Evan Richard Stanley, 1885–1924: pioneer geologist in Papua New Guinea

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Evan Richard Stanley was the first Government Geologist for Papua, from 1911 to 1924. Under difficult conditions, he conducted geological investigations that resulted in more than 50 papers and reports and the first comprehensive accounts (in 1923 and 1924) of the geology and resources of both the New Guinea and Papua territories. He died unexpectedly in 1924.

Evan Richard Stanley was born in Adelaide in 1885. He trained in geology at the University of Adelaide during 1902–10, working closely with the late Sir Douglas Mawson. From 1911 to 1924 he served as the first Government Geologist for Papua, conducting nine major and numerous minor geological investigations into regional geology, mineral deposits, and indications of petroleum. He was also involved in a controversial Commonwealth Scientific Expedition to New Guinea in 1920–22. He produced more than 50 papers and reports, many of which remained unpublished because of economies in force in Government at that time. His crowning achievements were the production of syntheses of the geology and resources of both the New Guinea and Papua territories in 1923 and 1924. He died unexpectedly in 1924.

From a review of his papers, surviving letters, and family recollections, a picture emerges of an uncommon man. Firstly, he was unusually energetic and had a great zest for life. Secondly, he was a practical man, who augmented the execution of his professional duties with practical skills in chemistry, surveying, and photography. And thirdly, he was a percipient geologist with an eye for the broader picture, who, had he lived his full term, would almost certainly have become one of the leading figures of Australian geology.

Adelaide 1885–1910

Evan Stanley was the oldest of four sons of Robert Ernest Stanley and Elizabeth Ramage (née Thomson) (Fig. 1), and was born at the family home in Jeffcott Street, North Adelaide, on 3 May 1885. Robert and Elizabeth had both migrated to South Australia in the 1870s, he from Penzance, Cornwall, and she from Leith in Scotland. Elizabeth retained a strong Scots accent all her life, was musical, and liked to entertain. Robert was a carpenter/home builder by trade, and the four boys initially trained as carpenters before selecting their eventual careers. The boys were very close and full of fun; all learned to play the piano, and they were in demand to sing at musical evenings at home and special services at

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Figure 1. Robert and Elizabeth Stanley and their four sons; Evan Richard is on the left; probably photographed in 1908–10.
churches in the nearby hills, to which they travelled to and fro by horse and buggy. Robert Stanley died in 1926; and Elizabeth, in 1946.

**Adelaide University.** Evan was educated at Parkside school, and commenced part-time study at the University of Adelaide and the School of Mines & Industries in 1902. His university training did not follow a conventional pattern, but rather was spread over a period of nine years and concluded without him having completed all of the requirements for a Bachelor of Science degree. Through this period he lived at the family home, 22 Beaconsfield Terrace, Unley (then New Parkside).

During the first six years he successfully completed two one-year courses in geology, three in chemistry, and one each in physics and biology, and in three of those years he studied and passed the three components of high school senior level mathematics—geometry, trigonometry, and arithmetic and algebra. The latter enabled him to matriculate in 1908 and to be officially enrolled as a B.Sc. student in the same year. From 1904 to 1909 he also worked as an unpaid cadet in the Department of Geology, a job that involved care of laboratories and assistance in field studies (Fig. 2). In 1909 and 1910 he completed two more years of geological training (Geology Part II—no result reported—and Mineralogy & Petrology Part II—a first-class pass), but failed to complete or pass courses in mathematics and 2nd and 3rd year chemistry, which were required for the degree. One reason for failure in subjects that he had handled capably at lower levels might have been an increasing involvement in geological activities, for through 1908–10 he was working on several geological research projects (Stanley, 1909, 1910a, b), one of which was recognised with the award of a university prize, the Tate medal, in 1908.

**South Australian geology.** Mining had flourished in South Australia since soon after the arrival of the first settlers, to the extent that the colony was known as the Copper Kingdom. Many of the miners were Cornishmen, like Robert Stanley, and Moonta, the main copper-mining centre, was known as Australia’s 'Little Cornwall'.

Perhaps as a direct result of the mining boom, a vigorous geological community developed and, in the years around the turn of the century, a number of important breakthroughs were made. These included the recognition of the Cambrian and Precambrian age of sediments in the Mount Lofty and Flinders Ranges, of evidence of a Permian glaciation at Hallett Cove (by Professor Ralph Tate), and of an earlier (Precambrian) glaciation on the Fleurieu Peninsula (by Walter Howchin), and the release of the first geological map of the colony, by Government Geologist, H.Y.L. Brown (Corbett, 1984/85).

Evan Stanley specialised in mineralogy and petrology, under the tutelage of Douglas (later Sir Douglas) Mawson, and assisted Mawson in his studies of the Broken Hill mining district (Benson, 1925). From his contacts with Mawson he acquired the skills in field and regional geology, mineralogy and chemistry, and mineral exploration that were to stand him in good stead in later years, and he might also have drawn from Mawson the inspiration to seek employment in an unexplored frontier area, as was Papua at that time. His skills in stratigraphy were perhaps imbued by Howchin, and another who certainly influenced the young Stanley was W.N. Benson, later Professor at Otago University, who taught petrology and mineralogy at Adelaide during Mawson’s absence in 1908, and with whom Stanley maintained contact in later years.

According to recollections of the Stanley family, Evan was a favourite of Mawson, and there is a hint of this in the tone of a letter written by Mawson while in transit to the Antarctic with Shackleton in 1908 (Fig. 3). The letter includes one
passage that, in retrospect, was particularly apt: ‘After the terrible experiences we have just gone through in repeated gales I think it suits Australian geologists to prosecute researches nearer to the Equator than the poles—though in his nature a geologist is of a roving nature and should see all sides of the subject’. Another illustration of the relationship between Mawson and Stanley is in the press photograph of geology students welcoming Mawson upon his return from Antarctica—Evan Stanley is between the shafts of the cart (Fig. 4).

Contemporaries of Stanley in his student days included geologists Cecil Thomas Madigan, subsequently a key figure in South Australian geology, and George Spencer Compton, who was to make his mark in the Eastern Goldfields of Western Australia, engineer Russell John Dumas, later Director of Public Works in Western Australia, and mining engineer Frank Fancett Espie, who was to spend 30 years in mining in Burma before assuming a senior management position with Western Mining Pty Ltd. Espie’s son, Frank Fletcher Espie was to play a leading role in bringing into production the first major mining venture in Papua New Guinea, the Panguna copper mine on Bougainville Island.

Royal Society. The Royal Society of South Australia was founded in 1883, largely on the initiative of Professor Tate (Corbett, 1984/85), and was a popular forum for the presentation of geological research papers. Stanley’s research on basalts from Mount Gambier volcano, which had earned him the Tate Medal in 1908, was communicated to the Society by Howchin on 4 May 1909 and published in the Society’s Transactions & Proceedings (Stanley, 1909). The paper includes petrographic descriptions of several different basalts and lherzolite from a nodule in pyroclastics, and four chemical analyses of different types of basalt for major elements and S, Cl, Cr, Ni + Co, Ba, Sr, and Li. Later papers gave a more detailed petrographic and chemical description of the lherzolite, and described enstatite-bearing basalt from Kangaroo Island (Stanley, 1910a, b).

In December 1910, and in spite of his failure to complete all the requirements for a Bachelor of Science degree, Stanley was appointed first Government Geologist for the fledgling Australian Territory of Papua. The Adelaide Advertiser reported the appointment, and noted that the position carried the very respectable salary, for those times, of 500 pounds. By way of comparison, the Administrator received 800 pounds; medical officers, 450; resident magistrates, 300-450; and patrol officers, 250 (Annual Report for Papua for 1910--11).

Papua in 1911

In the 1880s the European powers had divided New Guinea and adjacent islands into three territories: Netherlands New Guinea in the west, German New Guinea in the northeast—including the islands of the Bismarck Archipelago and...
Bougainville—and British New Guinea in the southeast. British New Guinea was ceded to Australia at the time of Australian Federation in 1901, and became the Australian Territory of Papua upon proclamation of the Papua Act in 1906.

An Australian lawyer and judge who had worked in the Territory since 1904, John Hubert Plunkett Murray, was appointed Acting Administrator in 1907 and Lieutenant-Governor in 1908. Miles Staniforth Carter Smith, a politician who had stood down after serving one term as Senator in the first Federal Parliament, and who had been appointed to several senior posts in the Papua administration in 1907, was appointed Administrator in 1908—a dormant role that entitled him to act as Lieutenant-Governor in Murray’s absence. As Commissioner of Lands and Director of Mines he was to be Stanley’s immediate superior through much of the latter’s career.

Murray and Staniforth Smith (Fig. 5) shared a mutual dislike and distrust. Smith coveted the role of Lieutenant-Governor and attempted to undermine Murray through his contacts in the Federal Government in Melbourne (Souter, 1963). He seems to have been a difficult person, pompous, ‘unbearably boring and interminable on politics’ with no modesty whatever (the view of Malinowski as reported by Stuart, 1973) and ‘domineering and arrogant’ in the words of another, albeit, an opinion based on hearsay (Carne, 1912). In 1911 he was 42 years old; Stanley was 25.

Between 1907 and 1911 the white population of Papua had increased from 690 to 1032, of whom 120 were civil servants; 139, planters; and 144, miners. Most of the miners were on Woodlark Island, where there had been a recent revival of interest; this was the only field where reef gold was being worked. Others were on the newly discovered Lakekamu field, and the Gira-Aikora, Yodda, Milne Bay, and Misima fields (Fig. 6) (Knibbs, 1912; Nelson, 1976). In the financial year 1910–11 gold was the major export of the Territory, with a value of 62,000 pounds, followed by copra, 18,000 pounds; copper ore, 12,000 pounds; beche-de-mer, pearls, pearl and turtle shell, 9000 pounds; rubber, 2000 pounds; timber, 700 pounds; and sandalwood, 190 pounds (Knibbs, 1912).

