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A Queensland Government Project
Typeset at the Queensland Museum

A return to Hayman Island: revisiting Australia's only recorded cone snail fatality after 85 years

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ABSTRACT

The death of Charles Hugh Garbutt from a cone snail 'sting' inflicted at Hayman Island on the Great Barrier Reef marked both a family tragedy and an important moment in Australian medical and malacological history. However, aside from newspaper reports and the few witness statements given at the coronial inquiry, the events of that day in June 1935 and its immediate aftermath have never been critically evaluated. As memories of what happened have either faded or been partly distorted with the passage of time, the fatality today remains only a footnote in the history of studies on the Conidae and their complex, pharmaceutically-valuable venoms. The species involved, *Conus geographus* Linnaeus, 1758, is now recognised as the most dangerous to humans of the Conidae and responsible for most and possibly all recorded fatalities. After 85 years, the case is revisited using available evidence including newspaper reports, relevant scientific and popular literature, witness statements, archival documents and the actual specimen responsible for the fatality. While tragic and probably avoidable, the death, via its extensive coverage by the press, undoubtedly has helped to save lives by educating a public largely unaware of the dangers from something as seemingly harmless as a sea snail. It is also concluded that Charles Garbutt, when all factors are considered, was most unfortunate to have lost his life in the way that he did. For future cone envenomations it is recommended that photography (if possible) of the specimen involved would assist both in patient reassurance and medical treatment.

□ cone snails, *Conus geographus*, venomous gastropods, Mollusca, Great Barrier Reef

Cone snails (Conidae) constitute an important world-wide family of carnivorous marine gastropods, found primarily in warm, shallow seas but also well represented in deep water (Walls 1979; Rockel *et al.* 1995; Kohn 1998). As their common name suggests, a large proportion of the family have a conical shell, and in the popular press and among collectors they are usually referred to as 'cone shells' or simply 'cones' (Marsh & Ripplingale, 1964; Walls, 1979) (see Fig. 1). Conids are however best known for their dramatic method of hunting, which involves the use of complex,

potent, peptide-based venoms (conotoxins) delivered by the proboscis in hollow, harpoon-like radular teeth (highly modified marginals) to paralyse prey prior to consumption (Boss, 1982; Röckel *et al.* 1995; Kohn, 1998; Oliveira *et al.* 2015; Gorson & Holford, 2016). The proboscis + radula tooth mechanism is often considered the biological equivalent of a hypodermic syringe, although in many cases the snail also uses the tooth to physically secure the prey item by gripping the knob-shaped base of the tooth with the proboscis tip (Marsh, 1977; Olivera *et al.* 2015). The prey may be 'worms'

(polychaete annelids, hemichordates or sipunculids), other gastropod molluscs, or fish, and although several cone species may show mixed food preferences most can be classed as predominantly or exclusively vermivorous, molluscivorous or piscivorous (Kohn 1956, 1959, 1963, 1966; Endean & Rudkin 1963, 1965; Miller 1989; Rockel *et al.* 1995; Kohn *et al.* 1960, 1999; Duda *et al.* 2001, 2009; Olivera *et al.* 2015). Of the 960 accepted species of Conidae (World Register of Marine Species as at 30th August 2020) at least 166 are recorded from Australia, mostly tropical Indo-West Pacific species, and of these 166, 133 occur in Queensland waters (Jon Singleton, 2009, pers comm). Other member families of the Conoidea such as the various 'turrid' groups (e.g. Borsoniidae, Raphitomidae, Clathrellidae, Mangelidae) or augers (Terebridae) can employ the same specialised system of prey immobilisation as the Conidae (Boss 1982; Taylor *et al.* 1993; Kohn 1998; Tucker & Tenorio 2009; Bouchet *et al.* 2011), but only the Conidae have managed to impact the health of humans through their ability to inflict serious injury or even death (Flecker 1936; Hermitte 1946; Kohn 1958, 1998, 2016, 2018; Halford *et al.* 2015). All conids are capable of stinging, but for humans, molluscivorous and piscivorous species have long been recognised as the most dangerous, being responsible for all 36 of the recorded fatalities (see Kohn 2016). Many species from both of these hunting categories occur in tropical and subtropical Australia, and are particularly well represented on the Great Barrier Reef (Rippingale & McMichael 1961; Stanisic 1987; Wilson 1994; Coleman 2003; Jarrett 2011) (Fig. 1).

On the 25th of June 1935 Australia recorded its first, and to date only, medically-confirmed fatality from a cone snail envenomation when a 27-year-old man was stung at Hayman Island in the Whitsunday Group off the central Queensland coast (Fig. 2). The unfortunate victim was Charles Hugh Garbutt (Fig. 3A) of Ayr, a member of one of the most prominent Townsville families. Although identification of the species involved was initially confused, eventually it was shown to be *Conus geographus*

Linnaeus, 1758, now known to be the deadliest species of Conidae for humans (Endean & Rudkin 1965; Yoshiba 1984; Kohn 2016, 2018). The case made medical and malacological history as it was the first confirmed record of a cone snail fatality from Australian waters (Allan 1935a,b; Iredale 1935a-d; Flecker, 1936) and was very widely reported in the newspapers at the time (see Appendix 1(i)). In the years since, the case has been referred to in numerous popular works (e.g. Roughley 1936; Allan 1938; Cilento 1944; Allan 1950; Gillett & McNeill 1959; Rippingale & McMichael 1961; Endean, 1964; Marsh & Rippingale 1964; Cleland & Southcott 1965; Stanisic 1987; Underhill 1987; Whitehead 1998) and is frequently cited in research papers (e.g. Cleland 1942; Clench & Kondo 1946; Hermitte 1946; Kohn 1963; Haddad *et al.* 2006; Bingham *et al.* 2012; Dutertre *et al.* 2014; Halford *et al.* 2015; Kohn 2016). Nevertheless, several facets of the story have never been thoroughly explored and many of the 'facts' blurred after almost nine decades. The Garbutt Family history, '*The Garbutt Family Footprint*' (an unpublished manuscript held in James Cook University Library, Townsville) records Charles as having died at Hamilton Island after standing on a stone fish (Appendix 3). With the rapidly expanding interest in the pharmaceutical/medical applications and physiological properties of conotoxins (or their peptide components), focus on the biology and impact of cone snails on humans has never been greater (for reviews of the now vast literature on this topic see Terlau & Olivera 2004; Layer & McIntosh 2006; Bingham *et al.* 2010; Lewis *et al.* 2012; Gorson & Holford 2016; Olivera *et al.* 2014, 2017; Prashanth *et al.* 2014; Gao *et al.* 2017; Ai-Hua *et al.* 2019). As a result, there is a new appreciation of recorded history applying to envenomations (Kohn, 2016, 2018) and as a consequence the case of Charles Garbutt has once again become of scientific interest (Bingham *et al.* 2012; Dutertre *et al.* 2014; Halford *et al.* 2015).

This paper re-examines, interprets and then reconstructs the events of that day and its immediate aftermath using newspaper reports of the time (primarily sourced via Trove, an

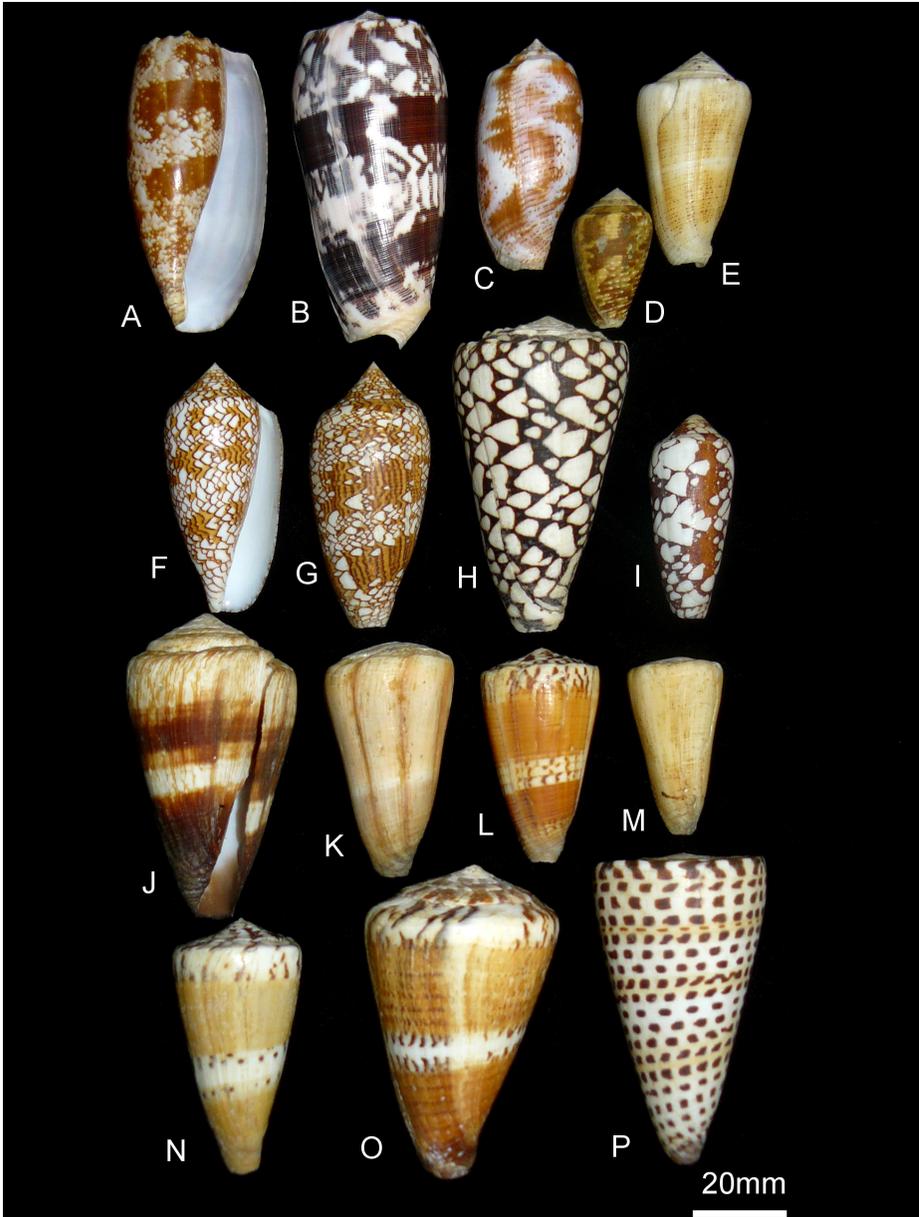


FIG. 1. *Conus* shells, 15 of the 38 species known to occur in waters around the Whitsunday Islands. All specimens from Hayman Reef, Hayman Island (May 1966) with the exception of B (Elephant Rock, Gould Reef) and C, D (Lady Musgrave Island). A-E fish-eating species; F-I mollusc-eating species; J-P worm-eating species. A, *Conus geographus* (QMMO81326); B, *Conus striatus* (QMMO81626); C, *Conus tulipa* (QMMO81709); D, *Conus catus* (QMMO81178); E, *Conus magus* (QMMO 81421); F, G, *Conus textile* (QMMO81686); H, *Conus marmoreus* (QMMO81436); I, *Conus episcopus* (QMMO81238); J, *Conus miles* (QMMO 81441); K, *Conus flavidus* (QMMO81290); L, *Conus planorbis* (QMMO81532); M, *Conus emaciatus* (QMMO81249); N, *Conus mustelinus* (QMMO81476); O, *Conus capitaneus* (QMMO81172); P, *Conus litteratus* (QMMO81380). (Image: J.M. Healy, Queensland Museum).



FIG. 2. Map showing Hayman Island in relation to major cities of the Queensland Coast mentioned in the text. Inset: Map of Whitsunday region showing position of Hayman Island in relation to ‘Cannon Valley’ (present day town of Cannonvale) and Proserpine.

online research tool of the National Library of Australia), together with pertinent literature (books and scientific papers) and archival documents of the Queensland Museum and the Queensland State Archives. An attempt is made to identify all the factors that may have contributed to the fatality and by so doing, show how such a tragic outcome could

perhaps have been avoided. In addition, an opportunity is taken to document and discuss the actual specimen responsible for the death of Charles Garbutt as there has been confusion in the recent literature about it (see photographs in Dutertre *et al.* 2014 and Halford *et al.* 2015). It is timely that the 1935 death should be revisited as, almost 80 years later, and once again in the

Hayman Island Cone shell fatality

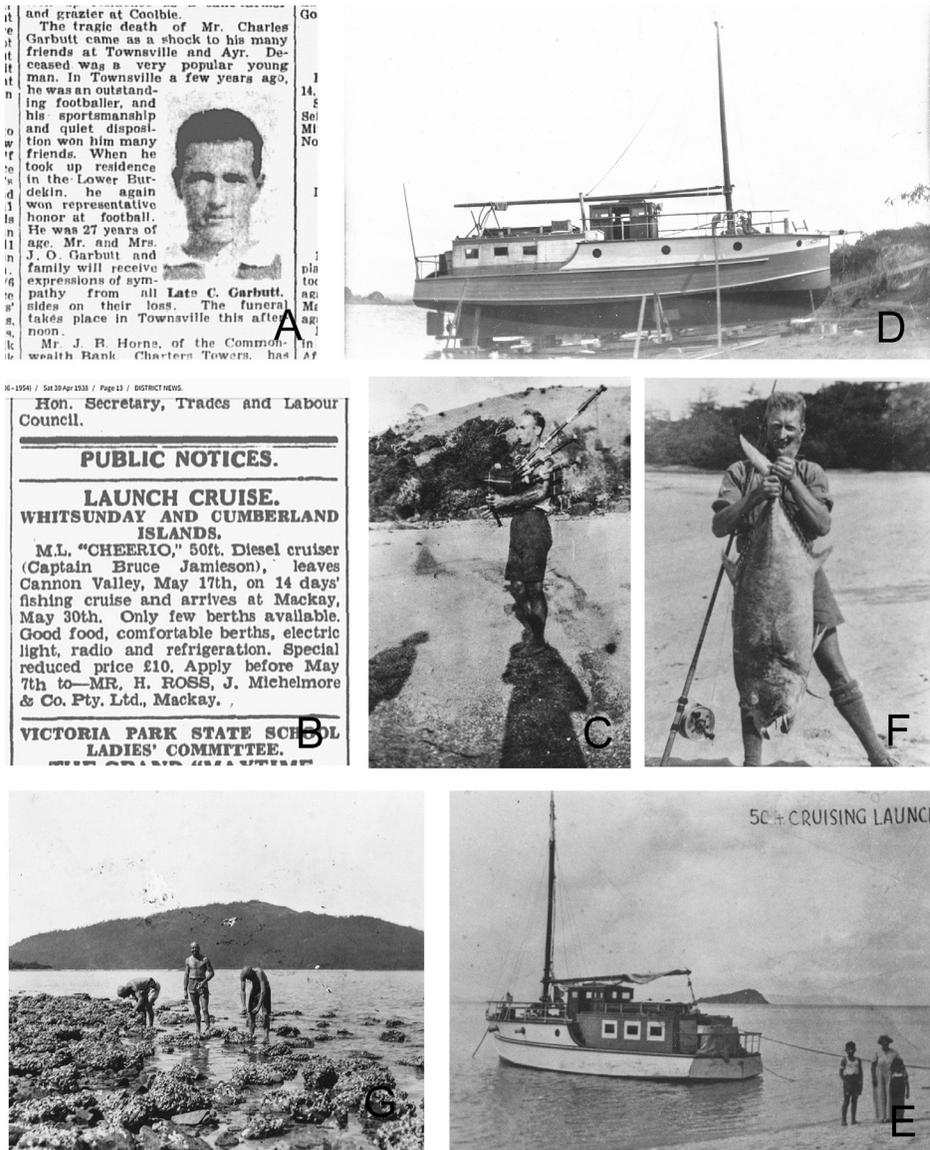


FIG. 3. A, The only known surviving photograph of the victim Charles Hugh Garbutt (of Ayr, northern Queensland) probably originating from a football team photograph (from *The Townsville Daily Bulletin*, 26th June, 1935, p. 6); B, Advertisement for cruises on Bruce Jamieson's 'Cheerio', vessel used by the Garbutt party (from *The Mackay Daily Mercury*, 30th April, 1938, p. 13); C, Bruce Jamieson, captain of the 'Cheerio', also renowned for his musical abilities on voyages. Image OM91-98-0001-0088, V1-FL1579078; D, MV 'Cheerio' out of the water circa 1933. Image OM91-98-0001-0088, V1-FL1579066; E, MV 'Cheerio' anchored off Hayman Island circa 1933. Image OM91-98-0001-0090, V1-FL1579088; F, Monty Embury, with 32.5 kg yellow-spotted trevally caught off Hayman Island circa 1933. Image OM91-98 0001-0074, V1-FL1578904; G, A party of low-tide fossickers on the reef at Hayman Island circa 1933. Image OM91-98 0001-0066, V1-FL1578808. Images A,B from Trove, National Library of Australia; C-G from Embury Family Photographs, John Oxley Library, State Library of Queensland (individual image numbers cited above).



