-Kent returned to England in 1895 or 1896 to live at Chiswick and then moved to *The Rowans*, Wallington, Surrey in 1897. He spent a year writing another major monograph, *The Naturalist in Australia*, an illustrated book of some 290 pages, finished in February 1897 and dedicated to the Western Australian Premier, Sir John Forrest. Here his endeavour was to "present to the English reading public a few glimpses of the faunal and floral products of that magnificent component of our Empire — the Island-Continent of Australia". This book describes his discovery of corals and other tropical species around the Abrolhos Islands which led him to suggest the existence of a southward-flowing warm current. Some 80 years later, Australian oceanographers confirmed his perception with the discovery of the important Leeuwin Current which flows from the Timor Sea

down the coast of Western Australia and then westwards across the Great Australian Bight.

On 7 December of that year he addressed the Colonial Institute in London and delivered a paper entitled "Australian natural history gleanings" in which he supported Huxley's continental drift theory to explain similarities between the Australian fauna and flora and those of South Africa and South America. The next year he moved to *The Elms* in Elmwood Road, Croydon, but stayed there for only two years before moving back to the south coast where he had spent his childhood.

The last six years of his life were spent at *Bellisto*, in Milford-on-Sea near Lymington, Hampshire, but it is probable that he spent a good deal of the time between 1896 and 1907 in tropical Australia and adjacent areas engaged in pearl oyster culture. He provided additional advice to the Queensland Premier on the Torres Strait pearl oyster fishery in 1905 and presented a lecture to the Royal Society of Queensland in November of that year and again in 1907 on coral reefs. The report of the Royal Commission to Inquire into the Working of the Pearl Shell and Beche-de-Mer Industries, Western Australia, 1908 records that he "has shown his belief in the possibilities of cultivation [of oysters] by forming and undertaking the management of a company which is now engaged ... for 5 months ... in this work in Albany Pass near Somerset".

He died in Milford-on-Sea on 11 October 1908 of heart failure after an operation.

Constance remained in Australia, being in turn matron of Prince Henry Hospital, in charge of a leprosarium at Long Bay, and in 1898 matron of the Parramatta Industrial School for Girls where she remained until 1909. The latter appointment was ironic for a woman who had committed a gruesome murder at 16 years of age and who had spent 20 years in gaol. The publication of another book about her in 1929 (*The Case of Constance Kent* by John Rhode) prompted her to write an anonymous letter of 3000 words to the publisher putting her side of the story. She passed the last years of her life in Maitland and then Strathfield, New South Wales, working until she was 88 years old and determined to reach the century. On achieving that milestone and receiving laudatory messages from the King and the Governor-General, and being the subject of stories in the newspapers, she died two months later on 10 April 1944. Her picture in the newspaper no doubt reminded her of the last time such an event had occurred almost 80 years before during her trial but she kept her secret to the end, her death certificate confirming the fiction. Sadly there was no one to claim her remains which were buried in an unmarked grave in Rookwood Cemetery, Sydney.

To date there is no information on what became of William's half-brother Acland whom he visited in May 1887 when ill and living at Sandhurst, Victoria; nor of his half-sister Mary Amelia who accompanied him to Tasmania in 1884. Taylor reported that a sister was still alive in Australia when Constance died. Wiliam's elder sisters, Mary Ann and Elizabeth, lived together in East Hill, London, until Mary died in February 1913; her sister died in 1922. Both were buried in Putney Vale cemetary.

TRIBUTE

> "William's father and stepmother had always insisted that he would amount to nothing in his life. They were both so wrong." (Taylor 1979: 362).

Huxley's endorsement that he was a "distinguished scientist" was proved right (Thomas Brady to R. C. Read, Chairman of the Salmon Commission, 25 March 1884).

During his life Saville-Kent published three major books — *Manual on the Infusoria* (three volumes), *The Great Barrier Reef* and *The Naturalist in Australia*, over 40 scientific papers, and 19 major reports to four Australian governments. In a letter of 14 February 1919 to a Mr Smith-Woodward, apparently a friend of William and later Sir Arthur Smith-Woodward, distinguished palaeontologist, his elder sister Elizabeth stated that the style William Saville-Kent was his "nom-de-plume": if so, he began the practice very early in his writing career and also used the style officially during his period in Australia. He was a pioneer in the artificial culture of commercially valuable marine species and successfully cultured the European lobster, several species of oyster and numerous other species of Australian fish. In addition to his work in the marine field, he also described and brought to popular attention other animals principally from northern Australia. He was one of the great Victorian naturalists, writing in his lifetime papers on almost every group in the animal kingdom from Britain, Spain and Portugal, and Australia. A talented photographer, modeller and artist he brought to England a detailed picture of Australian nature: in *The Naturalist in Australia* he attempted

to cover land animals as well as marine animals. In addition to scientific observation and research he was committed to developing the fishing industry and, as well as offering advice to governments on this subject, he was prepared to go into business himself to foster his ideas on oyster culture. In a career extending from 1868 to 1908 he rarely stayed in any position very long; a three-year stop in one place seemed to be the maximum. Initially this may have been due to ambition and the desire for a better-paid post — note his dissatisfaction with his salary at the British Museum and when offered the position in Tasmania. Popular writing, initially with the *Popular Science Review*, may well have been helpful in supplementing his income. However, the scope of his writing and his continuous endeavours to establish a major English marine research facility suggest a restlessness and impatience which may well have demanded continuous challenge in a new environment.

He was the founder of Australian fisheries science and established a tradition of rigorous research in support of both the management of fish resources and the development of the fishing industry which was later to flower into internationally recognised fisheries departments in three states of Australia.

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