The administrative headquarters, Port Moresby, or Port as it was known colloquially, was ‘a rough and raw frontier town in which the majority of residents entertained themselves with uninhibited drinking, brawling and feuding, while a small elite group resolutely cultivated the amenities of civilised society amidst discouraging surroundings’ (the diary of Malinowski, as quoted by Stuart, 1973). In 1911 the European population of the town was about 450; a school was newly opened on Hunter Street, a weekly newspaper was about to start, and a swimming bath was to be established on the harbour shore (Stuart, 1973).

The appointment of a geologist to the Papua administration had been one of the recommendations of a Royal Commission established by the Australian Government in 1906 and which reported to Parliament in 1907 (Jinks & others, 1973, p.96). It was a timely recommendation, as, apart from the continuing interest in gold and the recent discovery of the Lakekamu field, there had been discoveries of copper-gold mineralisation just outside Port Moresby (in the Astrolabe mineral field) in December 1906, and coal inland from the Gulf of Papua in 1908. Discovery of oil was to follow, and to cause great excitement, in 1911.

Knowledge of the geology of Papua at the time of Stanley’s arrival was limited to the data drawn together by Jack & Etheridge (1892); observations recorded by a former Administrator, Sir William MacGregor, during exploratory patrols; and those recorded in May-October 1891 by geologist A.Gibb Maitland (Annual Report for British New Guinea for 1891–92; Maitland, 1905). Information was limited to

Figure 5. (Left) Sir Hubert Murray, Lieutenant-Governor of Papua, 1908–1940; and (right) Miles Staniforth Carter Smith, Administrator, Director of Agriculture and Mines, and Commissioner for Lands and Surveys, 1907–1916, 1921–1930. Reproduced by courtesy of the Australian National Library.
parts of the coast and the southeastern islands, and part of the Owen Stanley Range.

Arrival. At the time of Evan Stanley's arrival in Port Moresby in January 1911 Lieutenant-Governor Murray was on leave and Administrator Staniforth Smith was absent from headquarters and overdue on an exploratory patrol on the Kikori River (Fig. 6). The story is well told by Souter (1963) as follows. Late in 1910 Murray took his first leave since being appointed Lieutenant-Governor. This gave Staniforth Smith an opportunity to run things as he would wish. He wasted no time in organising a major exploratory patrol, which he was to lead, with the intention of ascending from the Kikori River to the Samberigi Valley, then travelling westwards through previously unexplored country to the Strickland River. Unbeknownst to those taking part, this was a most difficult tract of country, characterised by karstified limestone ridges, swampy valleys, and dangerous rivers. The expedition was ill-fated, and seventeen lives and most possessions were lost. Search parties were sent out, and eventually Staniforth Smith and the remnants of his party were found not in the lower reaches of the Strickland as they had thought, but, in fact, on the Kikori—the river upon which they had initially embarked. This was in March 1911.

Stanley arrived in Port Moresby by Burns Philp steamer on 9 January 1911. He took up temporary quarters at the newly established school, and, being unable to find a superior officer to report to, on the same day that he had disembarked from the ship, set out on horseback to visit the Astrolabe mineral field (Fig. 6). The first night was spent at the gaol gardens at Bomana, and the following nights on the Sogeri Plateau with visits to the copper prospects during the day; he returned to Port Moresby on 14 January.

Mount Yule. In the continuing absence of the Administrator and Director of Mines, Stanley then took it upon himself to organise a more ambitious expedition, this time to the Yule Island hinterland in company with government entomologist, Jack Carson. Starting on 31 January, the pair travelled to Yule Island by coastal ship, then inland by canoe and on foot. They were away for six weeks, during which time they succeeded in climbing to about 1800 m on the slopes of Mount Yule before having to retire because of problems with carriers. Stanley wrote a long narrative of this journey directed to one of his brothers in Adelaide, including the instruction that his brother might release it for publication if there was sufficient interest. The narrative is of interest now primarily as a record of the brash confidence and vigour of the young man; the account of problems with carriers will spark reminiscence for anyone who has worked in this way, and the tributes to the Fathers of the Mission de Sacre Coeur are heartfelt. One suspects that the dangers posed by unfriendly natives, though no doubt real, might have been presented in a dramatic light for the purpose of attracting publication. Geological returns were poor, but an accurate topographic survey of their route and adjacent mountain peaks was completed and subsequently published (Stanley, 1915d). Accounts of both the Mount Yule reconnaissance and the Astrolabe mineral field were published in the *Annual Report for the Territory of Papua* for 1910-11.

Woodlark. Later in the same year (1911), perhaps having taken some time out to establish and equip his headquarters, Stanley
began the first of his major geological investigations—a survey of the gold mining areas on Muyua or Woodlark Island (Fig. 6). This survey was to occupy four-and-a-half months and culminate in a comprehensive report on regional and local geology, consisting of about 20 pages of typescript, and illustrated with photographs, line drawings, and coloured geological maps, which he drafted on topographic bases that he had prepared from his own survey data (Stanley, 1912a,c). The geology of Woodlark Island remains something of an enigma, even today, partly because much of the basement is concealed by Quaternary limestone. It is now generally accepted that basement is a Palaeogene volcanic pile (probably part of a Palaeogene volcanic arc) with some contemporaneous sediment, unconformably overlain by Upper Oligocene limestone, and cut by intrusive rocks, some of which are Miocene (Davies & others, 1984, after Trail, 1967, and McGee, 1978). Stanley recognised all these rock groups with the important exception of the volcanics, and produced maps showing their distribution over the island and at the main mining centres. However, the unique value of the report is not so much in the description of the general geology as in the detailed descriptions of the different mines and the reef and alluvial mineralisation (Fig. 7), and the compilation of the history and production figures of the field—information, most of which would have been lost irretrievably had it not been recorded at the time.

W.A. McGee, an exploration geologist familiar with the Woodlark field, has commented (personal communication, 1985) that Stanley's mapping in some areas was superior to later work, as was proven when exposures were developed by bulldozing in 1981, but that his descriptions of the different prospects, while containing excellent observations, commonly were not quantitative and tended towards the promotional; as an example he cites Stanley's comment that the old Ivanhoe Company leases had not had a fair trial.

Oil. Indications of oil in Papua were discovered in August 1911, but not officially reported until October. They consisted of a number of seeps of oil and gas (Fig. 8) in the Vailala River area, 40 km northwest of Kerema, in the Gulf Province, and were found by two local planters, G.H. Thomas and Lewis Lett. The discovery caused great excitement and, despite the meagre indications, optimistic predictions were made and the area quickly became known as the 'oil fields'.

In November 1911, Stanley was instructed to examine the discoveries, but, being already engaged elsewhere, was unable to do so until April of the following year. In the meantime, Joseph Carne, Assistant Government Geologist for New South Wales, had taken the opportunity to inspect the discoveries while returning from an investigation of coal occurrences on the Purari River in February 1912 (Carne, 1913). (The project that had engaged Stanley's attention in November was a visit to the lower Gira River, where gold prospectors had reported indications of oil (Fig. 9). He found no trace of oil and surmised that the oily film observed by the prospectors may have come from empty cans of meat or from iron oxide.)

In April–May 1912, Stanley set out for the 'oil fields' with the object of determining the limits of the potential petroleum-bearing basin. He made reconnaissance traverses between the Purari and Vailala rivers, up the Vailala, and north and northeast from Kerema (Fig. 6), and from these observations produced a reconnaissance map of the 'Papuan petroleum area'. Both he and Carne contributed reports on the 'oil field' to the Annual Report for 1911–12 (see also Carne, 1913). Stanley returned to the Vailala later in the year. In October he suffered a severe attack of malaria and was forced to retire temporarily, but in November he discovered another seep, near Aro Aro, a few kilometres west of the Vailala River (Stanley, 1913a).

Subsequently, in October 1913, Dr Arthur Wade was appointed by the Australian Government to pursue the search for oil in the Gulf Province (Fig. 10). Wade remained in the Territory until 1919, when the task was handed over to the Anglo-Persian Oil Company. Stanley started work with Wade in late 1913 and continued until mid-1914 (Annual Report for 1913-14).

Adelaide 1912–13
By the end of 1912, Stanley had served for almost two years and thus was entitled to three months' leave. He proceeded to Adelaide via Melbourne, then returned to Melbourne in mid-January to present a paper (Stanley, 1913a) on the Papuan petroleum area to the 1913 meeting of the Australasian Association for the Advancement of Science (AAAS). He returned to Adelaide after the conference to marry Helen Mary Benson Turner (Fig. 11) in the Methodist (now Uniting) Church at Parkside West on 21 January 1913. The young couple honeymooned at Mount Gambier, where the groom was unfortunate enough to once again succumb to malaria.
Traces of petroleum have been discovered on Lindon Creek on the lower Gira by a miner called Larsen or Lawson. Lindon Creek is one day distant from TAMATA Station; Mr. Lawson is still there.

You will proceed to TAMATA Station by the first opportunity and examine and report upon:

1. the nature and prospects of the alleged find of petroleum,
2. the country between Ryan and Erichsen's claim on the lower Aikora and Boli near the WARIA.

You will send in your report on (1) before you commence on (2). The lower Aikora is two and a half days from TAMATA; the country from there to BOLI is very rough.

You are appointed an Officer of Armed Constabulary temporarily; the appointment only to be in force during your stay in the Mambare Division while making these investigations.

The Resident Magistrate, Mambare Divn., will be instructed to supply you with three police and to give you all assistance.

Your first opportunity of going to TAMATA will probably be by the 'Mindoro' to the Mambare Beach and thence by the station whaleboat.

Please treat the information as to the discovery of petroleum as confidential until your arrival at TAMATA.

Lieutenant-Governor.

Figure 9. Memorandum from the Lieutenant-Governor instructs Stanley to investigate a report of traces of petroleum on Lincoln Creek on the Gira River.

There is no record that Stanley carried out the second stage of the mission, to Boli near the Waria River. Tamata station was on a tributary of the Mambare River.