FIG. 4. A party of low tide fossickers on the Great Barrier Reef (probably Heron Island) echoes the Garbutt party's reef walk of 1935 (Image from Roughley, 1936).

Whitsunday Islands, a young man in his 20's was reportedly stung by a cone snail on the 9th June 2015 (Watson 2015)), and as recently as May 2018, a teenage girl was stung by what was suspected as being a cone snail at Heron Island (Sbegen 2018).

Setting the Scene

Despite depressed, post-war economic conditions or perhaps even partly because of them, there was substantial growth in domestic tourism in Australia during the 1920's and 1930's and tropical destinations were eagerly sought out, at least by those who had the opportunity and the means to go. For the state of Queensland, there was no greater attraction to visitors than the Great Barrier Reef, and travel to the tropical north and the reef in particular was actively promoted by the Queensland Government Tourist Bureau. Several boat operators ran chartered tours of the reef and associated islands, these usually

being a combination of sight-seeing or fishing but some with a slant towards organised scientific natural history or what today we would probably term 'eco-tourism' (e.g. the 'Embury Expeditions' - see Hughes (1937) and Appendix 1 (ii)). In the 1930's a number of cruise proprietors worked the Whitsunday and Cumberland Island groups off the Central Queensland coast, among them (Robert) Bruce Jamieson, who had become one of the best known figures of the industry (Fig. 3B, C). His vessel, the '*Cheerio*' (Fig. 3D, E) operated primarily out of Bowen and Mackay and was a 15 m diesel motor and sail-powered (auxiliary) launch christened in 1930 at Frederickton on the Macleay River, New South Wales. It was designed and built by Jamieson expressly for the purpose of Great Barrier Reef and islands tours (commencing in 1934), the potential for which he had realised after visits to the reef in the late 20's and early 30's when he had participated in some of the Embury Expeditions. With a top speed of between

7.5 and 9 knots (approximately 13-16.6 km/hour), berths for 15 people but capable of conveying up to 20, refrigeration, and with the ability to carry or tow glass bottom boats for coral viewing, the 'Cheerio' was one of the better touring vessels for visitors wishing to experience the Great Barrier Reef and environs. Undoubtedly newspaper and magazine stories of the wonders of the reef played a crucial part in attracting tourists and fishing parties (see articles listed in Appendix 1 (ii)). Among the most important draw-cards of the tours was the magnificence of the flora and fauna, in particular the diverse and colourful marine life. While most came for the fishing or were content to just look at the attractive corals and clams, some sought to take home a souvenir of their trip, usually in the form of a piece of coral or shells gathered on a reef walk (Figs 3F, G, 4). As we shall discover, it was the decision to collect shells, specifically a certain species of 'cone shell', that was to prove so tragic for one man.

THE INCIDENT: A DETAILED EARLY ACCOUNT

It seems appropriate to begin this re-examination of the Garbutt fatality (25th June 1935) with a contemporary account based on an eye-witness's fresh recollection of that day. Probably the most detailed newspaper report was published in Ayr in the 'The Delta Advocate' (exact date unknown but possibly 28th or 29th June), and republished in *The Bowen Independent* on the 3rd of July, the day the coroner's inquiry was due to commence. It is significant because it was based on an interview conducted on Thursday the 27th of June with James Breen, one of the holidaying party (and one who had helped attend to the ailing Garbutt), and over six weeks before he gave his witness statement at the Coroner's Court in Ayr on the 13th August. Whether or not Breen relied on the newspaper report for his statement we do not know, but if he did not, then his versions of events recorded on the 27th June and 13th August are reasonably consistent. This story does contain a few factual errors, apparently originating in the reporting rather than the eye witness: for

example, that the "shell and barb were sent to Sydney" (they were actually sent to Brisbane). Nevertheless, it effectively brings to life the dynamics of the day and hence is here cited in its entirety and exactly 'as printed'.

"The full story of the circumstances in which Mr. C. Garbutt lost his life was revealed to our representative, who interviewed Mr. J. Breen shortly after his return to Ayr on Thursday morning (says "Delta Advocate").

The party, said Mr. Breen, had spent twelve days cruising the islands in the launch *Cheerio*, owned by Mr. Bruce Jamieson, of Bowen, and had gone right out to Bushy Island.

After experiencing a most enjoyable cruise, they were making a leisurely return and on reaching Hayman Island, where there is a nice reef from which the water quickly ebbs, leaving myriads of shells of all sizes and descriptions, they decided to make a stop to gather specimens. Every member of the party left the launch to gather shells and all returned to the vessel for lunch, leaving their collections on deck. Charlie had finished his meal first and immediately went up on deck to examine his collection, picking up a cone shell about 3 ins. long and 1 ½ in. in circumference. In order to find its colour he turned it over in his left hand and began to scrape the shell, when he felt a sting in the centre of the palm. Mr. Breen joined him on deck almost five minutes later and, showing him the shell, Charlie said "This shell stung me" and went on to demonstrate what had happened. A second later he said "Do you know, my hand is so numb you could cut it with a knife and I would not feel it". The two men sat side by side on the deck while Charlie pointed out that the prong at the point of the shell from which the sting had issued, using a fish hook for the purpose. Presently he

began to feel all over his lips and mouth and to complain of numbness, informing his companions, who were now concerned "I can't see the hut on the island". He was at once taken below to the cabin and given a dose of brandy, but said that he could not see out of the windows. Offered another nip of brandy he shook his head, managed to mumble something including the word "choke" and never spoke again.

Alarmed at the rapid turn of events, the party made a 20 mile dash for Cannon Valley, which was the nearest point and about 15 miles from Proserpine. Fortunately, a lorry was drawn up on the beach to which the sufferer was transferred with Messrs. Breen and R. Gray in attendance. Meanwhile another member of the party lost no time in telephoning the Doctor at Proserpine, and was informed that he would come out immediately in the Ambulance. To save every precious moment, it was decided to hurry the patient along to Proserpine and the Ambulance was met eight miles along the road. Charlie was alive, but obviously in a critical condition, being almost completely paralysed. He was transferred to the Ambulance with the Doctor and Mr. Breen in attendance, and on reaching Proserpine it was found that he had passed away. It was stated that the poison from the barbed sting directly affected the nerves and flew to the brain, the victim being unable to speak within an hour of the happening, although he appeared not to suffer any pain, being paralysed.

An inquest was held at Proserpine on Wednesday morning, and the shell and barb have been sent to Sydney for examination. It is understood that there are about 500 species of cone shells, the one which injected its deadly poison in the hand of Charlie Garbutt having a kind of feeler about 1½ inches long and about the thick-

ness of the lead in a pencil, from which a very fine sting, like a hair about three-quarters of an inch long was projected. Under the microscope the sting appeared to be barbed from end to end.

The Director of the Queensland Museum, Mr. Longman, says that there are four varieties of poisonous shells in the *Conus* family. The shells themselves were quite harmless and danger from them was only to be expected when the living organism was within. It inflicted the sting by means of a long flexible tongue on which there were thousands of small teeth to be seen on a microscopic examination"

General media coverage at the time

The Garbutt case was widely covered by newspapers across the country from the morning after the death (26th June) onwards until as late as October in 1935 after which references to it become sporadic or woven into more generalised stories of marine life or travelogs (see Appendix 1 (ii)). Many of the earliest articles were brief but some, including the example quoted above, were more substantial and sought also to educate readers about 'cone shells' and how the death appears to have been caused by a sting from something as seemingly innocuous as a sea snail.

By the 1930's the Queensland Museum had, for many years, been compiling scrapbooks of newspaper items pertinent to its collections and/or staff, and some accounts of the Garbutt case from Queensland newspapers appear in the 1923-1948 volume (pages 190-192; Fig. 5). Particularly noteworthy among the cuttings is an article published in the *The Townsville Daily Bulletin* on the Saturday following the death (29th June) featuring a photograph of the specimen believed to have been responsible (and incorrectly identified in its caption as *Conus textile*), shown complete with the retracted animal and a wax vespas (matches) tin included as a scale bar (Fig. 5A). The photograph was credited to a certain 'L. Borserino' of Proserpine, who, after much searching through digitised

newspapers proved to be Louis W. Borserini an honorary ambulance attendant then stationed at Proserpine District Hospital (see Appendix 1 (iii)). [Borserini would go on to have a long career in the Queensland Ambulance Brigade, eventually serving as superintendent at Mitchell, Roma and Tagoolawah in western Queensland]. This illustrated article drew attention to Queensland Museum Director (Albert) Heber Longman's comments on dangerous species of cone snails (*Conus geographus* [as '*Conus geographicus*'] and *C. textile*) which attempted to explain the role of the radular teeth and proboscis (together conflated for the reader as the 'tongue') and their structural relationship with the venom gland. It seems very unlikely that Longman had identified the species as *Conus textile* as he would not have seen the article until it was printed, and we know from his letters (held in Queensland Museum archives) that he did not have a chance to actually examine the specimen itself until the middle of July 1935 when the Queensland Government Analyst (J.B. Henderson) forwarded it to the Queensland Museum. The misidentification as *C. textile* may be attributable to Henry Tryon, the former Government Entomologist, who in an earlier press report (Courier-Mail, 27th June 1935 - see Fig. 5C) ventured the name (as '*Conus textilis*') as the most likely culprit. It remains puzzling as to why the species was not quickly identified as *C. geographus*, even by just a keen shell collector, given the clarity of the Borserini photograph in *The Townsville Daily Bulletin* (29th June) and the fact that *C. geographus* and *C. textile* differ substantially in both shape and colour pattern (see Fig. 1). In another illustrated article, published on the 26th June in *The Telegraph* (p. 6) (Fig 5B), a photograph of two cone shells from the Queensland Museum collection (*C. textile* and *C. geographus* - both shells still extant in the collection) was included, together with a drawing of a single *Conus* radular tooth mistakingly said to illustrate the entire "radula or flexible tongue, showing poison gland and duct of venomous shellfish". The press sometimes found it difficult to interpret information received from scientists, and given that even today we are still unravelling the complexities of *Conus* biology (including aspects of the hunting

process and venom chemistry and effects) this was to be expected. However, some of this confusion must rest with Longman's attempt to over-simplify the facts about cone snails for the benefit of newspaper readers (e.g. that Queensland had four poisonous *Conus* species, when in fact many species occur there, all of which are 'poisonous'; that the 'tongue' could bore into shells (true for murex and sand snails, although not for Conidae)). On the 1st of July 1935, *The Townsville Daily Bulletin* (p. 7) carried a short article on the case, this time seeking out some comments from the doctor who was with Charles Garbutt when he died, Dr Thomas Clouston. Aside from providing some general information on cone snails (which we know from one of his letters that he obtained from a book) the article also contained a reasonably accurate description of the radular tooth and the wound area: "Seen under the microscope the spike which injected the poison was about half an inch long and as fine as a very fine hair. The puncture in the hand was like a fine pinprick". Certainly the novelty of how the death occurred was not lost on the press, as evidenced by such arresting story titles as: 'Deadly Shell. Barbed Tenant Sting Kills' (*The Sun*, Sydney, NSW, 26th June, p. 16), 'Death From Sting Of Shellfish. Beautiful Cone Hides Deadly Spike' (*Border Watch*, Mt Gambier, South Australia, 27th June, p.1) and even the misleading 'Death Sting From Shell. Man Succumbs After Great Agony' (*The Courier-Mail*, Brisbane Qld, 26th June, p.13 - see Fig. 5D) (Appendix 1(i)). In general however, and to the newspapers' credit, there was relatively little in the way of exploitative sensationalism about the fatality, and most of the stories, though often republishing or paraphrasing previous ones (possibly for syndication reasons), relayed the facts, at least as far as they could be ascertained and understood by the reporters. The newspapers also repeated a number of the eyewitness accounts from the Coronial Inquiry hence giving their readers the most comprehensive background to the story possible at the time. The fatality was also discussed in the Australian scientific press, with small articles being published by staff of the Australian Museum (Sydney) (Allan 1935a;

THE FATAL SHELL.

The shell of the fish, which caused the death of Mr. Charles Garbutt. The sting was protruded from the point marked X. The box is introduced as a comparison in size with the shell.

Interviewed in Brisbane, Mr. Longman, Director of the Queensland Museum, stated that most dangerous poison shells were *Conus geographus* and *Conus textile*. The shells of each variety were shown, but he said that the shells of the living organism were within. It inflicted the sting by means of a long, flexible tongue on which there were thousands of small teeth to be seen on a microscopic examination. This tongue also was used for boring into the shells of other sea creatures with a peculiar, rasplike action. At the base of the tongue was a poison gland which secreted the toxin, and the latter was ejected through a tiny duct. Its action was to cause paralysis and prostration and, in extreme cases death.

A Brisbane medical man said, whether the sting would be fatal would depend upon the condition of the victim and, the quantity of toxin injected. There were well-marked local symptoms, followed by muscular pains and then paralysis, after which in some cases there followed collapse and death, the latter generally taking place when the victim was in a state of coma.



"CONUS TEXTILE"
(Photo by L. Borserino, Proseperino).

The Telegraph
WEDNESDAY, JUNE 26, 1935.

Four Kinds of Poisonous Shellfish

Found Widely on Coast

Death of Man in North

QUEENSLAND possessed four varieties of poisonous shell of the Conus family, and it was likely that when the shellfish whose sting was reported to have caused the death of a man at Hayman Island had been identified it would be found to be one of them, said the Director of the Queensland Museum, Mr. Heber Longman, today.

The shells, of which there were four excellent specimens in the Museum, were widely distributed along the Queensland coast to Moreton Bay.

Mr. Longman, the most dangerous from the view point of its toxicity, was *Conus geographus*, while *Conus textile* had the prettiest markings. The shells could be easily identified after an inspection of those in the Museum, and it would be an excellent idea for people likely to come into contact with them to examine those on exhibition.



Mr. Longman explained that the shells of each variety were themselves quite harmless and that danger from them was to be expected only when the living organism was within. It inflicted the sting by means of a long, flexible tongue on which there were thousands of small teeth to be seen on a microscopic examination. This tongue also was used for boring into the shells of other sea creatures with a peculiar, rasplike action. At the base of the tongue was a poison gland which secreted the toxin, and the latter was ejected through a tiny duct. Its action was to cause paralysis and prostration and, in extreme cases death.

EFFECTS OF POISON.

A Brisbane medical man said that while he had not come into contact with a case in which death had followed the sting of one of the Conus family of shells, there were ample records of this having happened. To a large extent whether such a sting would or would not be fatal would depend upon the condition at the time of the victim and the

Courier-Mail
27.6.35.

POISONOUS SHELLS COMMON

Sting Rarely Results in Death

Poisonous cone-shaped shell fish, similar to that which administered a fatal sting to a young man at Hayman Island on Tuesday, are common along the Queensland coast, and have been found as far south as Moreton Island, according to the Director of the Queensland Museum (Mr. H. A. Longman).

The collection at the museum, he said yesterday, included four distinct species of "conus" shell fish found on the coast. Each was noted as being dangerous, and paralysis frequently followed a sting, but so far as was known, death rarely occurred.

The shell housed an elongated "tongue" bearing serrated edges of hundreds of teeth, each equipped with a poison gland. The fact that the shells were handsomely marked made them of interest to the public, but, while the color shell itself was harmless, very careful handling was necessary to avoid a sting from the "tongue."

The living organism within the shell was carnivorous, and the "tongue" possessed the power of boring through the casing of other shells and feeding on the organisms within. In the opinion of the former State Government Entomologist (Mr. H. Tryon) the fatal sting came from a shell fish known as the "textile cone" (*Conus textile*, Lin.), which was common along the Queensland coast. The "conus" was usually drawn into the shell when the latter was disturbed, but Mr. Tryon agreed that incautious handling might well result in a dangerous wound.

He knew of only one previous instance in which death had resulted from a sting. This was in 1915, when a member of the crew of the mission steamer John Williams died within 12 hours of being stung by a "textile cone."

Courier-Mail
26.6.35.

DEATH STING FROM SHELL

MAN STICCCUMS AFTER GREAT AGONY

CHRONICLING, Tuesday.

Charles Garbutt (38), of Art, was stung by a shellfish at Hayman Island, and died while being taken to hospital.