Dispute over the Woodlark Report. In transit from Papua, Stanley had called at the offices of the Department of External Territories and Home Affairs in Melbourne and had been shown the newly published version of his Woodlark report, copies of which had just been shipped to Port Moresby. In the previous April and August, Stanley had addressed the question of reproduction of geological reports, and had received support from Lieutenant-Governor Murray for the establishment of a scientific bulletin series. To judge from correspondence, Staniforth Smith's response to this initiative may have been less than enthusiastic, and the matter possibly became a point of contention between the young geologist and his superior. There is evidence of a somewhat strained relationship in an exchange of quite peremptory memoranda between the two in August 1912, when Stanley first perceived that Smith was withholding parts of the Woodlark draft report from publication.

The published version of the Woodlark report, which he saw in Melbourne, must have been a great disappointment. It was

Figure 10. The first exploratory well on the Papuan 'oil fields' was spudded on 18 January 1913, by government-contracted driller F.C. Grebin, at Akuda on the Vailala River. 'A few gallons' (10-20 litres) of crude oil were recovered from a depth of 68 m. Drills encountered over-pressured muds, and drilling ceased later in 1913. Photograph by E.R. Stanley 1913.

Figure 11. Helen Mary Benson Turner and Stanley were married in Adelaide in January 1913.
a very cheap production, printed on thin paper and stapled between plain pink paper covers—no more than a pamphlet. In addition, Stanley was incensed to find that parts of his draft report had been deleted, prior to transmission from Port Moresby, and that some niggling changes had been made, such as deleting his signature from the geological maps. Specific omissions were the preface, table of contents, line drawings, and photographs of geological features, tables of annual production, and a final section of text dealing with future prospects.

Soon after arriving in Adelaide, on 23 December 1912, Stanley gave vent to his feelings in an angry letter addressed to the Director of Mines. This letter was not well received and was to set in train an unfortunate sequence of events leading to his suspension from duty, events which must have weighed heavily upon the young man at the time. In the slightly longer term, his protest was not in vain, and was to lead to the publication (in 1914) of an addendum to the pamphlet version of the Woodlark report, and of a complete version of the Woodlark report in the Annual Report for 1911-12. A handsome and well-produced scientific series, Büntels of the Territory of Papua, on the lines proposed by Stanley, was begun in 1913.

Staniforth Smith brought Stanley's indignant plaint to the attention of a meeting of the Executive Council in Port Moresby on 25 January 1913. The Executive Council consisted of Lieutenant-Governor J.H.P. Murray, Government Secretary Leonard Murray, the Treasurer, the Commissioner for Native Affairs, and Staniforth Smith in his role as Commissioner for Lands; the Council met weekly or as required through the year.

The Council agreed that Stanley had committed an act of insubordination and should be 'relieved from duty from the date of his return to the Territory on a charge of insubordination and impertinence'. Stanley was advised accordingly in a letter of 30 January. On 14 February he replied, from Adelaide, with a contrite and conciliatory letter, and received in reply a letter confirming that the matter would be held over until his return from leave.

Dismissal. The Stanleys returned to Port Moresby on 9 June 1913, having been away for almost six months rather than the standard three months' leave break. Some of the additional time was perhaps taken as duty at Departmental headquarters in Melbourne in December and at the AAAS meeting in January, and at least five weeks of the interval was unpaid sick leave. Upon arrival, Stanley received a curt note in the copperplate hand of Staniforth Smith, on Government House notepaper, to the effect that he was 'relieved from duty on a charge of insubordination' (Fig. 12). Next day there was a letter from the Government Secretary inviting him to defend his actions before the Executive Council, which he did at the Council's meeting of Friday morning 13 June, at the Council Room at Ela, Port Moresby. Council ordered that, as he had apologised to the Director of Mines and had acknowledged that the tone of his letter was ill-conceived and wrong, he should not be suspended from the service, but should be reprimanded and warned against repeating the offence. Consequently, on 14 June he was instructed to resume duty, in an Order in Executive Council signed by Staniforth Smith as Administrator.

One outcome of these events appears to have been a worsening of the relationship between Staniforth Smith and Stanley, if we may judge from the lack of reference to Stanley's activities and the omission of any geological reports in the Annual Reports of the Mines Department in the years following these events until after Staniforth Smith's departure in 1916.

![Figure 12. Upon his return to Port Moresby on 9 June 1913 Stanley was advised that he was relieved from duty.](image)

**Papua 1913–15 and the First World War**

The house on Spring Garden Road. In 1911 or 1912, Evan Stanley, with the help of brother Elliot, built a large and comfortable bungalow-style house on Spring Garden Road in Konedobu, and it was to this house that he brought his bride in June 1913 (Fig. 13). Two other residences lay between the Stanley house and the waterfront road, the police barracks were opposite, and the new Government House (constructed in 1913, and still in use today) was above it and to the north. Hanuabada villagers walked past the house on their way to and from their gardens higher on Spring Garden Road.

The small community at Konedobu and the London Missionary Society missionaries at Elevana in Hanuabada were relatively isolated from the main centre of government and business activity, which was on the peninsula above the main wharf, some kilometres to the southeast. Communication between the two centres was by foot track or launch.

A boom year. 1914 was a year of excitement and optimism in Port Moresby. Discovery of commercial quantities of oil was confidently expected; a company was developing the Astrolabe copper deposits and the Australian Government had provided a loan of 50,000 pounds to establish a light railway from the mines to the port; the town's first reticulated water supply was established; and the Library Institute hall constructed and opened (Stuart, 1973). However, the situation was to change suddenly with the outbreak of war, the resulting economies, and the loss of many Europeans to the front.

**War.** When war was declared, in August 1914, it was expected that the enemy might arrive any day from bases in the German New Guinea Territory. Preparations were made to defend the radio communications centre—trenches were dug, and the available Europeans were formed into a small, ill-
equipped and untrained fighting force. The instruction from Australia was that the radio centre must be defended to the death. Stanley was given picket duty on the hills above the town, and Helen and her neighbour, Mrs Kendrick, the Treasurer's wife, were deputed to bury the Treasury papers upon hearing the first shot fired; after this they were to gather at Government House. Helen at this time was perhaps more concerned about her baby, Joan, who had been born only a few weeks previously, on 13 July at the family home, with Helen's mother Mary Turner in attendance.

The threat to Port Moresby was averted by the arrival of an Australian ship, the Kanowna (Fig. 14), with a fighting force of 500 raw recruits. A larger force, the Australian Naval and Military Expeditionary Force, sailed subsequently from Sydney on the troop transport Berrima and in concert with the warship Australia went on to capture Rabaul, the administrative headquarters of the German Territory, in September 1914. This event led, in the longer term, to the Australian administration of the New Guinea Territory.

Dependent women and children, including the Stanley family, were evacuated by ship from Port Moresby to Australia, their ship being chased by a German raider en route. Many, including Helen and baby Joan, returned to Port Moresby after only a short interval.

Extended fieldwork. The normal routine seems to have been quickly re-established in Port Moresby, and only one month after the outbreak of war Stanley began a series of field investigations that was to occupy him for the next eight months. Trips were undertaken in September and November to investigate reports of oil shows in Sewataitai Bay on Normanby Island, and an application for 'oil areas' and reports of 'flattened grains of copper and specks of a tin-white metal' on Cape Vogel peninsula.
associated rocks as enstatite pyroxenite and dykes of coarse gabbro, and the alteration of the Ubuia rocks to steatite and talc. He concluded that the apparent oil slicks were an effect of a thin film of fresh water on sea water near the shore. Results were reported in a 16-page double-space typed manuscript and map. Publication in the Bulletin Series was approved by Lieutenant-Governor Murray, but the decision was reversed at the suggestion of the Secretary for External Affairs, as a wartime economy measure.

Cape Vogel Peninsula. Having returned to Samarai, Stanley proceeded to the Cape Vogel Peninsula (Fig. 6) in the company of Mr. R.A. Vivian, who operated a trade store near Baniara. Traverses were made in the head of Goodenough Bay, to investigate a brine spring, and from near Baniara north and northwest to Castle Hill and the Posaposa hinterland. A 23-page double-spaced typed report was produced in 1916, with photographs, a map, and cross-section; the cross-section would enhance any modern map of the peninsula. He recognised chrome spinel and manganese (oxide) in association with serpentine and chalcedony at Buabuami near Castle Hill, and some copper staining elsewhere along the same basement ridge; the 'tin-white metal' was found to be a silvery tarnish on probable chalcopyrite. Stanley also noted the occurrence of brine springs and drew attention to the petroleum potential of the area. His report of this investigation (also never published) includes a glossary of technical terms, and closes with an acknowledgement to Vivian for his help and 'willingness to accompany me through a considerable area of uninteresting country to reach the goal of ambition of the geologist—at any time a dry procedure, entailing considerable enervation in a climate like New Guinea'.

Misima Island. Late in 1914, three companies became active in development work on the gold prospects of Misima Island; most notable and persistent of these was The Broken Hill Proprietary Block 10 Company Limited. Stanley went to Misima in January 1915 (Fig. 15) and appears to have remained there for at least three months, for the Annual Report includes a summary that he wrote while on Misima on 24 April 1915.

He investigated the mining areas, made some reconnaissance traverses of the remainder of the island, and produced maps and a report, which were published later in 1915 as Bulletin of the Territory of Papua no. 3. He established the basic facts of Misima geology as they are known today, and described in some detail each of the main gold prospects; the report includes 24 pages of text, excellent photographs, a geological map and cross-section of the island, and detailed geological maps of the two main prospect areas, Mount Sisa-Umuna and Quartz Mountain. The prospect maps are at a scale of 1:3168 (4 chains to the inch) and are plotted on contoured topographic base maps.

The Mount Sisa-Umuna lode was subsequently the basis of a small and very profitable mine, Cuthberts, which operated until closed by the threat of war in 1941. Current investigations (1986) are expected to lead to large-scale mining of the same area.