At 8 o'clock this evening a local doctor and the ambulance vehicle received a call to Cannon Valley, where it was stated that a man had been stung by a fish, and was in a serious condition. The ambulance met, immediately, and met a very heavy being the patient's condition was very serious. He was placed in the ambulance, and a death was made of him, that on the way reached the hospital the man died.

Garbutt was a son of Mr. and Mrs. J. Garbutt, well-known Chronicle residents. He was a pleasure cruiser on the Whitewater Island with a number of friends, and they were on their way home when a stop was made at Hayman Island. The party went to the shore and collected a number of shells. Among them was a cone-shaped shell, which was washed.

EXERCISE FAILED

After the party had gone back to the ambulance, the ambulance vehicle returned to Cannon Valley, where it was stated that the man had been stung, and that he had been lying on the ground for some time. The ambulance met, immediately, and met a very heavy being the patient's condition was very serious. He was placed in the ambulance, and a death was made of him, that on the way reached the hospital the man died.

Garbutt was a son of Mr. and Mrs. J. Garbutt, well-known Chronicle residents. He was a pleasure cruiser on the Whitewater Island with a number of friends, and they were on their way home when a stop was made at Hayman Island. The party went to the shore and collected a number of shells. Among them was a cone-shaped shell, which was washed.

FIG. 5. Newspaper articles about the Garbutt fatality extracted by the Queensland Museum Library for its scrapbook. A, Report illustrated with photograph by Louis Borserini of the actual specimen of *Conus geographus* (misidentified as *Conus textile*) responsible for death (from *The Townsville Daily Bulletin*, 29th June, 1935). B, Report illustrated with radular tooth of a worm-eating *Conus* as well as shells of *C. textile* and *C. geographus* (from the Queensland Museum Collection) (from *The Telegraph*, Brisbane, 26th June, 1935). C, The former Queensland state government entomologist Henry Tryon weighs in with a wrong identification of the species involved (from *The Courier Mail*, Brisbane, 27th June, 1935). D, Contrary to this headline Garbutt did not suffer any agonizing pain. (From *The Courier Mail*, Brisbane 26th June, 1935). (All images: G. Thompson, Queensland Museum).



FIG. 6. **A**, Dr Thomas Bennett Clouston (at left) who attended to Charles Garbutt in the ambulance to Proserpine Hospital, here shown at a meeting of the Ex-Sevicemen's War Emergency Association in 1942. **B**, John Brownlie Henderson, the Queensland Government Analyst. He examined the *Conus geographus* specimen sent to him by Clouston and concurred on the cause of death (image supposedly circa 1930 but probably later). **C**, Dr Hugo Flecker (shown here in 1932), published on the case in the *Medical Journal of Australia* in 1936. **D**, (Albert) Heber Longman (circa 1940), Director of the Queensland Museum at the time of the fatality. He correctly identified the species of cone snail involved as *Conus geographus*. (Images: A, Argus Newspaper Collection of Photographs, State Library of Victoria, SLV accession number H99.201/1914; B, State Library of Queensland, negative number 23451; C, Queensland State Archives (Item ID 1212244 (from Flecker's application for registration with Medical Board of Queensland)); D, Queensland Museum Image Library: slide QM 71-024).

Iredale 1935a-d) and in more detail in illustrated papers to the *Medical Journal of Australia* which covered aspects of the case, cone diversity and biology and the past occurrence of cone envenomations (Allan 1935b; Flecker 1936). T.C. Roughley, in his timely '*Wonders of the Great Barrier Reef*' (1936) was probably the first author to incorporate the fatality into a popular book, although, with due consideration to the family, omitting Charles Garbutt's name. Press coverage of the event faded quickly however, and even in travel cruise articles relating to the Whitsunday Islands (including those involving the '*Cheerio*') it is usually not mentioned (see Hou, 1938). Perhaps, and for obvious reasons, it was seen as being detrimental to reef tourism, although it is also worth noting that in articles appearing in the late 1930's some authors of travelog stories about reef trips used the word 'paralyser' in connection with some marine snails, presumably the more dangerous species of Conidae (see Coombs 2010).

Expert Opinion: correspondence between Clouston, Henderson, Flecker and Longman

A small but important group of letters pertaining to the Garbutt fatality, and written in the days and months after it are held in the archives of the Queensland Museum Library. It appears to be, as far as the present writer can ascertain, the only surviving correspondence between the four key professionals involved in analysis of the biological evidence: Dr Thomas Bennett Clouston (1878-1962), the Proserpine District Hospital physician who was with Garbutt when he died and later performed the post-mortem; Dr. Hugo Flecker (1884-1957), both a physician and pioneer researcher based in Cairns who had long been interested in poisonous animals and plants of Queensland; John Brownlie Henderson (1869-1950), the long-serving Queensland Government Analyst (from the Government Chemical Laboratory in Brisbane) and lastly (Albert) Heber Longman (1880-1954), then Director of the Queensland Museum, and a zoologist of considerable and wide experience (Fig. 6) (for further background to careers of Flecker, Henderson & Longman see Gibbney 1983; Gill 1986; Pearn

1996; Turner 2005). We are fortunate that all of these individuals saw the significance of the case to Australian science and furnished each other with copies of their exchanged correspondence because, in many instances, only the copies have survived. The letters are very informative and provide a unique window into the aftermath of the fatality as seen from the scientist's perspective. As all are unpublished, the opportunity is here taken to reproduce the more significant examples and, after each of them, offer commentary on their contents. It is surprising that neither Clouston, Henderson, Flecker nor Longman was asked to provide a statement at the Coronial Inquiry and I can find no evidence to indicate that any of the correspondence quoted below was examined by the courts. The letters are reproduced verbatim.

Letters from Dr. T.B. Clouston (Proserpine District Hospital)

(A) Clouston to Henderson (26th June, 1935)

Clouston wrote to the Queensland Government Analyst J.B. Henderson on Wednesday the 26th of June 1935, the day after the incident, giving a reasonably detailed summary of what had happened, particularly the steps leading up to Garbutt's death. The typed copy, is marked 'Copy' (typed) and although bearing Clouston's name, is, as would be expected, not actually signed by him.

"Copy
Proserpine
N. Queensland
26.6.35
The Government Analyst,

Dear Sir

Sorry to worry a busy man but I thought you might be interested in this case. Yesterday a man - Charles Hugh Garbutt aet 27 a member of a fishing party at Hayman Island met his death in an interesting way. About noon at low water the party gathered shells on the coral reef, later about 2.30p.m. in their launch Garbutt was examining a cone shell fish

and it stung him in the palm. He took no notice. There was no pain. After a time his hand became numb and about 20 minutes after the sting he complained that his lips were feeling numb. 10 minutes after than he said his sight was failing but his mates only laughed at him. Sometime after this about 15 minutes his legs became useless & he could not stand up and his mates realised that he was very ill. They came over to the main land and I met the party at about 7 o'clock. The man Garbutt was then deeply unconscious, pupils dilated, no corneal reflex and pulse very faint. We placed him in an ambulance but he died just before we [we] got him to hospital at about 7.30 or five hours after the sting. The period of unconsciousness was about 3 ½ hours. At the request of the Coroner I did a post-mortem this morning and found nothing abnormal, no sign of gastric or intestinal irritation, lungs & heart clear, at sides of heart a bit engorged. So I gave as my opinion as to the cause of death – sting from a cone shell fish, acute toxemia.

Under separate cover I am sending to you

- (1) The actual shell fish which stung Garbutt. Extract from a book that I found. "The cone-shells are essentially tropical molluscs and seem to be most common in coral reefs, nearly 500 different species are known. The cone shells are remarkable for a poison gland connected with the radula". The shell fish is at present alive and from the narrow end projects a tongue-like organ about the size of a small lead pencil. From the tip of this the sting protrudes. (Name) Gastropod-stenioglossa - Conidae.
- (2). The sting of the cone-shell fish (between 2 slides)
- (3) A portion of the stomach (pyloric end) and contents in case you wish to exclude any possibility of poisoning by swallowing

to make opinion as to cause of death more accurate from a scientific point of view.

If the shell-fish should be sent to someone else would you kindly do so.

Yours truly,
(signed) T.B. Clouston"

Comments. From this letter, written on the same day that he had performed the post-mortem and submitted the relevant official certificate to Police, we learn details of the event as Clouston understood them. He does not indicate from whom he had obtained his information on the circumstances of the sting or the symptoms shown by Garbutt after being stung (other than those he could observe himself in the ambulance), but we can presume that he spoke to friends from the boat who had attended to Garbutt and Jamieson the skipper of the 'Cheerio'. Being a very experienced medical doctor, Clouston astutely recognised the importance of the case and, not only promptly completed his work on the deceased as far as he could, also insisted on contacting the Queensland State Government Analyst (Henderson) to confirm his suggested cause of death. He also had the foresight to secure the specimen that had been responsible - remarkably still alive on the 26th June, so presumably kept in sea water overnight - and then send it and its 'sting' and tissue samples from the deceased to Henderson for chemical analysis. Clouston also clearly indicates that he would leave it up to Henderson to determine who else might want to examine the cone specimen. It is not certain from which book the quotation (in Item (2)) is taken from, but Clouston later re-quoted it to the press for an article in the *The Townsville Daily Bulletin* (1st July, 1935, p. 7). The 'tongue-like organ' is undoubtedly the flexible and highly extensible proboscis which delivered the fatal 'sting'.

(B) Clouston to Henderson (10th July, 1935)

"Copy
Proserpine
10.7.35
J. Henderson Esq.

Dear Sir,

Many thanks for your letter. I have been in touch with Dr. Fletcher [sic] of Cairns in the matter of the shell fish and he says it is definitely not *C. Textilis* the shell that caused the fatality at Mare Is. so I would be very much obliged if when you send the shell to the museum you would ask them to let me know its identification. Dr. Fletcher says from the photograph it most resembles *C. striatus*. I have asked the boat men in this locality to obtain other specimens of this shell but so far they have not done so. I am glad you were able to exclude alkaloids in the stomach because that makes my diagnosis much more certain.

Yours truly,
(signed) T.B. Clouston"

Comments. The 'Fletcher' in this letter is obviously Dr Hugo Flecker of Cairns who had been, from the outset, keen on establishing the identity of the species of *Conus* responsible for the Garbutt death. Although Flecker was correct in concluding that the species was not *C. textile*, his suggestion of *C. striatus* was also wrong, but understandable given that *C. striatus*, like *C. geographus*, has a cylindrical shell with dark, broad mottling and a wide (anterior) aperture (See Fig. 1). The general confusion about the species identity was perhaps to be expected considering that most Australian medical practitioners of the day would not have had ready access to literature for identification of *Conus* species. Clouston was clearly pleased to hear that Henderson's results were at least supportive of his own conclusions, ruling out poisoning via ingestion. His efforts to obtain more live specimens of the cone may have been more for Flecker's research rather than for Henderson to perform any chemical analysis of the venom (and who had already indicated how difficult such work would be in his reply to Clouston of the 6th July 1935 – see below).

Letters from John Brownlie Henderson (Queensland Government Analyst)

(A) Henderson to Clouston (6th July, 1935)

"Government Chemical Laboratory
Brisbane
6th July 1935'
Dr. T.B. Clouston
Proserpine, N.Q.

Dear Sir,

Your letter and sample of the 26th June were duly received and examined.

As the amount of material for chemical analysis was small the whole of it was used in an examination for alkaloids but no alkaloids were found.

Judging from the circumstances I think the evidence so overwhelming that your diagnosis was correct. Many thanks for the interesting exhibit of the shell fish and the sting.

I of course made no attempt to isolate any poison from the shell fish as that would probably involve several months' work and the use of a considerable number of shell fish ere sufficient of the poison could be obtained to determine its composition and properties.

If you have no objection I would like to send the shell fish along to the Queensland Museum where it could be added to their classified collection.

Yours faithfully,
(signed) J.B. Henderson
Government Analyst"

Comments. Clouston had wanted confirmation that his post-mortem conclusions were sound, and had also needed to rule out any possibility of accidental poisoning. Henderson's reply was reassuring. Henderson also realised that he would need more specimens of the cone snail in order to attempt any analysis of the

venom, and at least for the purpose of the case, also knew that such analysis was unnecessary given the strong evidence of witnesses as to what had transpired. His decision to send the specimen to the Queensland Museum rather than retaining it indicates that he had not been requested to forward it (as evidence) to the Police in Brisbane or to the Coroner's Court in Proserpine.

(B) Henderson to Longman (12th July, 1935)

"Brisbane, 12th July 1935
The Director
Queensland Museum
Brisbane.

Dear Mr. Longman,

Enclosed herewith please find copies of correspondence with Dr. T.B. Clouston in reference to the death of Mr C.H. Garbutt, near Proserpine, from the sting of a shell fish. I also enclose the actual shell fish which caused death, and the sting, as received from Dr. Clouston.

As you will see he desires you to identify the shell for him, and seemingly, to keep the shell. Please let him know directly and thank him for the shell.

Yours faithfully
[signed] J. B. Henderson
Government Analyst"

Comments. Henderson, as per Clouston's wishes, makes sure that the specimen and the microscope slide containing the 'sting' (radular tooth) of the specimen associated with the death is deposited with the Queensland Museum. While both the specimen and the slide were definitely received by the museum (and each registered) only the specimen appears to have survived today (QMMO 1689).

Letters from Dr Hugo Flecker (Doctor, Cairns)

Hugo Flecker, a well-respected medical doctor and pioneer worker on the effects on

humans of dangerous Australian animals and plants, had shown immediate interest in the death of Charles Garbutt and quickly wrote both to Clouston and Heber Longman wanting to know more about the case. The following hand-written letter to Longman sheds significant light on the state of medical knowledge in Australia at the time in relation to the dangers of venomous Australian marine animals, and in particular, cone snails.

(A) Flecker to Longman (29th June, 1935)

"70 Abbott Street
Cairns, NQ
29th June

Dear Mr Longman,

Dr Clouston writes that he has forwarded to you the species of *Conus* responsible for the fatality at Hayman Island. He has meanwhile forwarded to me, filled in in great detail, the form prepared by the Registry of Injuries Caused by Plants and Animals in Tropical Queensland.

At the recent Medical Conference in Cairns in March last, I exhibited a specimen of *Conus textilis* & quoted the report of a fatal case at Mare Is. in the Loyalty Group, as recorded 6th Report of Microbiological Lab. (N.S.W. Govt. Bur. of Microbiology for 1915 (p.164). I believe the Hayman Island case the first one actually reported from Australia in the literature.

I propose to initiate experiments firstly to determine the mechanism of the sting as (a) the source quoted attributes it to barbs in the mantle while (b) Hutchinson's *Animals of All Countries* states the poison gland is associated with the radula (p. 70-76).

I would be glad to learn of the identity of the *Conus* & meanwhile, I hope to get another specimen (or later live specimens) from Dr. Clouston.

Kindly greetings & best of wishes

Yours sincerely
H. Flecker

I am acting as Registrar for this Registry which is conducted by the B.M.A.”

Comments. This letter is important for several reasons. We learn that Flecker’s interest in cone snails and their known threat to humans existed well before Garbutt’s death, and that he had correctly surmised that the case was the first recorded fatality from a cone snail in Australian waters. The 1915 case he refers to from the literature (Mare Island, Loyalty Group) was said to be from *Conus textile* (misspelt ‘textilis’ by Flecker possibly deliberately – see Extract from 4th August letter below) and he was keen to confirm whether this was also true for the Garbutt case. As registrar for the newly established ‘Registry of Injuries Caused by Plants and Animals in Tropical Queensland’ he had earlier (in late March or in April 1935) made available to doctors, including Clouston, a questionnaire in which to record details of any cases known to them. Clouston was evidently very quick to respond with full details of Garbutt’s death (his completed form is presumed now lost). However, it is uncertain as to why Flecker should say that Clouston had informed him that the specimen responsible for the death had been forwarded to Longman at the Queensland Museum when in fact Clouston clearly states in his letter of the 26th June to Henderson that he (Henderson) was to be the recipient of the specimen and letting him determine who else it should be sent to. Unfortunately, Clouston’s letters to Flecker which may have clarified this point could not be found. Clouston’s detailed account of the case, which according to Flecker’s letter was contained in the completed questionnaire for the ‘Registry of Injuries Caused by Plants and Animals in Tropical Queensland’, was subsequently used by Flecker in his paper on cone snail injuries for the *Australian Medical Journal* (Flecker, 1936). Surprisingly Flecker (1936, p. 466) cites Clouston as giving the date of the Garbutt death as “June 27, 1935” which was two days after the event and actually the day of the funeral in Townsville. Cleland (1942) has previously noted this discrepancy of dates,

getting confirmation from the Bowen Registrar of the correct date (i.e. 25th June).

Typed extract from letter (4th August, 1935) to Longman:

“.....Many thanks for details of C. (or Nubecula) geographus. I have no specimen of this species available in Cairns and those promised from Haymen [sic] Island have not yet arrived. I have written for a reprint of Japanese article which you so kindly quoted. Meanwhile I will write up the very full notes which I have received from Dr. Clouston of the clinical symptoms which will probably appear in the Medical Journal of Australia.

With *Conus textile*, *C. geographus* and *C. nussatella*, there does not appear much respect for grammatical forms.”

Comments. Obtaining literature on the subject of cone snail envenomations was obviously not an easy task in 1935. The “very full notes which I have received from Dr. Clouston of the clinical symptoms” is that contained in the questionnaire completed by Clouston for Flecker’s ‘Registry of Injuries Caused by Plants and Animals in Tropical Queensland’. The whereabouts of Clouston’s completed form are unknown. Flecker apparently preferred to refer to *Conus textile* as ‘*Conus textilis*’ in his communications apparently on the basis of grammatical aspects!

Letters from Heber Longman (Queensland Museum)

(A) Longman to Clouston (20th July, 1935)

“[To] Dr. T.B. Clouston
Proserpine, N.Q.
20th July, 35.

Dear Sir,

Through Mr J.B. Henderson, the Queensland Government Analyst, I have received the Cone shell from Hayman Island associated with the death of Mr.

C.H. Garbutt. This proves to be *Conus geographus* Linnaeus, which is apparently a less common species than *C. textile*. As some modern authorities prefer to divide the species of *Conus* (in the wide sense) into a number of genera and sub-genera, it should be mentioned that this shell is also listed as *Nubecula geographus*.

In view of the tragic circumstances, I appreciate your action in making this shell available for our collections as a definite record.

I have forwarded information and references to Dr. Flecker of Cairns, with whom you have correspondence, and doubtless you will hear from him again.

The fragments sent on the slide do not resemble the typical margin teeth figured for some species of poisonous cones, but we have no special knowledge of these.

Your efforts to obtain further specimens for research are appreciated.

Yours faithfully,
DIRECTOR"

Comments. In this letter Longman, as requested by Henderson (12th July letter), formally thanks Clouston for his diligence in securing the specimen of *Conus geographus* responsible for Garbutt's death and for ensuring that it was deposited in the Queensland Museum collection as a confirmed record both of the species and the event. However, the most significant part of the letter is Longman's statement about the microscope slide Clouston had prepared, supposedly of a radula tooth (or the 'sting' as it was often referred to). Clearly Longman was not convinced that the slide contained such a tooth but had to admit that the museum had "no special knowledge" on the subject. But this does raise the issue as to what was on the slide – was it radular tooth from the cone snail or something else? Given the fact that the slide cannot be located in the Queensland Museum collection today it is impossible to be sure.

However Clouston's description of the 'sting' as being "about half an inch long and as fine as a very fine hair" (quoted in the Townsville Daily Bulletin, 1st July, 1935) is fully consistent with the shape and size of *Conus geographus* radular teeth (see Endean & Rudkin 1965; Thompson & Bebbington 1973; Dutertre *et al.* 2016).

Longman sent essentially the same letter as this one to Flecker on the same day (20th July), but added a note, in connection with *Conus geographus*, that "a Japanese, P. Sugitana in 1930 cites a case of poisoning by this species, but the publication, *Venus* (Tokio II, 3, 1930, p.151) is not available here". [The 'P. Sugitana' reference is that by F. Sugitani (Sugitani, 1930)]. He also sent him a paper (not specified) from the Records of the Australian Museum which Flecker had sought.

(B) Longman to Henderson (25th July, 1935)

"[To] Mr. J.B. Henderson, F.I.C.
Government Analyst, Brisbane, Q.
25th July, 35.

Dear Mr. Henderson,

The attached copies of letters to Dr. T.B. Clouston, Proserpine, and Dr. Flecker, Cairns, relating to the *Conus* shell from Hayman Island may be of interest to you.

With appreciation of your action in forwarding this shell to the Queensland Museum,

I am,
Yours sincerely,
DIRECTOR"

Comments. Like Clouston, Henderson and Flecker, Longman was pleased to send and receive copies of important correspondence, recognising their scientific and historical value. Longman was always courteous in acknowledging receipt of donated material to the Queensland Museum collections, and in this case, also ensured that the Queensland Government Analyst's Office knew that material had been safely received

and would be available for any subsequent consultation.

The Coronial Inquest

As no death certificate was issued on the day of the fatality (25th June) a Coronial Inquest was convened, initially, at the Proserpine Coroner's Court on the 3rd to 5th of July 1935 with Charles A. K. Morrison presiding, assisted by Constable David C. McQuaker. Some five weeks later (13th August) the inquest continued at the Ayr Coroner's Court, with A.M. Taylor presiding, assisted by a 'Sergeant Galligan', and concluded by Morrison at Proserpine court on the 16th of August. The first three witnesses gave their statements at Proserpine: Constable McQuaker (who was present at the morgue at Proserpine District Hospital on the morning of the post-mortem (26th June)), Robert Bruce Jamieson (owner and skipper of the '*Cheerio*') and Robert Fred Bartlett Superintendent of the Proserpine centre of the Queensland Ambulance Transport Brigade (who had driven the ambulance and Dr Clouston to take Garbutt to Proserpine Hospital). The final two witnesses called gave their statements at Ayr: importantly both were members of the touring party (Joseph Malachy Breen of Ayr, a general carrier, and Robert John Gray of Ayr, a cane farmer). Considering the extremely unusual nature of the fatality, it is somewhat surprising that only five witnesses were called to give statements. For example, T.B. Clouston, the doctor who took charge of the unconscious patient in the ambulance to Proserpine Hospital and later carried out the post-mortem, was not asked. Possibly he was not available at the time. Certainly the court already had possession of the post-mortem certificate issued by him on the 26th June which clearly indicated his conclusions as to the likely causes of death (listed in order as "(1) sting from a cone shell fish; (2) acute toxæmia; (3) cardiac failure"). Presumably the court may also have inspected any other notes prepared by Clouston on the case, but if so, there remains nothing in the Coronial Inquest papers (Queensland State Archives Coronial Inquest 521/35) to confirm this. As Clouston was an experienced and highly respected

doctor, and as he had performed the required post-mortem and provided the Queensland Government Analyst with relevant materials for expert opinion (i.e. the *Conus* specimen causing the death, a microscope slide with the 'sting', and tissue samples from the deceased), the court presumably felt this adequately covered medical aspects of the case. We know from the letter that Henderson (Queensland Government Analyst) wrote to Clouston on the 6th July 1935 that he agreed with him as to the likely causes of death, but again there is nothing in the Coroner's Inquiry file (521/35) to indicate that Henderson was ever asked for evidence or provided any correspondence from Clouston regarding the death.

Each of the five witnesses called to give statements obviously did so on the basis of what they knew and the extent to which they were involved: hence Constable McQuaker could comment only on the fact that he received from Clouston the post-mortem certificate and re-state its conclusions; and Superintendent Fred Bartlett who drove the ambulance could only relate the journey from Proserpine District Hospital (with Clouston), to meet the lorry from Cannon Valley carrying Garbutt, as well as the journey back to the hospital. It was the three witnesses from the '*Cheerio*' (Jamieson, Breen and Gray) that were really the keys to establishing what had happened. Although there are minor differences in their recollections of the events in the immediate period following the stinging, the statements are generally in good agreement (Appendix 2). These three witnesses all agreed that the '*Cheerio*' had been anchored at Hayman (Island) Reef, either before or just after midday and that all passengers went on a reef walk, partly to gather shells. All members of the party returned to the boat by 1.30 pm and left their shell finds on deck, then went to lunch below deck. Garbutt had reportedly told Breen that he had collected a 'cone shell' and Jamieson remembers Garbutt attempting to clean the surface of the shell with a fish scaler before he broke for lunch. It was following lunch, sometime between 2-2.30 pm that Garbutt was stung by his cone specimen, after which he then tried to show Jamieson, Breen and

Gray (and possibly others) how it happened by trying to induce the snail to try again. Soon after the stinging Garbutt complained of numbing on and around the hand then the mouth, followed by rapid impairment of eyesight and subsequent loss of limb control. By 3.00 pm Breen and Gray had Garbutt retire below deck and Breen offered him some brandy to help his anxiety, but by about 3.30 pm his condition steadily declined and skipper Jamieson weighed anchor and headed immediately for Cannon Valley to seek medical help. During the two and-a-half-hour journey to Cannon Vale, Garbutt had lost consciousness, and as soon as the 'Cheerio' arrived at Cannon Valley the doctor (T.B. Clouston) at Proserpine District Hospital was called. A lorry conveyed Garbutt along the Cannon Valley to Proserpine road to meet the ambulance and doctor, after which he was conveyed to the hospital but died just as the journey was completed.

The 'Certificate of Particulars - Inquest of Death' issued by the Coroner Charles Morrison found no suspects and no suspicious circumstances and stated the 'Supposed cause of death' to be a "sting from a cone shell fish" in keeping with Dr Clouston's post-mortem certificate (although Clouston had added 'acute toxæmia' and 'cardiac failure' as additional factors). The documents associated with the inquest are today housed in the Queensland State Archives (Brisbane) (ID 349592; Inquest Number 521-1935).

Post-Coronial Evidence

Immediately following the Coronial Inquiry little new evidence relating to the death was published. Hugo Flecker, in his paper to the *Medical Journal of Australia* (Flecker 1936) did present a précis of information said to have been forwarded to him by Clouston soon after the fatality on a questionnaire form provided by Flecker. Although the basics of this information are correct, it is uncertain as to why Clouston is quoted in the paper as having received his facts about the stinging from "CHG's mother who was with him at the time". This is the first time Garbutt's mother (Margaret Garbutt of Townsville) is mentioned in any account of the story and it is certain that she was not a

member of the 'Cheerio' touring party and it is highly unlikely that she was at Cannon Valley (the present day town of Cannonvale) when the boat pulled in there given that the cruise was due to finish much further south at Mackay. Flecker also states that Clouston gave the date of the death as "June 27, 1935" - two days after the actual event. Again it seems unimaginable that the doctor who was with Garbutt when he died and who had performed the post-mortem should then provide the wrong date of death to Flecker in the first few days after it occurred (Cleland (1942) has already drawn attention to this inaccuracy in Flecker's paper). Unfortunately, the original questionnaire completed by Clouston or any other case notes he may have provided to Flecker are not locatable and have probably not survived.

Seven years after the fatality the notable South Australian pathologist and naturalist John B. Cleland published further details on the incident in a larger report on the diverse injuries to humans from animals in Australia (Cleland, 1942). This was based on information provided by the captain of the 'Cheerio' R. Bruce Jamieson to Joyce Allan (then Assistant Conchologist to Tom Iredale at the Australian Museum), and passed on by her to Cleland. It is worth quoting the relevant part of Cleland's paper (p. 318) in its entirety as it reveals important new information on the circumstances associated with the immediate aftermath of the 'sting' and on Garbutt's health before the event:

"Miss Joyce Allan kindly supplied me with the following information, which was obtained from Mr. R. Bruce Jamieson, master of a motor launch that was on the scene at the time. Miss Allan has further stated that prostigmin was suggested as a likely antidote:

"The victim of the Cone shell poisoning was scratching the epidermis off a shell, since identified as *Conus geographus* (Dr. Cleland will recall this was the species which poisoned a European woman in Fiji), when the animal apparently shot out its proboscis and discharged a poison dart into the flesh of his hand. Little pain was experienced, however, but about an hour after, when he had returned to the boat from the reef, the victim complained

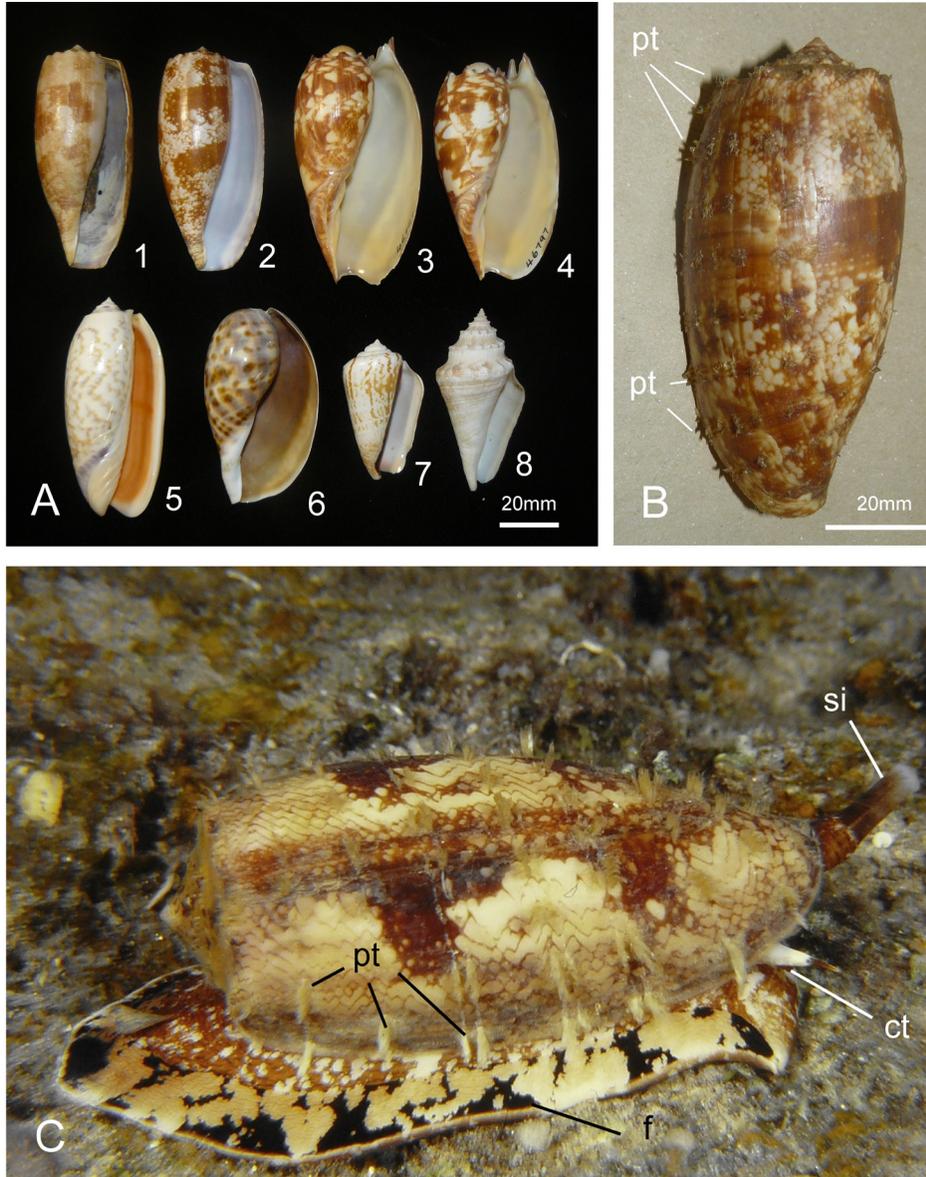


FIG. 7. **A**, Shells of *Conus geographus* shown alongside those of harmless reef gastropods which could potentially be mistaken for cone snails. (1,2) *Conus geographus* (Garbutt case shell from Hayman Reef (1) (QMMO1689); another Hayman Reef specimen (2) (QMMO81326)); (3,4) Juveniles of the volute *Melo amphora* (Volutidae); (5) Olive snail *Oliva seriacea* (Olividae); (6) Juvenile (bulla stage) of tiger cowrie *Cypraea tigris* (Cypraeidae); (7) Juvenile red-mouthed stromb *Conomurex luhuanus* (Strombidae); (8) Juvenile of common spider shell *Lambis lambis* (Strombidae). **B**, *Conus geographus* shell with dried periostracal tufts arranged in rows (arrows) (QM specimen, Rainbow Channel, North Stradbroke Island, QMMO81323). **C**, Crawling specimen of *Conus geographus*, 10 metres, Milne Bay. Note periostracal tufts (pt), foot (ft), cephalic tentacle with eye (ct), siphon (si), proboscis sheath (with contained proboscis) (ps). (Images: A,B, J.M. Healy, Queensland Museum; C, Neville Coleman Slide Collection (Queensland Museum)).