Geological Society and looking to New Guinea. In December 1914, prior to his departure for Misima Island, Stanley's geological work in Papua was recognised by his election as a Fellow of the Geological Society in London. At about the same time he dispatched a first enquiry about the possibility of carrying out field work in the New Guinea Territory: ...'I wrote asking permission to explore the Northern coastline of the late German New Guinea, and submitted an outline of a proposed expedition to investigate the reported oil occurrences and determine the geology'. He was to follow this in 1916 with a report to the interim administration of the New Guinea Territory on the oil occurrences, presumably based on written reports.
1915: Leave in Australia

The Stanleys were on leave in Australia probably from July to September 1915, during which time Evan Stanley delivered a 'lantern lecture on certain features of Papua' to the Royal Society of South Australia (The Australian Statesman and Mining Standard, September 1915, p.297); in this talk he is reported to have spoken optimistically of the future prospects for the Woodlark and Misima fields. Probably during this leave, he carried out the description, separation, and wet chemical analysis of an unusual black mica that occurs in the radioactive ilmenite-bearing lode at Radium Hill in South Australia, site of Mawson’s pioneering investigation of uranium mineralisation. He reported the results to the Royal Society of South Australia in the following year (Stanley, 1916d).

1915-17: Mainland geology—the Owen Stanley Range

In the two-year term from late 1915 to October 1917, life for the Stanleys perhaps followed much the same pattern as previously. Evan Stanley made a succession of geological investigations. Helen accompanied him on some of these (their daughter, Joan Benson recalls visits to Woodlark and Misima islands), but otherwise would remain at the house in Konedobu with her young daughter. Home life was sociable—Helen was very musical, a keen bridge player, and a good hostess. There were horses to ride, friends to stay, and visits to friends and neighbours, often by launch. To augment their limited supply of fresh food she encouraged and supervised the household help to grow vegetables, and keep poultry and, from time to time, a milking cow.

Owen Stanley Range. The main thrust of Stanley’s work now moved from the islands to the mainland, starting with an inspection of the Yodda gold field, near Kokoda, in March 1916, followed by a major expedition across the Owen Stanley Range to the headwaters of the Kumusi and Musa rivers in June-July, and finishing with a second visit to the Yodda and a traverse from there to the northeast coast at Buna in November 1916. From these traverses he was able to prepare a reasonably well-controlled topographic and geological map of a transect across the Papuan peninsula (Stanley, 1918b).

The first visit to the Yodda was to advise on proposals to sink a shaft to test for deeper alluvials. He advised against this and recommended the introduction of hydraulic sluicing. (Several years later a shaft was sunk without encountering significant gold values.)

The exploratory patrol in June-July was planned to investigate the probable occurrence of gold in the headwaters of the Musa and Kumusi rivers, and a reported occurrence of edible earth in the Mamama valley, south of Mount Lamingon. From Rigo, Stanley headed inland, ascended the Mimai valley, crossed the main range near Mount Obree at an elevation of 2700 m, and descended to the headwaters of the Musa river just south of the Owalama Range (Fig. 16). Here he turned north, crossed the Owalama Range to the headwaters of the Kumusi River, and descended to Sirorata and thence up the Mamama River. From the Mamama he retraced his tracks to Port Moresby.

From these several investigations he produced a comprehensive report, map and cross-section, which were published in the Annual Report for 1917-18 (Stanley, 1918b). The map incorporated the improved topographic control he had established (see later).

The report included a number of significant new geological observations, including the recognition of both a lower and higher-grade series of metamorphics (the Kemp Welch and Owen Stanley series); the first record of the ultramafic rocks of what was to become known as the Papuan Ultramafic Belt ophiolite; recognition of the ‘Late Tertiary’ volcanic rocks of Mount Lamingon and the Hydrographers Range; recognition of the fault control of the colinear valleys of the Kumusi and Musa headwaters; and the discovery of a sulphurous hot spring on the fault trace. He also recognised the fault control of the Yodda (upper Mambare) valley, and suggested that young fault movements in the Ovi Ridge area had caused reversal of the direction of flow of the upper Mambare River.

He concluded that little gold was to be found outside the Yodda and Little Kumusi (Mamama) valleys, and noted traces of nickel mineralisation and occurrences of chromite associated with the ultramafic rocks. Lateritic nickel mineralisation in the Kokoda area was to be intensively investigated 40 years later (Thompson & Fisher, 1967). The edible earth proved to be a nickel-rich clay horizon cropping out in the banks of the Mamama River, and favoured by the local people as an aphrodisiac. Looking further afield, he deduced, correctly as events have proved, that the forested plains of the Yodda and Popondetta areas would be suitable for cultivation of rubber trees.

Woodlark again. In October 1916 and March or April 1917, Stanley re-visited Woodlark Island. The purpose of the first visit was to assess a proposal that the Administration might subsidise the sinking of a shaft on the Busai prospect. Stanley recommended in favour, but his recommendation was strongly opposed by the Acting Director of Mines. The eventual outcome was that in 1919 the government agreed to a subsidy of 3.3 pounds per metre (one pound per foot) of shaft sunk, for a planned 60 m shaft. In the event, shaft sinking was halted at a depth of 16 m by an uncontrollable inflow of water.

The purpose of the 1917 visit to Woodlark Island was to inspect high-grade copper mineralisation on the southern coast. Samples in a costean averaged 11.18 per cent copper northwest, and replaced by calcium phosphate to a depth of one metre below land surface. He concluded there was about 8000 tonnes of material averaging 87 per cent calcium phosphate, and that, in view of the small volume available, commercial development was a doubtful proposition (Stanley, 1917d). He also inspected the Laughlan Islands, Nubara Island, 15 km east of Woodlark, and Entrance Island (Ginara), 20 km south of the western tip of Woodlark Island. On the last he encountered thousands of birds and detected minor quantities of guano.

Sideia. Sideia Island was proclaimed a mineral field, somewhat prematurely, in July 1915, after the discovery of copper mineralisation. Stanley inspected the island late in 1915 and reported that the exposed copper occurrences were of only limited extent (Stanley, 1916c).

Astrolabe. In December 1916 Stanley prepared a confidential report that pointed to the probable large-scale development of the Astrolabe copper deposits. Earlier in the year he had
Figure 16. Part of the geological map of Papua prepared by Stanley in 1923 (Stanley, 1924a); grid of 1° squares; original scale 1:1 563 000 (just under 25 miles to an inch).

Best geological and physiographic control is in the area between Yule Island, Rigo, Ioma, Buna and Mount Obree, much of which was traversed by Stanley himself. A belt of low-grade Kemp Welch-type metamorphics is erroneously indicated on the northeastern slopes of the Owen Stanley Range, and a serpentine belt in this position, which is mentioned in the accompanying text (Stanley, 1924a), is not shown. Mount Dayman is erroneously represented as a Quaternary volcano (an inherited error). Circles northwest of Yule Island mark gas and oil seeps.
prepared a comprehensive report on the Hector Mine in which he concluded that the mine had a limited life.

**A practical chemist.** The Annual Report for Papua for 1916–17 and for the following three years (Fig. 17) included, for the first time, a report by the Government Geologist—an innovation perhaps related to the departure of Staniforth Smith, who joined the armed forces in 1916. These reports round out the picture of Stanley's activities. He had now accepted responsibility for compiling mining statistics for the annual report of the Mines Department. He also had apparently become the chemical expert for the Papua Administration, carrying out not only the routine analyses of rock samples for metals, but also such diverse tasks as determining the presence of lead and barium in paints, measuring the moisture content of tobacco for Customs, and, in 1918, developing a technique for fumigating the government ships against marine borer.

He was not necessarily pleased about carrying these extraneous duties, as is suggested by plaints in the annual reports. In the report for 1918–19 he noted that more than 2000 rocks and minerals collected during expeditions awaited determination, and that petrological work and additional analyses 'are in abeyance awaiting better appointments and accommodation'. He recommended the establishment of a 'National Laboratory, on the lines suggested by the Executive Council of Science and Industry', to meet the requirements not only of geology and mining, but also of animal and plant industry and forest products research.

**Publication problems.** Another problem to which he drew attention was the failure of those concerned to publish his reports—a prime concern of any scientist, but especially a matter of concern for Stanley, given his isolation from the geological fraternity, the possible value to science of his observations in a little-known part of the globe and, most importantly, the possible economic implications for Papua. At the time of writing his annual report for 1916–17, Stanley had recently completed two major reports (Cape Vogel Peninsula and Normanby Island), and several minor reports (e.g., those on Cannac and Sideia Islands, and a report on the Milne Bay gold field—of which report no trace remains) and apparently could see no immediate prospect of publication. In the annual report he wrote:

>Since my establishment in Papua I have endeavoured to assist in developing the natural resources, recommending at all times the publication of reports emanating from this section, and making collections of hundreds of specimens for the purposes of exhibition and classification in the economic museum. Owing to the unsettled state of affairs during the last three years, and to the shortage of paper, many reports are at present not being published. Realizing that economy must be practised in this direction, I think that all reports from this section should be published in the Annual Report of the Territory at least, and in pamphlet form as soon as can be conveniently arranged, so as to record and advertise the possibilities of development along certain lines.'

**Topographic mapping.** Another aspect of Stanley's work that comes to light in the Annual Reports is his concern for and contribution to topographic mapping. Almost everywhere he went the topographic maps were inadequate (an aspect of regional geological mapping that had changed little 50 years later). He routinely carried a theodolite with tripod, stadia rod, prismatic compass, two aneroid barometers (0–2400 m and 2400–4500 m), a thermometer, hypsometer, Abney level, metal chain and a 100 m length of loya vine, plumb bobs and spring balances, an accurate time-piece and a pair of binoculars (Stanley, 1925), and in each field project he would devote a certain amount of time to preparing or improving the topographic base-data. For example, his patrol to the Musa and Kumusi rivers in 1916 started with several days of routine topographic surveying, intended to fix more accurately features of the coastline between Port Moresby and Rigo. Once under way, in the mountains he would halt repeatedly to determine altitude from the barometer, and would determine latitude and, as accurately as possible, longitude at major stations; he would also triangulate the major peaks, and determine their elevation above sea level by observing the angle of elevation from different points along a measured baseline (Stanley, 1918b, 1925).