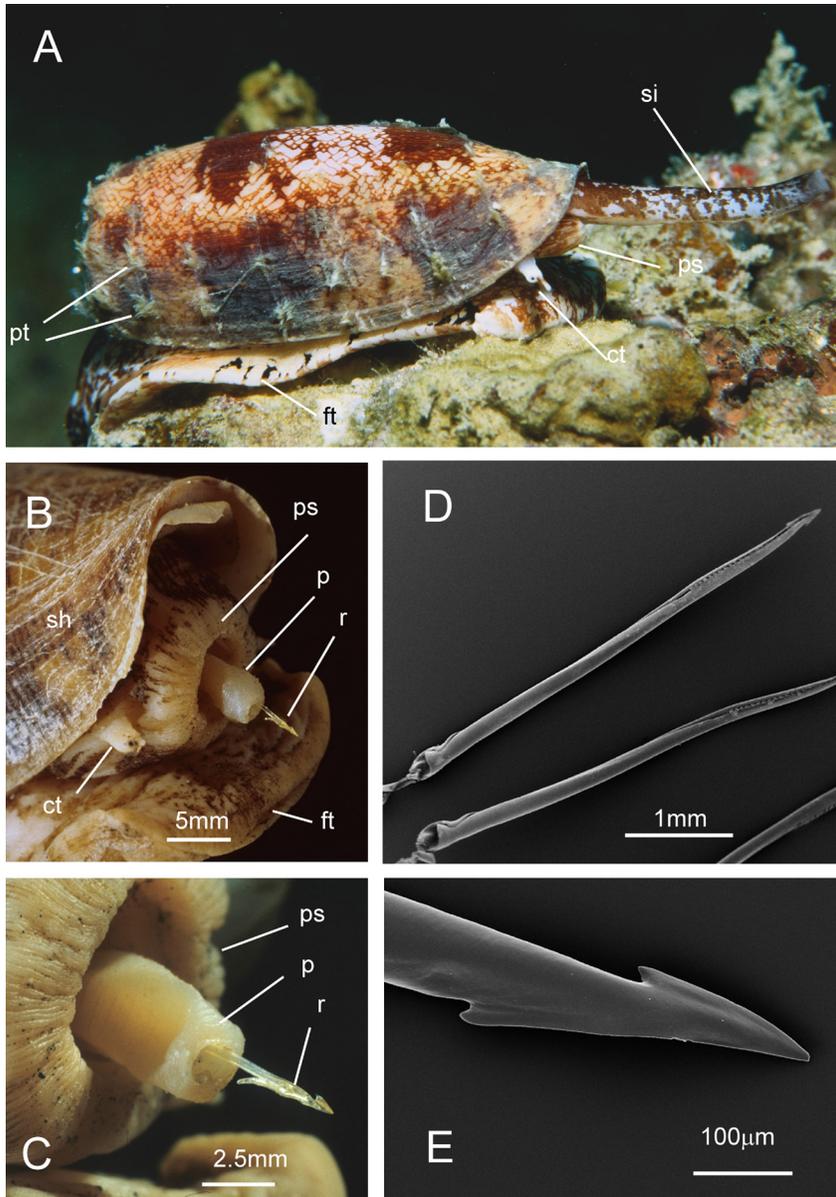


FIG. 8. **A**, *Conus geographus* crawling. Note periostracal tufts (pt) (and significant area of missing periostracal covering), foot (ft), siphon (si), cephalic tentacle with eye (ct), proboscis sheath (ps). **B**, Emergent radular tooth (r) in preserved specimen of the fish-eater *C. striatus* shown in relationship to the foot (f), proboscis (p), proboscis sheath (ps), cephalic tentacle and eye (ct) and anterior region of shell (sh) aperture. **C**, Detail of emergent radular tooth (r) of *C. striatus* (note barbed tip) in relation to proboscis (p) and proboscis sheath (ps), **D**, Scanning electron micrograph (SEM) of two entire radular teeth of fish-eater *Conus tulipa* showing barbs (on tip) and small serrations on anterior portion of shaft (ex QMMO85908, Bloomfield Reef, Great Barrier Reef). **E**, SEM detail of barbs of radular tooth of *C. tulipa* (same source as Fig. 8D). (Images: A-C, Clay Bryce, Western Australian Museum; D,E, E. Lovas, University of Queensland (Healy and Lovas unpublished).

of his eyesight being affected. He gradually became drowsy, a condition explained by the owner of the launch as being very similar to that caused by snake-bite. He was walked about, and attempts made to prevent him from lying down, but as the drowsiness became worse, it was decided to take him to the mainland, a distance of 18 miles, which was covered in about 1½ to 2 hours, but by the time the mainland was reached, the patient was in a coma. There appeared to have been no distressing symptoms, beyond the drowsiness and the first pain when the animal struck his hand. The patient was landed at Cannon Valley and taken by, it is understood, an ambulance to Proserpine, but died before he reached the district hospital there. The deceased was in his early twenties. Mr. Jamieson said he irritated a similar Cone shell himself afterwards, and it discharged a loose sharp-pointed dart, which was transparent and had a small sack filled with yellow matter at the base. Mr. Jamieson in a letter to me stated that there was a gradually increasing dullness of sight attended by numbness of the jaw muscles extending slowly to the rest of the body. There was very little pain in the region of the sting (the centre of the palm of the hand). His symptoms became alarming about an hour after the sting, though noticeable half an hour earlier. He was semi-conscious and very weak in two and a half hours and completely unconscious in three to three and a-half-hours, gradually weakening till death about four and a half hours after being stung. His friends told Mr. Jamieson that he had been subject to "turns" without apparent cause, showing much the same symptoms in a lesser degree on two previous occasions, and for this reason little notice was taken of his condition until it became alarming.' "

Comments. A few details from this account are clearly not correct such as the assertion that the envenomation had occurred while on the reef-walk (it had occurred on the boat after the reef-walk and in fact after lunch) and Garbutt's age being said to be 'early twenties' (he was actually 27). However aside from these errors, it is of considerable importance to learn that Garbutt had been known by his trip

companions to suffer 'turns' with "much the same symptoms" on "two previous occasions". No doubt this propensity for sudden ill-health, and the apparently mild initial effects of the 'sting', had led all on board the boat to not at first regard the stinging as life-threatening, and hence the long delay (1-1½ hours) in beginning the voyage to the mainland and medical help. This information also fits with T.B. Clouston's comment to J.B. Henderson (Queensland Government Analyst) (26th June, 1935) that Garbutt's friends had initially "laughed at him" before realising the seriousness of the situation. We do not know the nature of Garbutt's previous 'turns' or where they occurred. Possibly he had a pre-existing but undiagnosed cardio-vascular condition, epilepsy or had a hyper-allergic reaction to what was already a potentially lethal venom, any one of these problems could have rendered the cone snail 'sting' fatal. That Garbutt had apparently shown essentially the same symptoms on two previous occasions begs the obvious question - had he been stung by cone snails before? (and we know from Jamieson's coronial statement that Garbutt had also visited Hayman Island in 1934 - was this one of those occasions?). Jamieson's comment that he had later induced a 'similar cone shell' to eject a sting (with venom) is also of interest as it helped him confirm Garbutt's claim of having been 'stung' by a marine snail. However, this experiment was not mentioned in his coronial statement, nor indeed was the revelation about Garbutt having been subject to 'turns' mentioned by Jamieson, Breen or Gray in any of their statements. As to what cone species Jamieson had prodded is not known. The word 'similar' is too vague to draw any conclusions from, although the fact that Jamieson could actually see the radular tooth in his specimen suggests it would likely be a species known to have long radular teeth. This would include *C. geographus* (13 mm - Dutertre *et al.* 2016), *C. textile* (8-10 mm - Shaw, 1914; 15 mm - James, 1980;) and *C. striatus* (10.6 mm - Kohn, 1956; 13.3-15.1 mm - Franklin *et al.* 2007) but probably exclude *C. tulipa* (4 mm - Shaw, 1914; present study - see Fig. 8D,E) or any of the large vermivorous cones (e.g. *C. virgo* (1.7-2.4 mm), *C. leopardus* (0.7-1.6 mm) - Franklin

et al. 2007). While it is entirely possible that a second specimen of *Conus geographus* was collected by the reef-walking party, it seems more likely that Jamieson had been handling a specimen of the much more common *C. textile* or *C. striatus*, the latter not dissimilar in shell shape and mottling to *C. geographus* (see Fig. 8B, C for the protruding radula tooth in *C. striatus*). There is, however, no reason to doubt that the specimen of *C. geographus* in the Queensland Museum (QMMO1689) which had been sent by Clouston to Henderson and thence by Henderson to Longman at the Queensland Museum is indeed the specimen responsible for the fatality.

Conus geographus - deadliest of the Conidae

Of the 133 species of Conidae occurring in Queensland waters (Jon Singleton, pers comm, 2009,) at least 85 can be found on the Great Barrier Reef and its associated islands (based on Queensland Museum collection holdings). Jarrett (2011) records 39 species of *Conus* from the Whitsunday Islands. The Queensland Museum has specimens of several of these species collected from Hayman Island Reef (Fig. 1) including *Conus geographus*, so it could be said that the chances of finding at least one live cone snail on a reef walk at that particular locality are good. However, *C. geographus*, despite having a very wide range throughout the Indo-West Pacific and frequently seen in collections, is not considered a particularly common species at any given locality (including the Whitsunday Islands – see Jarrett, 2011). In addition, the shell of this species being almost cylindrical in shape, frequently thin (solid usually only in large, old adults) and with a very wide aperture, certainly does not look like a typical ‘conical’ species of Conidae (Fig. 1). Specimens could easily be mistaken by a non-expert for a number of harmless and unrelated snails such as juvenile baler volutes (*Melo* spp), olives (*Oliva* spp), certain strombs, or ‘bulla stage’ juveniles of large cowries such as *Cypraea tigris* (for a visual comparison of these see Fig. 7A). Some newspaper reports on Garbutt’s death suggested that he may have been drawn to collect the cone specimen because of its

allegedly beautifully-patterned shell. While it is true that shells of many species of Conidae do exhibit colours and/or patterns that are eye-catching (e.g. *C. textile*, *C. marmoreus* – see Fig. 1) the same cannot generally be said for *C. geographus*, with its camouflage-like pattern of mottled brown or reddish-brown, interspersed with irregular white patches composed of tiny triangles (Figs 1A, 7B, C 8A, 9B). By contrast, the animal of *C. geographus* (Figs 7C, 8A), particularly the large foot, is considerably more attractive than the shell, so it is entirely possible that the sight of a crawling specimen may have caught Garbutt’s attention.

Conus geographus is a well-documented fish-eater and the most injurious to humans of all Conidae species (Endean & Rudkin, 1965; Yoshiba, 1984), with 60 envenomations and 26 confirmed fatalities ascribed to it (Kohn, 2016). It is mostly a night-time feeder like other cones, especially on incoming tides, and is usually found on or under rocks, coral slabs or rubble during the day (Coleman, 1975, 1999, 2003; Röckel *et al.* 1995; Jarrett, 2011; Queensland Museum collection records). The feeding strategy of *C. geographus* and related species such as *C. tulipa* has been termed ‘net-feeding’ or ‘net-engulfment’ and involves the animal first expanding its proboscis sheath into a broad, trumpet-shape as it homes in on the target fish (chemosensory), and then emitting a squirt of venom (containing an insulin) from the proboscis to partially stun the intended prey (Olivera *et al.* 2015). Once the fish is enclosed by the now capacious proboscis sheath it is then envenomated and consumption begins (Johnson & Stablum, 1971; Cruz *et al.* 1978; Yoshiba, 2002; Olivera *et al.* 2015, 2017). According to Johnson & Stablum (1971), if the shell of living *C. geographus* in shell size range 50-87 mm (subadult) is subjected to external pressure or is damaged, the proboscis immediately extends towards the affected area. They concluded that the animal is, in such circumstances, acting primarily defensively (i.e. it assumes it is being attacked). Endean & Rudkin (1965) noted that specimens of *C. geographus* subjected to such external pressure exuded venom from the proboscis tip followed by a radular tooth.

Dutertre *et al.* (2014) have even argued that the aggressive nature and high potency venom (to humans) of *C. geographus* and *C. tulipa* are direct evolutionary responses to the weak protection offered by their light and thin shells. Hence it is obvious that any prolonged or vigorous handling of a living specimen - as occurred in the Garbutt case - would create a potentially dangerous situation. The harpoon-shaped, anteriorly-barbed, radular teeth of *C. geographus* (Endean & Rudkin 1965; Thompson & Bebbington 1973), like those of other conids, are hollow to maximise transmission of venom through the wound entry (see Fig. 8B-E for teeth of *C. striatus* and *C. tulipa*), and at 13 mm in length are among the longest of the Conidae (see Dutertre *et al.* 2016 for SEM image of entire tooth of *C. geographus*). The primary venom components or 'conopeptides' of *C. geographus* act as a powerful neuromuscular toxin disrupting normal nerve and muscle activity (usually blocking ion channels or neurotransmitters), thereby inducing a wide range of effects on humans including numbness, drowsiness, muscle paralysis, breathing or swallowing difficulties, blurring or loss of vision and if medically untreated can lead to a comatose state and ultimately even death (Endean *et al.* 1974; Yoshida, 1984; Bingham *et al.* 2010; Dutertre *et al.* 2014; Halford *et al.* 2015; Kohn, 2016, 2018). Variation in response to *C. geographus* envenomations is considerable ranging from relatively mild pain and prolonged dizziness for adults (e.g. Kenworthy 1970) to sharp pain and almost instant death, particularly in infants (Kohn, 2016) and it would appear that survival may be due to a range of factors such as the age, fitness and individual reaction of the victim, size of the cone specimen, strength and chemical profile of the delivered venom dose and access to appropriate medical attention (Bingham *et al.* 2012; Dutertre *et al.* 2014; Halford *et al.* 2015; Kohn 2016, 2018). As was the case with Charles Garbutt, prolonged agonising pain is usually not experienced by victims of *C. geographus*, contrasting with the sometimes intense local pain often associated with wounds from molluscivore species such as *C. textile* and *C. marmoreus* (Kohn 2016). Based on an estimate of Garbutt's probable weight range, and the

known shell size of the fatal cone specimen, Dutertre *et al.* (2014) have concluded that he was killed with a venom volume of 32 μ l and lethal dose of between 0.029-0.038 mg/kg. Research on *C. geographus* has demonstrated differences in the conopeptide profiles of venom from the venom duct and that collected by milking (i.e. via provocation of the snail to sting) (Bingham *et al.* 2012; Dutertre *et al.* 2014) and with this in mind it appears highly likely that Garbutt was subjected to a defensive rather than prey-oriented envenomation. The fact that he survived almost five hours after being stung without proper medical attention was no doubt a testament to his fit condition (he was a footballer and almost always in good health according to his friends).

In shells of live-collected *Conus*, an organic 'skin' called the periostracum is present, as it is in the majority of other externally-shelled molluscs. This is actually the outer layer of the shell but remains uncalcified and can obscure the underlying pattern/ colour of the calcareous part of the shell. Often the degree of obscuring is slight (*C. textile*, *C. marmoreus*, *C. eburneus*) but sometimes can be substantial or even total (*C. virgo*, *C. terebra*) (pers obs). The periostracum may be partially or even almost completely eroded from very mature Conidae specimens, and most collectors tend to regard the 'skin' as unsightly and clean it from the 'hard' shell with household bleach. In *C. geographus* the periostracum is mostly thin and the underlying shell pattern still visible. However one notable feature of the periostracum in this species, and best developed and usually intact in juveniles and subadults, is the presence of rows of periodically spaced tufts which, to the casual observer can give an impression of encrusting algae, hydroids or sponges (Figs 7B,C, 8A; for other images see also Concar, 1996; Olivera *et al.* 2015). This 'tufted' style of periostracal ornamentation is also seen in another fish-eater *Conus tulipa* (pers obs) as well as a number of worm-eaters (e.g. *C. capitaneus*, *C. miles*, *C. distans* - Coleman, 2003; pers obs). While the periostracum helps to protect the calcareous portion of the shell from erosion (chemical or physical) and almost certainly also from

fowling by oysters or barnacles (which would potentially hinder or even prevent continued shell growth) the purpose of the periostracal tufts appears less uncertain. They may well provide camouflage if the resemblance to epibionts is viewed as a plausible explanation. One can easily appreciate why Charles Garbutt set to work trying to scrape off the periostracum in order to enhance the appearance of his 'lucky' find. Such handling, without very thick gloves, would have easily triggered a defensive and unfortunately effective strike by his *C. geographus* specimen.

To what extent was Charles Garbutt a victim of ignorance about the specimen he collected and handled and which would ultimately claim his life? In 1935 no popular book on tropical Australian marine molluscs or their shells was available nor would one be until the appearance of Joyce Allan's 'Australian Shells' in 1950. Aside from museum or natural history society field activities, shell collecting in Australia in the 1930's was not widespread or scientific and most often limited to those seeking mementos of their travels. Although the danger of cone snails was documented in the scientific literature from the 19th century onwards (e.g. Cox, 1885; Bergh, 1895; Shaw, 1914), the subject was only occasionally mentioned in works designed for public consumption such as newspapers, encyclopaedias or travel-oriented books such as S. E. Napier's popular 'On the Barrier Reef' (1929, reprinted six times in the 1930's). Two of the three coronial statements from 'Cheerio' travellers (those of Joseph Breen and Robert Gray, given on 13th August 1935 – see Appendix 2), claimed that Garbutt referred to his specimen as a 'cone shell', indicating that he knew what a 'cone shell' was, but whether he could actually distinguish cones from other marine snails and at the same time not be aware of their potential hazard, we do not know. Interestingly, Breen, in a newspaper interview given over six weeks before his coronial statement, recalled Garbutt as having said "this shell stung me" [present author's emphasis] and Bruce Jamieson, in his coronial statement from the 3rd of July (see Appendix 2) recalled Garbutt saying "Bruce, this darn thing

stung me" [present author's emphasis], thereby hinting that Garbutt did not, in fact, know that he had collected a cone. The apparent abandon he exhibited when 'cleaning' his specimen on the deck of the 'Cheerio' and later provoking the animal with a fish hook after he had already been stung, clearly indicate that he was oblivious to the danger and therefore not truly knowledgeable about cone snails, as for example, an experienced marine biologist or seasoned shell-collector would have been. Jamieson and Garbutt's travelling companions, by not saying anything to him while he was scraping his specimen, were either negligent, or much more likely also ignorant of the danger posed by such vigorous handling of cone snails.

The Fatal Specimen

The specimen of *Conus geographus* accepted as being responsible for the death of Charles Garbutt is today housed in the dry shell collection of the Queensland Museum (QMMO 1689) (Figs 9, 10A, B). It consists of the shell (length 84 mm, maximum width 34 mm) and its enclosed, but dried animal. The accompanying label (Fig. 9A) leaves no doubt as to the provenance of the specimen and it is clearly the same specimen shown photographically in an article in the *The Townsville Bulletin* (29th June, 1935, p. 7) (Fig. 5A). The slightly faded colours of the shell and the somewhat powdery inside surface of the shell aperture (Fig. 9C) are suggestive of long term exposure to preservative, initially possibly formalin, followed by storage in ethanol. Queensland Museum volunteer Mrs Thora Whitehead (pers comm, 19th Dec, 2018 and 27th May, 2020) recalled that when she located the specimen in the collection in the late 1980's, it was stored in ethanol (with its label), and that a decision was taken to have it dried out, undoubtedly to ensure preservation of the thin (sub-adult) shell.

From T.B. Clouston's letter of the 26th of June to J.B. Henderson (Queensland Government Analyst) we know that the specimen was still alive on that day (i.e. the day after the fatality). Hence it would have been Clouston who originally preserved the specimen, either in

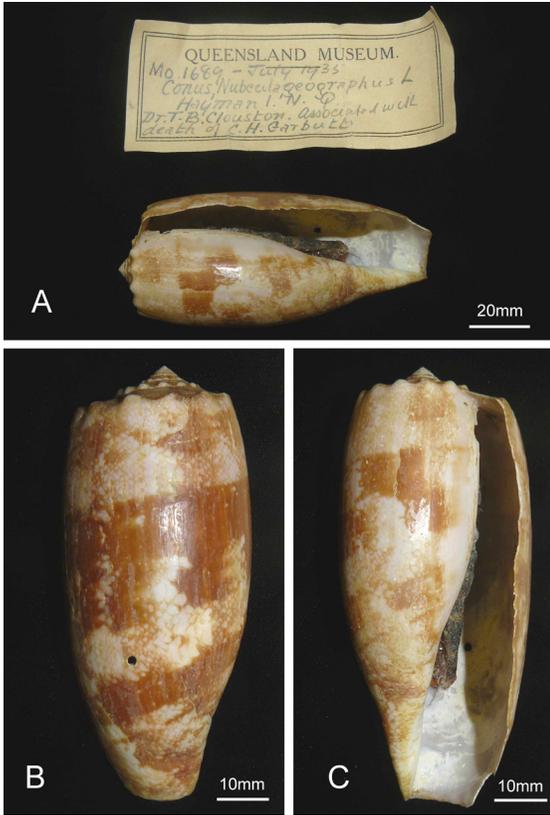


FIG. 9. A, The fatal specimen (sub-adult, length 84 mm) of *Conus geographus* (QMMO1689) shown with original Queensland Museum label (probably in Director Heber Longman's printed hand) and with dried, apparently intact, animal within shell. B, QMMO1689, dorsal aspect. Note the drill hole which is almost certainly artificial and probably intended for a string-tied label. C, QMMO1689, apertural (ventral) aspect of the shell and dried animal. (Images: J.M. Healy, Queensland Museum).

formalin or alcohol (both of which would have been available at the hospital), in order to send it to Henderson for examination. We also know from Clouston's letter that he prepared "a sting from the cone-shell fish (between two slides)". Unfortunately, this slide, although definitely received by the Queensland Museum from Henderson and registered as 'MO 1670' is not included in the museum's current database and probably lost. It is specifically mentioned

by Longman in a reply to Clouston (20th July, 1935) and on the donor schedule form and the Mollusca Collection Register – see Fig. 10C) also in Longman's hand. Mrs Whitehead recalled that a slide was said to have existed but she had never seen it nor could she find it in the dry or wet sections of the Queensland Museum Molluscan Collection in 1986. According to the relevant entries in the Collection Register, the slide was placed with the 'Molluscan Slides', the whereabouts of these today being unknown. From Longman's 20th July letter to Clouston, we know that he had personally examined the slide and considered that the mounted specimen did not look like published illustrations of *Conus* radular teeth (at least in the literature available to him at the museum). Given Longman's dependability as a zoologist and the fact that he had at least some access to relevant literature depicting *Conus* radular teeth, it is possible that Clouston may have placed some other piece of tissue on the slide. However, Longman openly admitted that the Queensland Museum had no particular expertise on the subject of *Conus* radular morphology, and it is now known that *Conus* teeth, while all 'harpoon-shaped' do differ in structural details between species (James, 1980; Kohn *et al.* 1999; Nishi & Kohn, 1999; Franklin *et al.* 2007). Radular teeth of *C. geographus* are particularly long (13 mm) and slender compared to most species (Endean & Rudkin, 1965; Dutertre *et al.* 2016). Descriptions of the 'sting' from the Hayman Island specimen as being hair-like and about half an inch long, are consistent with the known length and shape of the *C. geographus* radular teeth suggesting that Clouston's slide did indeed contain a radular tooth.

In the Louis W. Borserini photograph published in *The Townsville Bulletin* article of the 29th June (see Fig. 5A), the *C. geographus* specimen is looped either by string or more likely a rubber band around its mid-section, possibly to prevent the animal emerging to extend its proboscis. The same image (with vestas/matches tin cropped out), plus an additional image showing a dorsal view of the specimen (but with the tin's brand name photographically removed), appear in Hugo Flecker's paper on the fatality

Nixon 1980; Nixon *et al.* 1980; Hiemstra 2015; pers obs). Given that Clouston forwarded the specimen to J.B. Henderson (the Queensland Government Analyst) for study, it seems likely that either Clouston or Henderson - probably the latter - drilled a hole through the shell for attachment of a label (via wire or string) to the wet-preserved specimen. Henderson may have done this in anticipation of the specimen later being required as evidence, but if so, any string or associated label does not survive today (the only label with the specimen is the Queensland Museum label written by Longman in 1935 - see Fig. 9A). It is surprising that the specimen was never sought by the Coronial Inquiry given that it was directly responsible for Garbutt's death and that this was the first time such a fatality had occurred in recorded Australian history. Henderson forwarded the specimen and Clouston's microscope slide (said to contain a mounted radula tooth) to the Queensland Museum on the 12th of July, as per Clouston's instructions and in exchange for a formal identification of the species. Even though the Coronial Inquiry had begun on the 3rd of July, it did not seek evidence from two of the key eye-witnesses (Breen and Gray) until the 13th of August, hence the specimen, identified by Longman in late July, would certainly have been available for Court reference if sought.

The size of the Garbutt case specimen (84 mm) is probably average among those encountered by most collectors but not considered large. The specimen is also thin and lacks any thickening of the outer lip and is here considered sub-adult. *Conus geographus* is known to grow to a shell length of 166 mm (Rockel *et al.* 1995), and the largest specimen in the Queensland Museum measures 120 mm (Fig. 10A).

Finally, some confusion exists in the literature concerning the specimen responsible for the fatality (QMMO1689). Halford *et al.* (2015) have stated that the photograph of a specimen of *C. geographus* shown in their Table 1 is QMMO1689, and that the present author supplied the photograph. This is not correct. The present author did supply images of QMMO1689 but these were not used in the Halford *et al.* paper: instead those authors appear to have

photographed one of their own specimens (possibly from the Philippines or Boulton Reef, Great Barrier Reef as listed in their Table 1 for material examined). Certainly the photograph in Halford *et al.* (2015) does not correspond with any specimen of *C. geographus* in the Queensland Museum Collection. QMMO1689 is however illustrated in Dutertre *et al.* (2014).

The Garbutt Fatality: A Reconstructed Account

What follows is a reconstruction of the events of 25th June 1935 that led up to Charles Garbutt being stung by *Conus geographus* at Hayman Island, then the subsequent efforts made to transport him to Proserpine District Hospital for medical attention and finally the aftermath of the fatality including press coverage, the Coroner's Inquiry and scientific interest in the case. It is based on all sources of information available to the author including contemporary newspaper articles, letters in the Queensland Museum archives, the official coroner's report (held in the Queensland State Archives) and other sources. Fortunately, these sources have enabled a unified narrative to be established but in a few details it has been necessary to apply a best-fit process or even reject some published assertions when the evidence demands it.

Charles Hugh Garbutt, one of the five children of John and Margaret Garbutt of Townsville, had moved to Ayr apparently some time either in 1934 or early 1935 and worked there at a motor vehicle dealership. An enthusiastic footballer, he was very well-liked in both the Ayr and Townsville communities. [The Garbutt family was one of the most prominent in Townsville, having made their money in cattle and the associated meat trade, and is today celebrated in the Townsville suburb of Garbutt]. On Thursday the 13th of June, he and a group of 10 other men (many or possibly all of whom were friends), travelled by train from Ayr to Bowen, where on the morning of the 14th the party embarked on a two week fishing/recreational cruise of the Whitsunday Islands on board the auxiliary (motor and sail) launch 'Cheerio', captained by owner (Robert) Bruce Jamieson. The cruise was to leave Bowen, then

head for the Whitsunday Group and finally return to port in Mackay. On Tuesday, the 25th the launch had made its way to Hayman Island, anchoring at Hayman Island Reef (off the south-east shore of Hayman Island) towards midday or soon after (recollections differ). As this coincided with low tide, a decision was made for the group to go on a reef walk, partly with the intention of gathering shells. At about 1.30 pm they returned to the *'Cheerio'* for lunch, with everyone leaving their shells on deck for later sorting. Jamieson remembered Garbutt showing him a shell that he had found on the reef walk and that he had started cleaning the outside of it with a fish scaler before then going to lunch with the other passengers. Joseph Breen, in his coronial statement some weeks after the event, recalled Garbutt proudly saying to him "I've found a cone shell, I'll show it to you after lunch". According to Breen, Garbutt was first to finish his lunch and evidently in a hurry to get back to his shells on deck to further examine and clean them. At around 2.30 pm Jamieson remembers that Garbutt came up to him, showed him the shell and stated "Bruce, this darn thing has stung me" then displayed the palm of his hand which now had a small puncture wound. Jamieson suggested that Garbutt get some tobacco from one of the smokers on board and rub it into the wound, probably hoping that the nicotine might in some way ameliorate the discomfort. Robert Gray, who was seated on the deck at the time, remembers hearing Garbutt exclaim "I've been stung by a cone shell". Breen and Robert Gray were also shown the wound, the effects of which by now had started to numb the affected (left) hand. Garbutt, apparently more annoyed than concerned by what had happened, then tried to demonstrate to Breen, Gray, Jamieson and probably others on deck exactly how he had been stung by trying to provoke another attack from the snail using a fish hook. This resulted in another 'sting' poking out from the proboscis which, according to Jamieson looked like a "needle like white spike". Feeling decidedly unwell Garbutt subsequently sat down on the steps of the wheelhouse and put down the cone specimen. Evidently some attempt was made to walk him around the ship,

possibly to prevent him from passing out, but it was clear that he was losing control of his limbs and becoming increasingly drowsy. About 20 minutes after being stung (i.e. 2.50 pm) his lips and jaw muscles began to go numb, and about 3.00 pm his eyesight deteriorated to the point of double vision and inability to discern distant objects (according to Gray, Garbutt's eyes had glazed over). Breen and Gray, who had, like others on board, not at first taken the matter very seriously, now realised that the situation was real and worsening. They took their friend below deck and Breen gave him a nip of brandy to ease the distress, and around 3.30 pm skipper Jamieson called in to check how things were going. The *'Cheerio'* had been sailing around Hayman Island after lunch and was now anchored at the island. Garbutt's fast deteriorating condition (legs now paralysed and the beginnings of unconsciousness evident) convinced all on board that the vessel had to up-anchor and make its way at full speed to Cannon Valley (the present day town of Cannonvale) to get medical attention. Even at top speed (9 knots or 16.6 km/hr) the journey to Cannon Valley from Hayman Island (a distance of 32.2 km or approximately 20 miles) would take two hours, during which time (around 4.30- 5.30 pm) Garbutt gradually slipped into total unconsciousness.

The *'Cheerio'* arrived at Cannon Valley – presumably at or near Cannon Valley Beach – just after dark at about 6.00 pm and no time was wasted in telephoning the Proserpine District Hospital (and Dr Thomas Clouston), explaining that a man had been stung by a shell fish and was in a serious condition. To minimise any delay in reaching medical help it was requested that the ambulance meet the lorry that was about to leave Cannon Valley for the hospital. Clouston immediately telephoned Robert Bartlett of the Proserpine Ambulance Centre asking him to first pick him up then head for Cannon Valley to meet the lorry conveying the patient. *'Cheerio'* skipper Jamieson had enlisted the assistance of Alex Altmann who operated a lorry (and maintained a medical kit for the hospital), and asked if he could take the unconscious Garbutt to meet the ambulance

along the Proserpine to Cannon Valley road. This was fortuitous as Altmann had already been ready to leave for Proserpine and was now pulled up on the beach to make the transfer of Garbutt to the vehicle easier. Gray and Breen helped to get Garbutt on board the lorry and were to accompany him on the journey along the Cannon Valley to Proserpine road (which, unfortunately for Garbutt, was a rough and unsealed road). The ambulance met the lorry at about 7.00 pm about half way along the Cannon Valley to Proserpine road, or approximately 11.3 km (7 miles) from the hospital. Clouston examined his patient and learned that he was 'Charles Hugh Garbutt' and then explained to Breen and Gray that the situation was indeed grave. Garbutt's pulse was weak, his respiration shallow and his eyes had dilated pupils and exhibited no corneal response. After Garbutt had been taken on board the ambulance, apparently accompanied by Breen, Clouston then asked Bartlett to proceed to the hospital as quickly and as safely as possible. On reaching the hospital at about 7.30 pm Clouston left the ambulance and made for the surgery presumably to make preparations for a possible procedure. Bartlett then noticed that Garbutt's pulse had collapsed. When the doctor returned he was told by Bartlett what had happened. He re-examined Garbutt and pronounced him deceased. Bartlett then conveyed Garbutt's body to the hospital morgue. The remainder of the 'Cheerio' touring party and vessel skipper Jamieson at Cannon Vale were subsequently informed of the news by telephone. The following morning (Wednesday 26th June, 1935) Clouston performed the post-mortem in the presence of Police Constable David McQuaker and issued him with a Post-Mortem Certificate noting that the death of Charles Hugh Garbutt was caused by (1) sting from a cone shell fish; (2) acute toxæmia and (3) cardiac failure. Clouston took stomach tissue samples for chemical analysis but otherwise noted that Garbutt was in fine physical condition. The doctor had also secured the specimen of the cone snail that had inflicted the injury and made a slide preparation of the 'sting' (radular tooth) which he had taken from the living specimen on the day of the post-mortem. Clouston wrote to the

Queensland Government Analyst in Brisbane (J.B. Henderson) on that day (26th June), giving details of the post-mortem and his conclusions as to the cause of death. Along with his letter he also forwarded to Henderson the cone specimen, undoubtedly preserved in alcohol or formalin for posting, as well as the prepared microscope slide containing the 'sting' and tissues samples from the stomach for analysis. Photographs of the cone specimen were taken by Louis W. Borserini, an honorary bearer of the Proserpine Ambulance, either on the 25th June or on the 26th June when the specimen and slide were dispatched to Henderson. Henderson examined the tissue samples provided by Clouston and wrote back to him on the 6th July to say that no alkaloids were detected and to agree with the doctor's post-mortem conclusions. Henderson then forwarded the preserved cone specimen and slide to the Director of the Queensland Museum, Heber Longman, and these two items were then duly registered as 'MO. 1689' and 'MO. 1690' respectively (the current whereabouts of the slide remain unknown).