![Figure 17. Handwritten draft of Stanley's annual report to June 1919 was written on the back of an old topographic map. There is little evidence of revision or editing between draft and publication.](image)
Even the published topographic maps contained significant errors, and Stanley was justifiably cautious in accepting the data of others. However, he had only praise for the work of Dr W.M. Strong, Chief Medical Officer, who had surveyed the Hydrographers Range (Stanley, 1918b). Stanley’s knack with topographic mapping was recognised by the Lieutenant-Governor, who deputed to him the task of updating the official maps for each administrative division, a task that involved incorporating details of village locations, tracks, and drainage from the maps submitted by patrol officers (Stanley 1919c).

1917–18: Long leave

Having completed six years’ service with the Administration of the Territory of Papua, Evan Stanley was entitled to a long leave. The family departed Port Moresby in October or November 1917 and returned seven-and-a-half months later.

1918–20: Time of transition

During the next two-year tour of duty, which started in May or June 1918, Stanley was to undertake less fieldwork and devote more time to compilation and writing—the beginnings of a phase that was to culminate in the publication of major reports on the geology of New Guinea and Papua five years later. He wrote on the promotion of hydropower and the need to start a program of measuring the flow of the nation’s rivers (New Guinea as a source for Nitrates—October 1918); the recognition of osmiridium by prospectors, and its recovery and value (article written and reproduced in the Papuan Courier late in 1919; Stanley 1920b); and a review of the mining industry and the geology of the Territory intended for the Australian Yearbook and for a new Handbook on Papua, prepared in 1919 and reproduced, in part, in the Annual Report for 1919–20.

The year 1918 also was significant for the Stanley family for the birth of their second child, a son, Neville Fenton, at the hospital in Port Moresby on October 7th (Fig. 18).

The submission on hydropower found favour with the Commonwealth Institute of Scientific and Technical Studies in London, and with the Conjoint Board of Scientific Societies, which supported his proposal for monitoring stream flow and rainfall. However, almost 40 years were to elapse before the first hydropower schemes were developed. Hydro-electric schemes now provide all power for the larger centres on the Papua New Guinea mainland, and small schemes provide power for some islands centres.

The review of the geology of Papua included a stratigraphic table, which is an invaluable record of the state of knowledge at that time, and which includes some corrections to previously published data. The corrections include refining the age of the Astrolabe agglomerate (on the Sogeri Plateau) from Late Tertiary to Pliocene or possibly partly Late Miocene (now known to be Late Miocene–Early Pliocene), and revising the age of the volcanics of Mount Lamington from Late Tertiary to Pleistocene (the currently accepted age). Clearly, Stanley had recognised Mount Lamington as a Quaternary volcano, a fact disputed by some much later workers (Arculus & others, 1983).

Figure 18. The Stanley family at home in Konedobu in 1919.
The article on osmiridium was written at the suggestion of Dr Campbell Brown, who had visited Papua in October 1919 as a representative of the Waterman Pen Company, with the object of investigating the occurrence of osmiridium. The gist of the article was to describe the metal, and to encourage prospectors to search for it and present it for sale separately from their gold. The current price was 30–40 pounds per ounce, compared with four pounds five shillings for gold.

Stanley drew attention to the sulphur available in the lamalele solfatara fields, a trial shipment of which had been taken by Burns Philp some years previously (Moreton, 1898); to the large volumes of pumice readily accessible on Bwaioa Peninsula; and to indications of copper and gold mineralisation—gold mineralisation at Wapolu (Fig. 6) is currently under investigation. Looking at the broader picture, he deduced that the separation of Fergusson and Normanby islands, through Dawson Strait, was the result of rifting—a hypothesis that has become widely accepted in the last ten years with the recognition that the volcanics of Dawson Strait have the characteristics of a rift-related suite, and that the Strait has opened in response to westward propagation of Plio-Quaternary sea-floor spreading in the Woodlark Basin (Smith, 1976).

A significant new development arising from this trip, and from the palaeontological work of F. Chapman (1918), was the recognition of the considerable range in age of the volcanic rocks of the Mafulu region, from Miocene to Pleistocene.

Stanley was also an active member of the Masonic Lodge, initially in Adelaide and subsequently in Port Moresby.

1920–22: Bulletin 7 and the Campbell Brown expedition

Bulletin 7. Stanley returned from three months’ leave in about July 1920 in time to prepare another annual report, and to make improvements to his manuscript on the geology of Papua. This paper was presented at the annual meeting of the AAAS in Melbourne in mid-January, and was subsequently published as Bulletin 7 of the Territory of Papua, under the slightly misleading title of Contributions to the Geology of New Guinea (Stanley, 1921b).

A major advance in this paper was the recognition of the full extent of the suture on the northern slopes of the Owen Stanley Range, which is now known as the Owen Stanley Fault (Fig 6):

'The most important tectonic fault in Papua is that of the Yodda and Kumusi valleys. It has been responsible for the formation of the Chirima River flowing southeast from Mount Albert Edward, causing the Yodda waters to flow into the Mambare. The fault passes through Ovi village, along

![Image 19. Folded layered gneiss on the coast of Fergusson Island, from the supposed Huronian series.](Photograph by E.R. Stanley.)
the Kumusi valley, through the Owalama Range, and along the Moni (head waters of the Musi [sic]), forming the steep gorges in the latter near the Ajaura country. This feature is very noticeable standing on the spurs of the main range, near Kokoda; in fact it was originally thought that the valleys which contain the headwaters of the Musa and Kumusi rivers were one and the same as the Yodda, and which is shown as such on the old official maps. On the other hand this fault passes through the headwaters of the Waria River into German New Guinea, along the coastline in 147 degrees East. Its southern extreme passes through the main range, near the Keveri Valley, in Papua, entering the sea east of Abau Government Station.7

The trace of the fault, as described above, has been confirmed by modern mapping, with the exception that it is now considered to trend eastward from Keveri rather than southeast to the coast. It is now known to be primarily a thrust fault, reactivated as a normal fault, which separates ophiolite, above, from metamorphic rocks of the Owen Stanley Range, below (Davies, 1971).

In the report, Stanley also discusses the problem of the reported occurrence of Devonian sediments in the Tauri River—the only report of Palaeozoic sediments in the Territory. He had been unable to track down the source of this report, and had found only sediments containing 'Middle Tertiary' fossils during his fieldwork in this area. He retains the record of Devonian in his tables and maps (Stanley, 1921b, 1924a), but must have entertained doubts as to its authenticity. The anomaly was subsequently explained by palaeontologists of the Australasian Petroleum Company as a misidentification of Heliopora, an extant octocoral which occurs in the Miocene of the Papuan Basin, as the Siluro-Devonian tabulate coral Heliolites (M.F. Glaessner, personal communication, 1985).

**Preparation for the New Guinea expedition.** Early in November 1920 Stanley boarded the Burns Philip steamer *Marsina* in Port Moresby, bound for Rabaul, where he was to join a Commonwealth Scientific Expedition charged with the task of assessing the resources of the New Guinea Territory. For this purpose his services were loaned to the New Guinea Administration from November 1920 to 20 August 1922.

The party was led by Dr Campbell Brown, M.A., B.Sc.(Edinburgh), P.D., the osmiridium expert who had visited Papua in 1918; other members were: Lt-Commander C.H. Rolleston, R.N. (retired), hydrographer; R. Crookshank, assistant hydrographer; Mr H.W. Haynes, forestry expert; Captain J. Duncan, marine products expert and navigator; L.N. Callaghan, radio operator; N.H.F. Murphie, engineer; W.J. Jackson, photographer/cinematographer; and Stanley as geologist and expedition secretary. Mr. W.H. Lucas, head of the Expropriations Board, who was to be native and plantations adviser did not take up his appointment, Crookshank and Haynes appear to have withdrawn before departure from Rabaul, and Rolleston was replaced by Lieutenant J.H. Thompson after his resignation on 28 February 1921 (Melbourne Argus, 25 May 1921).

The expedition planned to travel in the wooden ketch *Wattle* (Fig. 20), which had been designed and constructed in Sydney specifically for this purpose, and was chartered to the Australian Government by Dr Brown. It displaced 6.5 tonnes, was 12 m long, beam 3.5 m, draught 1 m, freeboard around 0.6 m, and was powered by a 20 hp diesel engine.

The expedition appears to have had the personal backing of the Australian Prime Minister, W. M. Hughes. He met with Brown several times during the planning stages, and his name was linked with the project in press reports. The expedition was mounted jointly by the Australian Government Departments of Prime Minister's, Defence, Home Affairs and Territories, Navy, and Treasury. The objective was to take stock of the resources and potential wealth of the former German territory, which was soon to become an Australian responsibility under League of Nations mandate in May 1921. Brown's plan seems to have been to reconnoitre the coast of New Britain and the larger river systems of the mainland portion of the Territory, including the Sepik, Ramu, Markham, and Waria, with a diversion to the Mambare region of Papua at the request of the Papua Administration. In the event, the Sepik venture was not undertaken because a party from the Anglo-Persian Oil Company had been given responsibility for this, and the Markham, Waria, and Mambare legs were abandoned when time and funds ran short.

Rolleston, Crookshank, Murphie, and Callaghan arrived in Rabaul with Stanley on the *Marsina* early in November, and the remainder of the party on the *Morinda* on 6 December. The first task was to rig and fit out the *Wattle*, which had been shipped from Sydney as hull and masts only. Somehow this preparatory phase stretched out for five months. The long
delay was the subject of much adverse public comment, and stirred the Prime Minister to write directly to Brown expressing his concern and to advise the Secretary for Defence and the Administrator, Rabaul, to scrutinise the expedition's expenditure and to not authorise any expenditure in excess of 10,000 pounds.