Several funeral notices were published in local papers on the 27th of June, and on that day Charles Garbutt was laid to rest at Belgian Gardens, West End (Townsville). Press coverage of the death was considerable both within Queensland and elsewhere around Australia although confusion as to the exact identity of cone snail involved would continue for some time (the species was initially believed to be *Conus textile* but later shown to be the much less common *C. geographus*). A Coronial Inquiry into Garbutt's death, headed by Charles A. K. Morrison, commenced on the 3rd of July at Proserpine Coroner's Court. Statements were taken from Constable David McQuaker, Proserpine Ambulance Superintendent Fred Bartlett and the 'Cheerio's' skipper Bruce Jamieson. The court then adjourned on the 5th of July until the 13th August when at the Ayr Coroner's Court (headed by A.M. Taylor) statements were obtained from 'Cheerio' party members Joseph Breen and Robert Gray. The inquiry adjourned to Proserpine court where it was officially closed on the 15th August. No

suspects or suspicious circumstances were identified and the suspected cause of death was given as “sting from a cone shell fish”. The press reported these findings as well as many of the witness statements.

How do surviving recollections of the fatality compare ?

Although awareness of the Charles Garbutt case in the Australian community would be low today, the few family recollections of it that I have been able to trace have, perhaps surprisingly, accurately preserved most of the key elements of the story. Ken Glasheen (a nephew of Charles and the closest surviving relative) recalls his mother Lucy telling him that ‘Charlie’ was stung on the left hand on the palm near the base of the thumb, that he then went blind, lost consciousness and was taken by boat back to Airlie Beach but died before he received medical attention. Dr Ashley Field (Queensland Herbarium, James Cook University, Cairns Campus) provided the following detailed summary from his own recollection of transmitted family knowledge of the fatality. It well demonstrates the ability of a story to survive through oral tradition, and in some respects, in a more complete and accurate form than in many printed sources.

“My family, the Richardson and Galloway family are from the suburbs of Garbutt and West End, Townsville and knew the parents of Charlie Garbutt who was the young man that died. As I was a shell collector my family told me the story again and again (and again!) as a warning. It varied a bit but in general it goes that the Garbutt family were holidaying on Hayman Island and Charlie was collecting shells at low tide. I think it was in the middle of the year low tides but I don’t know for certain, but I was told it happened walking and not diving.

Apparently the cone stung him in the middle of the palm of his hand and he said it was not painful and I don’t think anyone panicked much. I was told he returned to

and sat on the beach quietly not reporting any pain but soon his lips and face became numb and he started to lose his vision causing the family to panic and seek medical help.

I was told he lost consciousness within an hour and was unresponsive for several hours before dying. I believe that medical help arrived before he died but nothing succeeded in reviving him. I was told the shell was collected and sent to a conchologist at the museum and identified as *Conus geographus* but I was also told the shell was not collected and that it was identified from pictures with some doubt as to its identity. Unfortunately all of my family members who knew Charlie are now deceased and were old when I was told the story.

The legend grew in Townsville and it is often reported that he died within an hour but I am sceptical about that, I think rather he was unconscious within an hour.”

Charles Garbutt: careless or just unlucky ?

In 1935 knowledge among the Australian general public of cone snails and how to deal with an envenomation from one of them was essentially non-existent, and even the now standard practice of cardio-pulmonary resuscitation (CPR) was at least 15 years away. As no cone-snail-specific antivenins have to date been developed, modern first aid treatment remains essentially as for snake-bite: (1) application of pressure bandage to the wound area, (2) immobilisation of the affected part (splint), (3) constant monitoring and reassurance of the patient and (4) seeking professional medical help (for further details see Coleman, 1999; Halford *et al.* 2015; Primary Clinical Care Manual (10th ed) 2019). Given that cone snail species differ markedly in their threat to humans, an additional step of photographing the specimen (e.g. via mobile phone) for later identification should be added as it would materially assist those giving medical aid and in most cases help reassure the patient. Below are listed the

principal factors that appear to have contributed to the fatality. Almost any one of these would prove crucial to the events of the 25th of June 1935, but considered in their totality, Garbutt must be viewed as an extremely unfortunate individual rather than careless.

1. The decision to stop to collect shells was made almost at the planned end of the trip, because a suitable low tide was available at Hayman Island Reef and would have good light for reef walking and also fit in with the tour's schedule. If no one had been interested in collecting, or were the tide not low enough or too late in the day, the fatality would not have occurred.

2. The species responsible for his death - *Conus geographus* - just happens to be the most deadly of the approximately 960 currently accepted species of extant Conidae. Although a number of recorded envenomations have been attributed to other species, *C. geographus* is responsible for the vast majority and possibly even all of the known fatalities. In contrast a sting from one of the 30 or so worm eating species known to occur around the Whitsundays would almost certainly not have resulted in a fatality.

3. *C. geographus* only occurs in warmer waters of the Indo-West Pacific, typically in association with coral reefs, and during the day usually hidden in sand under rubble of coral slabs. A holiday almost anywhere else in Australia would have had a different outcome.

4. Despite *C. geographus* having a wide distribution in the Indo-Pacific, it is not a particularly common species anywhere in its range and uncommon on the Great Barrier Reef. Garbutt was both 'lucky' and 'unlucky' to have found a live specimen. Were he to have found an empty shell only, his life would have been spared.

5. The cylindrical shell shape of *C. geographus* is certainly not 'typical' for a cone snail and could be easily mistaken by a novice collector (like Garbutt) for any one of a number of harmless marine snails with similarly wide-aperture shells.

6. The expansive foot of the animal of *C. geographus* is relatively large for a cone snail but not unlike that of harmless volutes (eg *Melo* spp), olives (Olividae), tuns (Tonniidae) or fig snails (Ficidae) In the case of *C. geographus*

the animal and particularly the foot is visually appealing, much more so than the shell, and indeed it may have been the site of the beautiful animal crawling that drew him to collect it.

7. The intact periostracum of *C. geographus* exhibits pronounced tufts, which to the untrained eye would appear as some sort of marring overgrowth. It was the urge to scrape off this layer to better reveal the pattern underneath that directly contributed to Garbutt's death (i.e. him placing the live mollusc in the palm of his left hand to remove the layer with a fish scaler).

8. Being a comparatively thin-shelled species, especially in the juvenile and sub-adult stage (like the fatal specimen) *C. geographus* is known to react immediately and aggressively, with defensive stinging, to external pressure on its shell. Garbutt's vigorous handling of the specimen may have triggered a more powerful envenomation than would have been the case through accidental hand-brushing or through sting-penetration of clothing.

9. The seemingly innocuous nature of the initial sting and its primary effect of numbing rather than serious pain appear to have lulled Garbutt into a false sense of security (i.e. the injury appearing to be minor and not worth fussing over, especially among a party of young and presumably very fit men).

10. Garbutt's attempt to show his companions how he had been stung by provoking the animal with a fish hook, while appearing a wreckless act to us today, clearly indicates a lack of knowledge by him or anyone else on board the boat that cone snails are dangerous animals. Other than among experienced marine scientists and well-informed shell collectors, awareness of cone snail biology was not widespread in the Australian community at the time.

11. The fact that when Garbutt began to complain of numbing and eyesight problems he was not initially believed by his shipmates (as we are told in Dr T.B. Clouston's letter to the Queensland Government Analyst). This resulted in the delay (at least an hour) before the situation was deemed critical and the boat began heading

back to the coast for help.

12. Garbutt's predisposition to what appear to be undiagnosed medical problems, as evidenced by his companions' claims that he had exhibited very similar 'turns' on previous occasions. Whatever these problems were, they would surely have contributed in some way to the outcome. Given that the previous 'turns' were accompanied by much the same symptoms as those shown in the fatality, we cannot rule out the possibility that Garbutt had been stung by cones (or something else) on previous trips to the reef.

13. An apparent lack of any available medical expertise either on the launch or at Hayman Island, no doubt compounded by the novelty of the situation for both the skipper and other passengers, directly contributed to the death.

14. The long and unfortunately delayed trip necessary to reach medical help - via boat, lorry, then ambulance (the last stage at night, on a rough, unsealed road) - meant that there was probably nothing that could be done for Garbutt, even if he had reached Proserpine District Hospital alive (five hours after being stung).

Has the death of Charles Garbutt served any enduring purpose ?

Wendy Lewis, in her tourist-enticing book *See Australia and Die* (2007), has remarked that "For all the wrong reasons, Charles became a cause célèbre", dubbing him "the man who shouldn't have picked up a cone shell". While it is true that he remains the only person officially recorded as having been killed by a cone snail in Australian waters, his death remains of great significance and as outlined previously there were many factors beyond his control. The local and national newspaper coverage was substantial and, by today's standards, relatively free from sensationalism. It also focussed public attention on cone snails and the fact that they can be harmful and potentially deadly if handled. Undoubtedly those newspaper reports - which were sometimes lengthy and well-illustrated - helped to save lives by educating readers. No popular books on tropical Australian marine molluscs were

available in 1935 and television in this country (as an educational medium) lay 20 years into the future. Even medical doctors and scientists of the day found literature relating to the biology and identification of cone snails not readily available. Hence it was often left to the newspapers to enlighten the general public on many and varied aspects of natural history. The fact that Charles Garbutt was the first and to date only person to die from a cone snail envenomation in Australia can therefore be seen as testament to the educational-effectiveness of the press of the day. Perhaps ironically, the intensive molecular and pharmacological research being conducted at present on cone snail venoms (and their seemingly endless range of complex bioactive peptides) is yielding drugs or drug candidates for relief or management of pain, for muscle relaxation in surgery, for possible diabetes control, for stroke and cardiac issues and several other potential medical or biochemical applications (Layer & McIntosh 2006; Lewis, 2009; Duterte & Lewis, 2013 Olivera *et al.* 2014; 2017). Lastly, concerning the issue of Charles Garbutt's 'fame' raised by Wendy Lewis: he, or at least his case, is frequently cited in research papers on cone snails or conotoxins or in books or magazines on marine shells, and as a result he has arguably achieved more fame than most of his prominent Queensland family.

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Conus geographus and *C. striatus* for use in Fig. 8A-C. Fig. 7C (*C. geographus*) derives from the Dr Neville Coleman Slide Collection (Queensland Museum). Historic portrait images were accessed through the State Library of Victoria (Fig. 6A), the State Library of Queensland (Fig. 6B), the Queensland State Archives (Figs 3C-G, 6B) and the Queensland Museum Photographic Archives (Fig. 6D). Dr Erica Lovas (University of Queensland Centre for Microscopy and Microanalysis) took the SEM micrographs shown in 9D,E. I also acknowledge TROVE (National Library of Australia) for the crucial part its digitised newspapers played in enabling this project to be undertaken. The late John Singleton (Western Australia) provided me with his list of cone species recorded from Australian waters: he was not only a knowledgeable collector of *Conus* but also took a keen interest in the subject of cone envenomations and donated several specimens as Queensland records to the Queensland Museum. Special thanks to Dr Ashley Field (Queensland Herbarium, James Cook University, Cairns Campus) for sharing his recollection of the Garbutt fatality as related to him by his family, and for facilitating contact with members of the Garbutt family (Bob Garbutt and Ken Glasheen) and James Cook University Library (Townsville). Bronwyn McBurnie and Louise Cottrell of the Special Collections unit of the Eddie Koiki Mabo Library (James Cook University Library) are thanked for providing access to the Garbutt Family history ('Garbutt Family Footprint') and the Garbutt Harvey Photograph albums (volumes 1 and 2). Macushla Boyle and Anne Reddacliff of the John Oxley Library, State Library of Queensland helped with access to the Embury Family Photographs and Papers and to the JOL copy of the rare Hughes (1937) book. Kayley Nel (Manager of the Information Access Unit at Mackay Base Hospital) and staff of Proserpine Base Hospital are thanked for confirming that no information relevant to the Garbutt case exists in their records. Thanks are also due to the following for their assistance during the course of this research: Darryl Potter, Dr John Stanisic and Lorelle Stanisic, Sarah Verschoore, Peter Volk and Dr Marissa McNamara (all QM), Thora Whitehead

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- Wed 26th June, 1935. Shell Fish Sting. Man's Tragic Death. End Of Pleasure Cruise. (*The Tweed Daily*, Murwillumbah, NSW) (p. 3).
- Wed 26th June, 1935. Deadly Shell. Barbed Tenant Sting Kills. (*The Sun*, Sydney, NSW) (p. 16).
- Wed 26th June, 1935. Shell Fish Sting Kills Man. (*The Daily Telegraph*, Sydney, NSW) (p. 1).
- Wed 26th June, 1935. Stung by Shellfish. Young Man's Death. (*The Morning Bulletin*, Rockhampton, Qld) (p. 7).
- Thur 27th June, 1935. Poisonous Shells Common. Sting Rarely Results in Death. (*The Courier-Mail*, Brisbane, Qld) (p. 18).
- Thur 27th June, 1935. Death Sting From Shell. (*The Queenslander*, Brisbane, Qld) (p. 49).
- Thur 27th June, 1935. Stung by Shellfish - Young Man Dead. (*The Central Queensland Herald*, Rockhampton, Qld) (p. 30).
- Thur 27th June, 1935. Charles Hugh Garbutt Funeral Notices (Funeral Notice - F. Heatley and Sons) (*The Townsville Daily Bulletin*, Qld) (p.6).
- Thur 27th June, 1935. [Personal : re life of Charles Garbutt and funeral to occur that day]. (*The Townsville Daily Bulletin*, Qld) (p. 6).
- Thur 27th June, 1935. Shellfish Sting Causes Man's Death. (*The Sydney Morning Herald*, NSW) (p.10)
- Thur 27th June, 1935. Fatally Stung By Shellfish. (*The Examiner*, Launceston, TAS) (p. 8).
- Thur 27th June, 1935. Stung By Shellfish. Young Man's Death. Pleasure Cruise Tragedy. (*The Mercury*, Hobart, TAS) (p. 10).
- Thur 27th June, 1935. Death From Sting Of Shellfish. Beautiful Cone Hides Deadly Spike (*The Border Watch*, Mt Gambier, SA) (p. 1).
- Thur 27th June, 1935. Stung By Shellfish. Young Man's Death. Cruise To Whit Sunday Islands. (*The Kalgoorlie Miner*, WA) (p. 4).
- Sat 29th June, 1935. The Fatal Shell. (*The Townsville Daily Bulletin*, Qld) (p. 7)
- Sat 29th June, 1935. [Personal section re funeral of Charles Garbutt]. (*The Townsville Daily Bulletin*, Qld) (p.7).
- Mon 1st July, 1935. The Cone Shell. Interesting Facts. (*The Townsville Daily Bulletin*, Qld) (p. 7).
- Tue 2nd July, 1935. Stung By Shellfish. Young Man's Death. (*Northern Standard*, Darwin, NT) (p. 4).
- Tue 2nd Jul, 1935. Stung by Shellfish. Young Man's Death. Cruise to Whit Sunday Islands. (*The Western Argus*, Kalgoorlie, WA) (p.13).

APPENDIX 1

Newspaper Articles and Items Consulted (sourced through TROVE search engine of the National Library of Australia and in Queensland Museum scrapbooks)

(i) Garbutt Fatality

- Wed 26th June, 1935. Tragic Death. Charles Garbutt. Spike From Shell Enters Hand. (*The Townsville Daily Bulletin*, Qld) (p. 6).
- Wed 26th June, 1935. Shell-Fish Sting. Ex-Townsville Resident Succumbs. Tragic End to Fishing Party. (*The Northern Miner*, Charters Towers, Qld) (p. 2).
- Wed 26th June, 1935. Four Kinds Of Poisonous Shellfish. Found Widely On Coast. Death Of Man In North. (*The Telegraph*, Brisbane, Qld) (p. 6).
- Wed 26th June, 1935. Death Sting From Shell. Man Succumbs After Great Agony. (*The Courier-Mail*, Brisbane, Qld) (p. 13).