The reasons for the delay remain obscure. In a telegram to the Prime Minister on 21 March 1921, Brown attributed the delay to (1) malaria and dengue fever, which had affected seven members of the party, (2) the lack of efficient financial arrangements until that date, and (3) the fact that it took a long time to get things done in Rabaul. In the files of the Prime Minister's Department it is noted that Rabaul was in quarantine at this time, because of an epidemic of measles, and that this caused delays in fitting out the Wattle.

In his final report, Brown ascribed the delay to illness, with many members suffering from fever through those months, and both Callaghan and himself being released from hospital only a short time before the expedition's departure. Certainly, fever was rife and the progress of the expedition in the first months after departure was delayed several times while Brown recovered from severe attacks of malaria. Stanley also, in his official report, attributes the delay to fever, but in later correspondence with the Administrator of the New Guinea Territory expresses regret at the delayed departure, in terms that suggest that it was avoidable. In a letter to the press, Rolleston was at a loss to explain the delay once the ship was prepared and appears to lay the blame for inaction squarely on Brown, who was 'most uncommunicative on the subject'. One possible justification was that it would have been very difficult for such a small craft to work along the exposed northern coastline of the New Guinea mainland until after the cessation of the northwest monsoon in April.

Another problem for the expedition may have been resentment and lack of cooperation from officers of the New Guinea Administration. The Australian Prime Minister, W.M. Hughes, had personally supported the mounting of the expedition, and initial planning was primarily in the hands and at the expense of the Federal Government. However, once the party reached New Guinea, Hughes decreed that all costs were to be met by the New Guinea Administration. The Administrator, Brigadier-General Wisdom, newly appointed to head the civil administration, protested strongly at this, as he had limited funds and perhaps had begun to doubt the effectiveness of the entire exercise. But his protests were in vain. Stanley used the free time in Rabaul to examine the Rabaul volcano, which is described in detail in his final report.

Under way at last. In April 1921, the expedition set out on a first leg, east from Rabaul, south through the St Georges Channel, then west to Wide Bay and Owen Point. At each stop, Stanley made short traverses inland, developing some topographic control and recording geology in text and cross-sections. The party had intended to continue westward along the south coast of New Britain and thence to the mainland, but was forced to return to Rabaul when the anchor chain parted and the boat almost foundered at an overnight anchorage off Owens Spit (Owen Point on Fig. 6). During the return to Rabaul, Stanley and Captain Duncan were put ashore at Kokopo because of illness, and Duncan remained in hospital for some days.

On 10 May 1921, the party sailed again from Rabaul, this time bound westward along the north coast of New Britain. They made observations at a number of points along the north coast and eventually reached Madang on 20 June 1921. There the Wattle was slipped and damage from several groundings was made good.

Meanwhile, both the Prime Minister and the Administrator appear to have developed more serious misgivings about the expedition. On 19 April 1921 the Secretary of the Prime Minister's Department wrote to the Administrator (inter alia):

'Mr. Hughes has instructed that the expenditure should be strictly limited to the amount of 10,000 pounds, i.e., the expedition should return to Rabaul when this limit has been reached. Furthermore, you should take steps to ensure that Dr. Campbell Brown does not take papers or other documents from the Territory. You, yourself, should take over all papers, documents, records, etc., which relate to the Expedition.'

Their scepticism apparently was shared by Lieutenant-Governor Murray of Papua for, when invited to contribute to the cost of the expedition's planned work in Papua, he replied that he would do so only if Stanley were placed in charge, and the personnel reduced to two or three (telegram to Wisdom on about 23 May 1921).

By the time the Wattle reached Madang, Administrator Wisdom had become convinced that, if the expedition continued, expenditure would exceed the limit of 10,000 pounds. Accordingly, he wired Campbell Brown that he should remain in port until further advice and wired the Acting Prime Minister for instructions. Some days previously he had impounded the stores and equipment that the Expedition had sent ahead to Madang, and which had been intended for use on the next stage of the survey. Stores that had been dispatched to Morobe ('Marube') for planned work on the Waria and Mambare Rivers also were impounded. Cabinet contacted the Minister for Home Affairs and Territories, the Hon. A. Poynont, who was in New Guinea at the time, and asked him to investigate the situation. On 6 July, Poynont wired the Acting Prime Minister recommending that the expedition be recalled. Cabinet considered this and concluded that Mr Hughes' programme should be carried out within the limits prescribed. Presumably, this meant that the expedition was to continue until it was clear that the expenditure limit had been reached.

In the event, any decision by the Australian Government was pre-empted by Brown, who, having replenished the ship's stores from his own pocket and disregarding the order from the Administrator that he was to stay put, set sail from Madang bound for the mouth of the Ramu River on 7 July.

The Wattle entered the Ramu River on 15 or 16 July and slowly made its way to a point about 260 km up river. Here, with the river level falling, the ship was stranded on a sand bank, and remained more-or-less stationary for the next five weeks or more. During this time rations ran very low, and many of the party were affected by fever. With fresh rains and a rising river level, the Wattle was refloated and regained the mouth of the Ramu on 9 September. She proceeded to Manam Island, where the party was regaled with fresh food provided by the mission, then to Monumbo (Potsdamhafen, 6 km northwest of Bogia, now abandoned; Fig. 6), and reached Madang on 21 September. From the time the party had entered the Ramu River in mid-July until their arrival at Potsdamhafen on 15 September they were out of radio contact and fears were held for their safety.

On 22 September 1921 the Acting Prime Minister, Sir Joseph Cook, telegraphed Prime Minister Hughes, who had reached Perth on his return from a Prime Ministers' Conference in London, seeking his consent to have the expedition recalled immediately. Hughes agreed to this. On the same day, Campbell Brown telegraphed the Acting Prime Minister to the effect that he proposed to wind up the expedition and return to Australia at once to report to the Prime Minister.
There followed another delay of just over a month before the members of the expedition embarked for Rabaul on the vessel Mataram, arriving on about 27 October 1921. For some of this time Brown was ill in hospital in Madang.

The purpose of the visit to Rabaul was to report in person to the Administrator and to hand over to him all the records of the expedition, as instructed by the Prime Minister. Not surprisingly, there was some resistance to this, but by 3 November Wisdom could report that nearly all the material had been recovered, and on 7 November 1921 the party sailed for Australia on the Marsina. The Wattle was reportedly stripped and abandoned in Madang.

Report preparation. Brown and Stanley prepared reports on the expedition. Stanley spent some time in Sydney and five months in Melbourne, starting in January 1922. He was based in the office of the Surveyor-General, where he was given typing and drafting support, and he was able to use the laboratory of Professor E.W. Skeats at Melbourne University for study of rock samples.

Two reports were tabled in Parliament on 19 July 1922. Brown's report was received unfavorably and the expedition was criticised as having been costly and ineffective. A report in the Melbourne daily, The Age (20 July 1922), headed 'A costly impulse' was critical of the Prime Minister's 'impulsive' decision to mount the expedition, of Brown's report as an expensive production that yielded little new information about the Territory, and of the expedition as a whole for failing to provide a result commensurate with the expenditure of 10,000 pounds of taxpayers' money.

Stanley's scientific report (Stanley, 1923a) was the only saving grace. It was described in the House by Prime Minister Hughes as 'very valuable', and in the correspondence of Brigadier-General Wisdom, Administrator of the New Guinea Territory, as 'the only thing which has justified, in my eyes, the Campbell Brown expedition'. The Age described it as an able report that 'presents a marked contrast to that of the leader of the party', but pointed out (and Stanley no doubt would have endorsed this) that Stanley might have achieved the same result or more, and at much less cost, had he been able to undertake the survey independently. In this regard, Stanley was to write to Wisdom, singling out Captain Duncan for praise, as distinct from the majority of other members of the party, in whom the 'qualities of occupation and unselﬁshness were lacking'.

The favorable comment was well founded, for Stanley had produced a valuable document, which presented not only his own carefully recorded new geological observations, but also a compilation and synthesis of pre-existing data, including, specifically, the observations of various geologists and explorers active during the German administration, and information he had gleaned from discussions with prospectors and natives. The report was enhanced by the excellent photographs taken by Jackson, and by Stanley's line drawings of volcanic features and geological sections. The title, 'Report on the Salient Geological Features...', was no doubt selected to draw attention to the fact that the geological observations were very scattered and that this was something less than a complete account of the geology of the New Guinea Territory.

The expedition did not achieve all its objectives, partly because of the initial delay in Rabaul, partly because it was immobilised on the Ramu River for more than a month, and partly because the objectives were too ambitious. It was never likely that they could develop a comprehensive overview of the resources of the New Guinea Territory in a single expedition scheduled for only six months duration. The achievements of the expedition, such as they were, seem to have been largely a function of the energy and effort of Stanley.

Geological results. In brief, the report provided the first geological description of the active volcanoes and other volcanic features along the north coast of New Britain, including Watom and Lolobau islands, Talasea thermal area, Lake Dakataua, and the volcanoes Schrader and Tarawe; and the recognition of Pliocene marine sediments at Toriu (now known as Sinewit Formation) and on the Aria River (Aria Beds).

On the mainland, near Madang, Stanley described weakly metamorphosed fine sediments (Gusap Arglilite), associated with volcanics (Finisterre Volcanics), which fine sediments he likened to the sediments of the Kemp Welch series in Papua; he also recorded, near Potsdamhafen, altered peridotite associated with 'a crushed series of crystalline limestone, quartzite, and puckered graphitic slate'. He erroneously deduced that the Finisterre Range and the ranges of New Britain had a core of metamorphic rocks.

The weeks on the Ramu River were geologically unproductive, as the party was not within easy walking distance of pre-Quaternary rocks and no doubt had a policy of not overnighting away from the ship, in view of their inability to defend themselves. Stanley made several traverses to east and west within a radius of 30 km, and otherwise used his free time to develop an accurate map of the river course, and to record vocabulary from the local native groups (Stanley, 1923a). We do not know whether Stanley was aware that much of the course of the Ramu River had been mapped previously by the German explorer Ernst Tappenbeck (Gash & Whittaker, 1975), nor whether Brown concentrated his efforts on this river because of rumours of the discovery of gold and osmiridium by the Germans (as is suggested in later correspondence in the Australian Archives).