Hayman Island Cone shell fatality

- Tue 2nd July, 1935. Poisonous Shells Common. Sting Rarely Results In Death. (*The Northern Miner, Charter's Towers, Qld*) (p. 4).
- Wed 3rd July, 1935. Whitsunday Tragedy. Details of Fateful Incident. (*The Bowen Independent, Qld*) (p.1).
- Thur 4th July, 1935. Poisonous Shell Fish. (*The Jerilderie Herald and Urana Advertiser, NSW*) (p.4)
- Fri 5th July, 1935. Deadly Shell. Causes Man's Death. "Plentiful On Reef". (*The Cairns Post, Qld*) (p.8).
- Sat 6th July, 1935. Coroner's Court. Inquiry into the Death of Charles Hugh Garbutt. (*The Proserpine Guardian, Qld*) (p.2).
- 12th July, 1935. Amazing Case. Death After being Stung By Shell. (*The Charleville Times, Qld*) (p.9).
- Sat 3rd Aug, 1935. The Deadly Mollusc. Poisonous Cone Shells. (*The Age, Melbourne, VIC*) (p. 6).
- Thur 15th Aug, 1935. Ayr Notes. (*The Townsville Daily Bulletin, Qld*) (p.12). [reports on Coroner's Inquiry 13 Aug 1935].
- Tue 20th Aug, 1935. Shellfish Poisoning. Recent Fatality. (*The Daily Mercury, Mackay, Qld*) (p. 13).
- 27th Aug, 1935. The Deadly Mollusc. Poisonous Cone Shells. Beauty and Value. (*The Daily Mercury, Mackay, Qld*) (p. 10).
- Thur 29th Aug, 1935. Deadly Conus Shell. (*The Cairns Post, Qld*) (p.6).
- Sat 14th September, 1935. In the Matter of Charles Hugh Garbutt Late of Ayr, Motor Salesman, Deceased (*The Courier Mail, Brisbane, Qld*) (p.1) [announcement re payment of life insurance policy for Charles Hugh Garbutt to his father John Overend Garbutt].
- Fri 18th October, 1935 Fatal Shell Fish. Hayman Island Tragedy. Ambulance Investigation. (*The Cairns Post, Qld*) (p.8).
- Sat 19th Oct, 1935. Death In The Bite Of Shellfish. Many Instances On Record. Recent Queensland Fatality. (*The Telegraph, Brisbane, Qld*) (p. 8).
- Sat 26th October, 1935 Fatal Shell Fish. Hayman Island Tragedy. Ambulance Investigation. (*The Northern Herald, Cairns, Qld*) (p. 42).
- Fri 10th September, 1954. Magnificent Shell Collection (*The Longreach Leader, Qld*) (p.3).
- (ii) Cruises and Holidays to Whitsundays, The 'Cheerio'**
- Sat 17th May, 1930. A Cruise Among the Whitsunday Islands. (*The Bowen Independent, Qld*) (p. 4).
- Sat 23rd August, 1930. Out Whitsunday Way Again. (*The Bowen Independent, Qld*) (p. 8).
- Fri 26th September, 1930. Launch of the Cheerio. A Happy Augury For Future Success. Bruce Jamieson's Enterprise. (*The Macleay Argus, Kempsey, NSW*) (p. 5).
- Sat 30th July, 1932. Barrier Reef Biological Study. Cumberland and Whitsunday Islands. (*The Daily Mercury, Mackay, Qld*) (p. 9).
- Fri 4th November, 1932. Coral Islands Cruise. (*The Western Champion, Parkes, NSW*) (p. 11).
- Fri 8th December, 1933. A Whitsunday Trip. (*The Bowen Independent, Qld*) (p. 2).
- Tues 12th December, 1933. Hayman Island Expedition. (*The Daily Express, Grafton, NSW*) (p. 7).
- Wed 24th January, 1934. The Cheerio's Log. (*The Macleay Chronicle, Kempsey, NSW*) (p. 3).
- Thur 29th March, 1934. Holidays at Whitsunday. (*The Bowen Independent, Qld*) (p. 2).
- Sat 9th June, 1934. An Island Cruise. (*The Daily Mercury, Mackay, Qld*) (p. 4).
- Thur 9th August, 1934. The Beautiful Whitsunday. (*The Daily Mercury, Mackay, Qld*) (p. 8).
- Wed 2nd January, 1935. Embury Expedition's Whitsunday Visit. (*The Bowen Independent, Qld*) (p. 2).
- Mon 15th April, 1935. The Cheerio. (*The Bowen Independent, Qld*) (p. 2).
- Fri 26th Apr, 1935. A Whitsunday Trip. Cruise of the Gwendolyn. (*The Bowen Independent, Qld*) (p. 1).
- Sat 22nd August, 1936. A Great Holiday. Three Weeks at the Barrier Reef. (*The Port Macquarie Rivers and Hastings River Advocate, NSW*) (p. 8).
- Sat 9th October, 1937. Whitsunday Islands. Mr. Walter Tronson's Impressions. (*The Proserpine Guardian, Qld*) (p. 5).
- Thur 17th March, 1938. The Great Barrier Reef. Home of the Living Coral. (*The Western Mail, Perth, WA*) (p. 32).
- Sat 30th April, 1938. Launch Cruise. Whitsunday and Cumberland Islands. (*The Mackay Daily Mercury, Qld*) (p. 13). [advertisement for 'Cheerio' launch tours operated by Bruce Jamieson].
- Mon 2nd May, 1938. Launch Cruise. Whitsunday and Cumberland Islands. (*The Mackay Daily Mercury, Qld*) (p. 11). [advertisement for 'Cheerio' launch tours operated by Bruce Jamieson].
- Thur 20th October, 1938. Tales of the Great Barrier Reef (*The Referee, Sydney, NSW*) (p. 19).
- (iii) L.W. Borserini's ambulance service and experience as photographer**
- Fri 13th July, 1934. Proserpine [news item re monthly meeting of Ambulance Brigade]. (*The Daily Mercury, Qld*) (p.9).

- Sat 20th July, 1935. Superintendent's Report. Year Ending 30th June, 1935. (*The Proserpine Guardian, Qld*) (p.4).
- Sat 7th September, 1935. Baby and Doll Show [re L. Borserini's photography]. (*The Proserpine Guardian, Qld*) (p. 2).
- Sat 23rd November, 1935. First Aid Examinations. (*The Proserpine Guardian, Qld*) (p. 2).
- Mon 18th December, 1939. Ambulance Bearer's Move. (*The Cairns Post, Qld*) (p.6).
- Fri 29th December, 1939. Ambulance Farewell. Bearer Leaves for Roma. (*The Johnstone River Advocate and Innisfail News, Qld*) (p.3)
- Sat 30th December, 1939. Valedictory. To Ambulance Bearer. Innisfail Function. (*The Northern Herald, Cairns, Qld*) (p. 48).
- Fri 28th January, 1949. Toogoolawah Q.A.T.B. attended 142 Cases. (*The Queensland Times, Ipswich, Qld*) (p.5).

APPENDIX 2

Coroner's Report Statements

Coroner's Report on death of Charles Hugh Garbutt - Queensland State Archives ID349592. Inquest No. 521-1935. The following statements are as they appear in the Report including corrections (indicated by strike-through text).

Witness Statement of Constable David Cruicks McQuaker (given at Proserpine Coroner's Court, 3rd July 1935)

David Cruicks McQuaker sworn states;

I am police constable stationed at Proserpine. I have made inquiries surrounding the death of Charles Hugh Garbutt a single man, aged 27 years who died whilst being conveyed in the Proserpine Ambulance from Cannon Valley to the Proserpine District Hospital on 25th June 1935, and who died as a result of being stung on the palm of the hand by a shell species of the cone species.

I was present at the morgue at the Proserpine District Hospital on morning of 26th June 1935 when a post mortem examination was made on the body of the deceased by Dr T.B. Clouston who subsequently handed me post mortem certificate showing cause of death to be; -

1. Sting from a cone shell fish.

2. Acute Toxaemia
3. Cardiac Failure

As a result of my inquiries I have been unable to discover any suspicious circumstances in connection with the death of the deceased.

Certificate tendered and marked exhibit 1.

[signed by A. McQuaker, and Coroner Morrison]

Witness Statement. Robert Bruce Jamieson, licensed launch proprietor and owner of launch 'Cheerio' (given at Proserpine Coroner's Court, 3rd July 1935)

Robert Bruce Jamieson sworn states; -

I am a licensed launch proprietor and owner of the motor vessel launch "Cheerio". I remember 14/6/35. I was then at Bowen and took over a party and they were to go on a fishing trip round the islands between Bowen and Mackay. I knew the deceased Charles Hugh Garbutt. He was one of the party. I remember 25th June 1935. ~~We were~~ I was on Hayman reef about 12.30 p.m. Later, at about 1.30 deceased and the rest of the party came aboard for lunch. Deceased showed me a shell he had found on the reef and began cleaning the outside with a fish scaler. We then had lunch. After lunch, at about 2.30 p.m. the deceased came to me and showed me the shell and said "~~This thing has stung me~~" "Bruce, this darn thing has stung me". At the same time he showed me a puncture in the palm of his hand. I advised him to get some nicotine from a pipe smoker and rub it in but he did not get any. He then left me and came back about ten minutes later and he was pricking at the fish inside the shell with a fish hook, forcing it to push out the sting which was a needle like white spike. He then put the shell down and sat down on the wheel house steps and mentioned that his eyes felt funny and a numbness round his mouth. Two men, J. Breen and Bob Gray then took him below deck to the cabin. At this time the boat was travelling round the island and after travelling for some time I pulled in to Hayman Island and dropped the anchor and stopped the engine. I then went below deck and saw deceased supported

between Green [sic] and Gray and he looked so ill that I immediately started the engine, weighed anchor and made for Canon [sic] Valley at full speed arriving there at about six o'clock. I immediately went ashore and found Alex Altmann. One of the party hurried up to phone Dr. and ambulance. Alex Altmann was ready to leave for town and I asked him to take Garbutt in immediately and he did so, Breen and Gray going with him. Garbutt was by this time practically unconscious. Later Mrs. Isbell came to the beach and asked me to come ashore and then she told me that a telephone message had come through that Garbutt was dead when he reached town. I first met deceased about 12 months previously at Hayman Is. I did not see him again until at Bowen on 14/6/35. All the members of the party were a happy crowd and got on well together and each were on the best of terms with the other and I know of no suspicious circumstances surrounding his death.

[Signed] R. Bruce Jamieson

Witness Statement. Robert Fred Bartlett, Superintendent of Proserpine Centre for the Queensland Ambulance Transport Brigade (given at Ayr Coroner's Court, 4th July, 1935).

Robert Fred Bartlett sworn states; -

I am Superintendent of Proserpine centre of the Q.A.T. Brigade. I remember about 6 p.m. on evening of 25th June 1935. I received an urgent call from Dr. Clouston of Proserpine. He said he had received a message from Cannon Valley stating that a man had been stung by a fish and was in a serious condition and asking him to bring the ambulance and meet a lorry that was bringing the man in. I went with Dr. Clouston in the Ambulance and met the patient between Proserpine and Cannon Valley. Dr. Clouston examined the patient whom I discovered was Charles Hugh Garbutt. Dr. ordered removal of the patient to the ambulance and instructed me to proceed as quickly as possible to the hospital. When we arrived at hospital Dr. left ambulance car and rushed over to the surgery and while he was away I turned and looked at the patient and noticed his pulse had collapsed

and informed the Dr. accordingly. He then examined the patient and pronounced life extinct. I then removed the body to the morgue at the hospital. When I first saw patient he was in an unconscious condition. I have never had occasion to treat any patient for a sting from a shell fish such as stung the deceased. I have never met the deceased ~~while~~ before and I know of no suspicious circumstances surrounding this case.

[signed] R. F. Bartlett

Witness Statement. Joseph Malachy Breen of Ayr, carrier (given at Ayr Coroner's Court, 13th August, 1935)

Joseph Malachy Breen on oath states,

I am a general carrier, carrying on business in Ayr. On the 13th June, 1935, deceased, nine other men and myself left Ayr and went by train to Bowen, where we joined the Motor Launch "Cheerio" at Bowen, on the morning of the 14th June, 1935, and we toured the islands between Bowen and Mackay. On the morning of the 25th June, we anchored off Hayman Island, and all the members of the party, including the deceased, left the launch and went exploring the reef, returning to the launch for lunch about 1.30pm. We brought back shells that we gathered. Deceased emptied out of a bag shells that he had gathered on the reef, and said to me, "I found a cone shell, I'll show it to you after lunch," We had lunch. Deceased being a small eater, left the luncheon table some minutes before I did and went up on deck and I followed him a few minutes later. Deceased, pointing to the cone shell, said, "This thing stung me", showing me a small puncture in the palm of his left hand. Holding it up he said, "I'll show you what it stung me with", He poked inside the shell with a fish hook, which brought a fine needle like sting to extend out of the shell. Deceased said, "I can feel it in my mouth now," and he started to rub his mouth with his hand, and a few minutes later he said, "There is something wrong with my eyes, I can hardly see". He sat down at the door of the wheelhouse were [sic] he remained for a few minutes. I went over to

him and he said to him, "How do you feel?" He replied "Not too good. " I said "Come below and I will get you some brandy. " We went below and I gave him a nip of brandy and he sat down ~~between by himself~~ between Bert John Gray and myself. At this time the motor launch was travelling slowly round Hayman Island, coming to anchor a little later. After the "Cheerio" anchored, Robert Bruce Jamieson, owner of the launch, came the cabin below, and ~~said~~ looked at deceased and said, "We had better make for Cannon Valley". He went on deck and the "Cheerio" got underway and we hurried to Cannon Valley. Arriving there deceased was carried from the launch to a motor truck nearby. Gray and myself accompanied him in the truck to within seven miles of Proserpine where we were met by the Proserpine Ambulance and by Dr. Clouston. After an examination by the doctor, the doctor ~~pronounced life~~ informed that he was a very bad case. Deceased was unconscious and the doctor requested the Ambulance to make with all speed for Proserpine. On arriving at the Hospital Dr Clouston again examined him and he informed me that he had passed away.

I have known the deceased for the past ten years, he was always in the best of health and of a jovial disposition. Up to the time he complained of being stung with the fish, I never ever heard him complain of any illness. Deceased was very popular with all the members of the party and there was no disagreement on the tour.

I am satisfied that there are no suspicious circumstances connected with the death.

[signed] Joseph Breen

Witness Statement. Robert John Gray, farmer (given at Ayr Coroner's Court, 13th August, 1935).

Robert John Gray states,

I am a cane farmer residing at Airdmillan, Ayr. ~~On the 13th June, 1935.~~ I knew the deceased, Charles Hugh Garbutt. On the 13th June, 1935, I was one of a party of eleven men who left Ayr by train for Bowen to go on a holiday cruise of the islands between Bowen and Mackay.

We joined the motor launch, "Cheerio" at Bowen, on the morning of the 14th June, 1935. Deceased was one of the party. On the morning of the 25th June, we anchored off Hayman Island and all the party went to explore the reef and collect shells. We returned to the launch at 1.30pm for lunch. Deceased came up on deck after lunch and I came up shortly afterwards. I was sitting on the deck and I heard deceased say "I have been stung by a cone shell." He came to me and said, "I'll show you what happened." He picked up the shell in his hand and probed inside with a fish hook, which caused a needle like sting to project out of the shell. Deceased said to me, "The palm of my hand is quite numb where it stung me." Shortly afterwards he complained about a numb feeling round his mouth and he went and sat at the door of the wheel house. Five minutes later I heard Mr Breen offer him a nip of brandy. I went down with them. Deceased drank the brandy and said. "I feel queer, I can hardly see." I noticed that his eyes were glazed. Jamieson came and had a look at him and said, "We had better make straight for Cannon Valley." We hurried for Cannon Valley and got there just after sundown. Deceased was ~~acried~~ [sic, = carried] to a motor truck and I accompanied him to within seven miles of Proserpine where we met the Proserpine Ambulance and Dr Clouston. He was transferred to the ambulance and they set off for Proserpine Hospital I was told that death had taken place before arrival at the Hospital.

Deceased was very popular with all the party and appeared to be in the best of health till he complained of being stung with the shell fish.

I am satisfied that there is nothing of a suspicious nature connected with his death.

[signed] R.J. Gray

APPENDIX 3.

Other Resources Consulted

Embury Family Papers (1924-1934) OM91-98 John Oxley Library, State Library of Queensland (Box 9267) Four albums of photographs and one box of notes, news clippings (Box 9267, Barcode ENC00000841).

Hayman Island Cone shell fatality

- Garbutt/Harvey Albums volumes 1 and 2.
Photographs of the Garbutt and Harvey families from the North Queensland Photographic Collection, Eddie Koiki Mabo Library, James Cook University Library (Townsville, Qld).
- Garbutt, R. 2016. *Garbutt Family Footprint* (2016 unpublished history of the Garbutt family) held in the James Cook University Library (Townsville, Qld).