Recommendations. At the conclusion of his report Stanley made several recommendations, which are of some interest in the light of later developments. He called for the establishment of: a Geological Bureau staffed by at least two geologists (a petrologist and a palaeontologist); a Geophysical Observatory/Volcano Observatory to be concerned with the monitoring of both seismic and volcanic activity; a Forestry Department; sanatoria, where ex-patriates might take local leave; and a School of Tropical Medicine.

North Baining. While in Rabaul at the start of the Campbell Brown expedition, Stanley had developed an interest in the mineral potential of the northwestern Gazelle Peninsula. The New Guinea Administration arranged for him to return to investigate this area in July 1922. He reported on the geology of the area, the iron mineralisation at Rangarere (Fig. 6), and the few signs of gold in the Gavit and Usuvit rivers, immediately to the east (Stanley, 1922a).

The Stanley family. During either the initial months of the Campbell Brown expedition or perhaps during the Baining fieldwork, Mrs Stanley and the family spent some time in Rabaul, living in the Rabaul Hotel. By July 1921 they had moved to Australia, where daughter Joan recalls celebrating her 7th birthday in Adelaide. The following two months was the interval when the expedition was out of radio contact on the Ramu River. Joan recalls a time when her father was reported missing, and the relief when an official brown envelope was delivered to her mother in Australia with the news that he was safe. We cannot be sure that
August–September 1921 was the interval that Joan recalls, but it seems most likely.

In passing, we may note that Dr Campbell Brown refuted these reports subsequently, claiming that his expedition was at all times in daily radio contact and laying the blame for any confusion at the feet of the men of the New Guinea Administration. Probably, the explanation is that Brown maintained radio silence through those months in order to avoid being recalled to Rabaul by Administrator Wisdom.

Following the return of the expedition party to Sydney in November 1921, the family stayed with relatives in Sydney, and in January moved to Melbourne, where, after some weeks in the Sandringham Hotel, they rented a house. This was Joan’s first contact with the Australian school system, a cultural readjustment, the humour of which she still recalls.

**1922–24: Achievements and acclaim—and tragedy**

In September 1922 the Stanley family returned to Port Moresby to embark upon a further tour of duty. Stanley had been greatly stimulated by the experience of the past several years, during which he had developed a better appreciation of the geology of New Guinea and Australia, and had received public acclaim for his contribution to the New Guinea expedition. He had developed ideas that he would pursue in the following months, and seems also to have developed a new determination to combat the scientific isolation that his posting entailed, by attending relevant scientific meetings in Australia and New Zealand. Thus, we find him planning to attend the annual meeting of the AAAS in New Zealand in January 1923 and the Pan-Pacific Science Congress in Sydney in August 1923.

One of the new ideas he brought back to Port Moresby was the compilation of a geological map of Papua with accompanying notes. He had completed a geological map of the New Guinea Territory earlier in the year, and this was a logical next step. He presented the proposal to the Director of Mines in November 1922 and it received immediate endorsement.

Another new idea was that the Mesozoic sediments of Queensland, which contain significant coal seams, may be conterminous with the (poorly known) Mesozoic sediments of Papua and that, by inference, the latter may contain coal. He speculated that the coal discovered by Staniforth Smith on his ill-fated expedition to the Kikori River in 1911 may be Mesozoic in age, rather than an equivalent of the Miocene lignitic coal of the Purari (Stanley, 1922b). (Unfortunately Smith's samples had been lost during the expedition's struggle for survival.)

In passing, we note that Staniforth Smith had at this time returned to his former posting in Papua, after war service which was followed by a term as Acting Administrator of the Northern Territory. He was now on cordial terms with the Stanleys and would commonly call at the house (Fig. 21) in which much information on the two territories was synthesised in text and cross-sections, and some significant conclusions presented.

In it he noted that the distribution of volcanic centres is, to some extent, controlled by lines of weakness or rifts that trend at right angles to the regional trend, and cited the volcanoes of the Willaumez Peninsula and the volcanic centres on western New Britain as examples. He also noted the widespread distribution of Late Tertiary (Miocene and Pliocene) sediments in Papua, and in the Sepik–Ramu region and on New Britain, mentioning their possible significance in petroleum exploration.

He developed further the concept that the Mesozoic sediments of Queensland may extend to Papua, and that the Mesozoic in Papua may be much more extensively developed than was generally appreciated at that time, and illustrated this with a cross-section from Palmerville, Queensland, to the Finisterre and Saruwaged ranges of north coast New Guinea.

He also developed the idea that there may be major cross-cutting faults in the border region, longitude 141° East, as indicated by the changes in course of the Fly, Sepik, and Tamu rivers; modern mapping has confirmed that there are structural complexities coincident with the border.

Figure 21. Staniforth Smith and Stanley stand before the steps of the Stanley home on Spring Garden Road; about 1923.
illustrates the general lack of awareness, at that time, of the broad region of central highlands, an area not traversed by Europeans until some years later.

**Mount Obree–Kagi.** From 16 January to 20 February 1923, in company with government forester C.E. Lane Poole, Stanley traversed the Owen Stanley Range between Mount Obree and Kagi. This was an ambitious venture in high forested terrain where there are only isolated pockets of population and few tracks—a trip that was, in retrospect, a celebration of the vigour of the two men and of Stanley’s bush skills and ability to work with the Papuan people, which he had developed over the preceding 12 years. They made improvements to the topographic map and Stanley recorded a description of the metamorphic and intrusive rocks that they encountered. In June 1923 he submitted to his superiors a typed report with photographs (Stanley, 1923c), with the request that it be published in the Bulletin series. A quotation for printing cost was obtained (83 pounds), but the Executive Council decided not to proceed. No record remains of the geological map that accompanied this report (see later).

**Geology of Papua.** Through the same period, the compilation of the geological map of Papua and accompanying text was proceeding apace, being completed in July 1923. The report was published in 1924, a handsome and well-presented softcover volume of 56 foolscap pages of text, tables and illustrations, accompanied by a coloured geological map (Fig. 16). The illustrations are 50 of his own photographs, and include scenes of volcanoes, outcrops, mines and the early oil drilling rigs. Like his report on the salient features of the geology of New Guinea, it is a benchmark volume, the first synthesis of the geology of this part of the world since the much briefer review by David & others (1914), and the first to include a comprehensive account (11 pages) of economic geology. Further, much of the body of the report was drawn from his own observations. The report concludes with an appeal for the establishment of a Geological Survey Department.

**Pan-Pacific Science Congress.** In August–September 1923, Stanley attended the Second Pan-Pacific Science Congress, which was held in Melbourne and Sydney. This was a major event, which had attracted distinguished scientists (Fig. 22) from North America, the United Kingdom, Holland, Japan, and New Zealand. Stanley presented a total of eight papers, covering tropical settlement, topography, coral reefs, volcanic action, Tertiary formations, structure, and oil and ore provinces.

His paper on structure is the only one of these that exceeds three pages in length. It is a substantial document, which begins with some speculative, and, in hindsight, somewhat dubious statements about structural arcs extending through New Guinea, but goes on to make a number of valuable contributions to knowledge. These include an improved version of the cross-section from Palmerville to the north coast of New Guinea; recognition of the importance of the Mio-Pliocene orogeny in New Guinea; evidence for a land connection between Australia and New Guinea in the Late Cretaceous or Early Tertiary, and again in the Pleistocene; and recognition of the rifting nature of the Wide Bay–Open Bay depression, and of a northwest-southeast line of weakness across the Gazelle Peninsula. Also, having predicted a greater development of Mesozoic rocks in the Papuan interior than was currently recognised, he was patently pleased to be able to tell his audience of the recent discovery (by a Resident Magistrate, late in 1922) of sediments...
containing Mesozoic fossils in the Kerabi valley, east of the Samberigi (Fig. 6).

The Pan-Pacific Science Congress of 1923 was perhaps his finest hour in terms of recognition of his achievements by the scientific community. W.N. Benson was to write subsequently His presentation of this work, largely the result of his unaided efforts, attracted the keenest appreciation of the Pan-Pacific Science Congress . . . . and this body expressed its high approval by special resolution urging on the authorities to supplement the excellent work that was being done' (Benson, 1925). The resolution of the Congress reads '4. That this Congress has been greatly expressed with the scientific and economic value of the results achieved in Papua by the Government Geologist, and it expresses the hope that these investigations may receive increased support.'

There is no record of Stanley's activities in Papua through the remainder of 1923 and 1924, with the exception of a brief mention in the Annual Report for 1923–24, to the effect that he was engaged in preparation of a detailed geological and topographic map of the active mining area within the Astrolabe mineral field. Perhaps he was content to remain at headquarters, given that there was illness at home (see later). He may have visited the Fly River region (Joan's recollection) or have made another sortie into the Owen Stanley Range. Benson (1925) wrote that during this year Stanley 'made a further journey into the great central ranges of Papua, and obtained important results which are as yet unpublished'. A recollection by M.F. Glaessner (personal communication, 1985) lends some support to this. According to Glaessner, a most recent original manuscript by Stanley, which dealt with metamorphic rocks of the Owen Stanley Range, was borrowed by geologists of the Australasian Petroleum Company, and was lost when records were destroyed for security reasons, at the time of the civilian evacuation of Port Moresby during World War Two. Whether Glaessner's recollection refers to a 1924 manuscript or to the Mount Obree-Kagi manuscript and map (Stanley, 1923b) remains uncertain. Whether by coincidence or not, no copy of the map to accompany the Mount Obree–Kagi report is currently available.

**Practical hints.** During these years Stanley also prepared a chapter on 'Practical hints to scientific travellers in New Guinea' (Stanley, 1925), for inclusion in a book being assembled by Professor H.A. Brouwer of the University of Delft in the Netherlands. No doubt this assignment stemmed from their contact at the Pan-Pacific Congress. Stanley's contribution occupies 35 pages and is comprehensive. It has special value today as a record of how field operations were conducted in Papua New Guinea in those times, before the advent of air travel, helicopter support, and modern medicines, and before radio had come into general use.

**Illness.** If August–September 1923 was professionally a rewarding time for Stanley, it was also a time when storm clouds were gathering at home. Joan, now nine years old, was attending a convent school just above Ela Beach in Port Moresby. She had experienced some trouble with malaria, first contracted while the family was in Rabaul, and it was agreed that, if this should recur, she should be placed in boarding school in Australia—a most difficult decision for a close-knit family. In the event, the fever did recur, and in December 1923 the family travelled to Australia. Stanley took the opportunity to attend the annual meeting of the AAAS, which was held in Adelaide in mid-January, and to present a paper on the physiography of New Guinea, before returning post-haste to resume duty in Port Moresby. Helen and the children remained in Adelaide, where Helen was to settle Joan into boarding school, returning in company with five-year-old Neville in February, after tearful farewells.

As 1924 progressed, Helen herself became ill with TB, and in December 1924 Stanley accompanied her to Adelaide, where she was admitted to hospital. He intended to remain for only a few weeks, then to return to duty in Port Moresby. However, this was not to be. He was stricken with the spread of staphylococcal infection from a carbuncle on his chin. He too was admitted to hospital and underwent several surgical operations, but his condition continued to deteriorate and, within a week, on Friday 27 December, he died.

Some of the sense of shock which must have been felt by family and friends is recorded in a letter to the press written soon afterwards by a friend, Colonel T.H. Smearon. The letter begins as follows:

'The tragically sudden death of Mr Evan Stanley is, to his friends, a stunning shock that will not soon be got over. In the pink of good health a few days ago, he was looking up his old intimates and discussing with them the unfolding problems of life in Papua, with characteristic lucidity and enthusiasm; and this morning (Monday) there is the announcement in the press of his death from blood poisoning. And so he passes; one of the most interesting and lovable men it has been my fortune to know, and an Australian who has given his native country exceptionally fine service in a realm in which he stood alone.'

Sir Douglas Mawson delivered an eulogy on the Sunday in which he spoke of Stanley (Figs 23, 24) as 'so honest and

![Figure 23. Evan Stanley, shortly before his death.](image-url)
Stanley's photographic skills, a pleasure to peruse, and a fascinating record of the mid-colonial years.

And what else can be said of Evan Stanley? He was certainly an unusual man, someone who had great energy, and who placed much emphasis on the merit of practical skill and action. He was a carpenter, who was involved in building a comfortable bungalow-style house for his bride-to-be while maintaining a heavy schedule of geological work during his first term in Papua; a petrologist-chemist who could carry out a full chemical analysis of a rock sample, assay a metallic ore, or, if called upon to do so, develop a mixture to protect the government ships against marine borers; a photographer who could process his film under primitive conditions in a bush camp; and a surveyor, who did much to improve the accuracy of the early topographic maps of Papua, and who generated an accurate map of the lower reaches of the Ramu River.

He was an able and competent geologist, who always worked alone (except for the time spent with Wade in 1913-14) and could consult with professional colleagues only rarely. He had a chemical laboratory, but, as far as I can determine, no equipment to prepare thin sections or mineral separates, and no support staff. He had the breadth the job required: trained in mineralogy and petrology, he was at home in the metamorphic and igneous terrain of the Papuan mainland and on the active mineral fields. At the same time, he could turn his hand to stratigraphic mapping and regional synthesis, for example, on the Papuan ‘oil field’ and the Cape Vogel Peninsula. He made a major contribution to our knowledge of the volcanoes of New Britain, and developed concepts in regional structure that were innovative and have value today, including the recognition of the importance of Mio-Pliocene orogeny, of the rift origin of Dawson Strait, outlining of the Owen Stanley Fault, and prediction of a considerable development of Mesoozoic strata in the Papuan Basin.

He lived through a fascinating epoch of Papuan history, from the optimism of the years immediately before World War One—when the excitement generated by successive discoveries of gold and copper mineralisation was augmented and surpassed by the prospect of major oil discoveries, to the stalemate of the post-war years, when, with commodity prices low, the mining and agricultural industries floundering, and no positive progress in oil exploration, the Administration of Sir Hubert Murray struggled to survive on limited funds.

Stanley followed a different star. For him the pre-war years and the war years were a time of steady application and effort, with little recognition for what he had achieved. By way of contrast, in the ‘twenties he was thrust into the limelight, perhaps nationally known as a result of the publicity arising from the controversial Campbell Brown expedition, his work recognised and acclaimed by the general assembly of the Pan-Pacific Science Congress, and his crowning accomplishments: the reports on the geology and resources of the two Territories, published in successive years. In December 1925 he would have completed a 15-year term with the Papua Administration, and had planned to travel to southern France and North America, where Helen would regain her health and he would continue his studies.

What a cruel twist of fate that all was so suddenly and tragically brought to a halt.

Acknowledgements

This study had its beginnings in the late 1950s, when, as a junior geologist with the Administration of the Territory of
Papua and New Guinea, I was introduced to the published and unpublished works of Evan Richard Stanley and was given the opportunity to follow in his footsteps to Misima Island, the Yodda-Mamama-Kumusi area, and, later, the D'Entrecasteaux Islands.

In the 1960s, Alexander Renwick, O.B.E., then Chief Government Geologist for the Territory of Papua New Guinea, was instrumental in the inauguration of an annual Stanley Memorial Lecture, under the auspices of the Papua New Guinea Scientific Society, which lecture commemorated the achievements of both Evan R. Stanley and an un-related geologist and identity of later years, the late G.A.V. Stanley. Through the kind offices of Renwick and of my sister, Jo Donnellan, who was working as a microbiologist under Professor Neville Stanley at that time, I was able to make direct contact with the Stanley family in Perth in 1971, and to follow this with more consultation in Perth in May 1985. (Regrettably for all concerned, Professor Neville Stanley had died in the interim.)

The impetus to conclude what had become a perennial part-time project was provided by the call for papers on the history of Australian geology, which was issued in 1985 by the newly formed Specialist Group in Earth Science History of the Geological Society of Australia. W.A. McGee, who had worked in another of Stanley’s field areas, Woodlark Island, had in mind to contribute a paper on Evan Stanley, and had already conducted some research in the Mitchell Library with this in mind. When he learned of my intentions, he generously withdrew and, through the course of the final stages of compilation and writing, pied me with reference material and valuable comment on various aspects of the draft manuscript. His efforts have considerably have considerably enhanced the story.

I am indebted to various reference sources for assistance in finding and copying source material, notably Ms Deanne Dorn and the library of the Bureau of Mineral Resources (BMR), Canberra; the library of the Geological Survey of Papua New Guinea, Port Moresby; Ms Judith Robertson and the Australian Archives in Mitchell, ACT; Ms Susan Woodburn, Archivist with the University of Adelaide; the Papua New Guinea National Archivist, for cooperation in authorising access to archival material; and the Australian National Library, Canberra, for access to micro-formats, microfilm, and pictorial records. I am also indebted to H. Upenieks, ARPS, RBP, and BMR photographic services unit for reproduction of photographs.

In addition, I am grateful to the following who contributed useful comment on drafts of the manuscript and additional information: John Jones, then Acting Chairman of the Geology Department of the University of Adelaide; Martin F. Glassner, himself a veteran of PNG geology and now Emeritus Professor at the University of Adelaide; Colin Gatehouse, Barry Cooper, and David Corbett, all of Adelaide, and members of the inaugural Executive of the Specialist Group in Historical Geology; two other veterans of PNG geology, N.H. Fisher and J.E. Thompson; Sir F.F. Espie, formerly of Bougainville Copper P/L; H. Nelson of the Research School of Pacific Studies in the Australian National University; W.B. Dallwitz, formerly of BMR; Geoff Page of Narrabundah College; and two colleagues within the Bureau of Mineral Resources, W.D. Palfreyman and R.W. Johnson.

However, the prime source of the material upon which this study is based, and of the illustrations that accompany this text, is the Stanley family, initially through the late Professor Neville Stanley who, in 1971, went to some lengths to provide me with photocopies of letters, press-clippings and manuscripts, and copies of old photographs. More recently, Joan Benson, who provided much valuable source material, has enriched the story with her recollections of events and personalities and has improved the presentation with careful review of the draft manuscript. Dr Fiona Stanley also contributed useful records and photographs. I am indebted to them not only for source material but also for their enthusiastic support through the later stages of the project, and for the privilege and pleasure of being permitted to observe in each of them something of the energy and zest for life that made Evan Stanley an uncommon man.

In conclusion, this presentation falls far short of being a definitive account of Evan Richard Stanley and his work, for several reasons. Firstly, the search of old Papua New Guinea records, while time consuming, was by no means exhaustive, and, secondly, my attempt to synthesise his geological achievements has necessarily involved a personal perception of what was important and what not. Another geologist would surely have presented things differently.

Archival note. Copies of documents accumulated during this study have been lodged with the Stanley family, the Manuscript Room of the Australian National Library (filed under E.R. Stanley), the Geological Survey of Papua New Guinea, and, through the Geological Survey, selected papers with the Papua New Guinea National Archives, Port Moresby. My attempts to locate copies of the movie films made during the Campbell Brown expedition, and to find the box of quarter-plate glass negatives, believed to have been Stanley’s, which were reclaimed by Australian authorities from the Geological Office of the Department of Lands, Surveys and Mines in Port Moresby in about 1955, have been unsuccessful. The films were entitled 'The voyage of the Wattle', 'Unknown lands of New Guinea', and 'Glimpses of New Guinea', and were shot by Jackson of Amalgamated Pictures Limited, Melbourne. The last two films were printed and sold to the Federal Government on 13 January 1923; as of November 1923, the first was stored at the studios of Australasian Films Limited, Rushcutters Bay (information from a letter from Campbell Brown to the Acting Prime Minister, 24 November 1923).

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