RALPH CUMING AND THE INTERSCAPULO-THORACIC
AMPUTATION IN 1808

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And some there be which have no memorial;
Who are perished, as though they had never been.—Ecclesiasticus.

In October 1882, Paul Berger, who was surgeon at the Hospital Tenon and Professor of Surgery at the Faculté de Médecine de Paris, amputated the whole upper limb of a patient with an enchondroma of the humerus. The next year he reported the result, and in 1887 published his classic work "L’Amputation du Membre Supérieur dans la Contiguïté du Tronc." This was the first detailed monograph on forequarter amputation and, in the historical review, Ralph Cuming was named as the originator of the operation. Berger added that it had been performed only twice for war injuries, once by Cuming in 1808 and once by Gaetani Bey in Cairo more than thirty years later. Meanwhile, in 1836, it had been used for the first time in malignant disease by Dixie Crosby in New Hampshire.

In 1894, Cuming’s priority was again recognised by W. W. Keen, Professor of the Principles of Surgery and of Clinical Surgery in the Jefferson Medical College. Keen published his results and gave a full description of his own technique as well as that of others including Berger. He reported another case in the following year. Both Berger and Keen were generous in recording the priority of Cuming despite the lack of any original record of his case, and the same scrupulous honesty has persisted to this day. Garrison gave him a place in the "History of Medicine," and Michael J. Smyth acknowledged his claim in the Medical Press (1946) and the British Medical Journal (1948). In all these references Cuming remained little more than a name, and even the date that was attached was not always the same.

Ralph Cuming was still a young man at the time of his death but there are many official reports of his work, many details of his life in the Service, and some account of the remarkable operation that he performed in the Naval Hospital at Antigua in 1808. As early as 1703 orders had been issued to Naval surgeons requiring them to keep journals and records of cases, and in 1731 there were further orders about these returns; but their value to posterity was not always recognised and many were destroyed, including all Cuming’s journals. The difficulties are increased by defects in the Surgeons’ Register which does not record his appointment as surgeon’s mate and includes no reference to his degree of M.D., though this appears in the Monthly Muster Book of the Naval Hospital at Antigua, in February 1808, and also in his obituary notice.

A Naval pay register shows that Cuming joined the Raison on July 16, 1795, and remained as her surgeon until November 1797. This was a period of discontent, with demands for improved medical care of seamen, culminating in the mutinies at the Nore and Spithead. From the Raison he was transferred to the Hind in which he served till the summer of 1800. In neither ship did he see action or have much opportunity for surgery. At that time the only provision for nursing was a berth situated against the forecastle bulkhead on the upper gun deck, or in the fore-part of the hold which was damp, unwholesome and filled with stench from the bilges. At the close of the century Captain Markham of the Centaur designed the improved sick berth that came to be known by his name, but only four ships in the Channel Fleet had this accommodation at the time that St Vincent was appointed to the command. Cuming was then appointed to the Redoubt and after six weeks was moved to the Leyden.
Despite the constant actions of this period it was again his fate to be excluded from active combat and to miss the experience in emergency amputation that was gained by many naval surgeons.

In February 1801, having left the Leyden a few months before she was sent by Nelson to Boulogne where casualties were sustained in action, Cuming was appointed to the Naval Hospital at Yarmouth. Four months later, after perhaps gaining some surgical experience, he returned to sea, this time for a month in Royal Oak and then in the St George which had been Nelson’s permanent flagship earlier in the year at the time of Copenhagen. His next ship, Ramillies, had also been at Copenhagen, but again he had no casualties to treat. The same fate attended him in Malabar of which he was surgeon for three months in 1805. He missed the action in which Malabar took part off Cuba in January 1806 and saw none throughout the year that he served in his last recorded ship Pegasus. It appears that throughout his life at sea the most serious injuries that he treated were those from accidental explosion of guns while reloading—a cause of many compound fractures and amputations.

These years must have seemed of little profit to Cuming, with his surgical bent, but there were many administrative reforms and changes in naval hygiene. The practice by which surgeons procured their own drugs was discontinued in 1796 and, in the next year, tea was substituted for the afternoon spirit ration. Preventive measures were introduced: cinchona bark in wine was given to all men employed on shore in the West Indies in 1797—a practice extended by Nelson to the Mediterranean station in 1803. The work of James Lind on scurvy had, at last, resulted in official prophylactic measures before he died at the age of eighty-three years (1799). The complacent acceptance of filthy conditions on the mess decks of ships, described so graphically by David Gillespie in his diaries, had given place to improved hygiene. In 1800, Lord St Vincent issued an order for the airing of hammocks and clothing, which, if one may judge from recent experience, must have been very unpopular. These were years of struggle for improved conditions of service, culminating while Cuming was in Ramillies with an Order in Council (January 22, 1805) establishing a uniform for surgeons and placing the medical service on an organised basis with relative ranks, though surgeons were only warrant officers. As yet, however, there was no official plan by which surgeons at sea could improve the slender knowledge with which they had passed their examinations on entry, and the fact that Cuming had few opportunities for emergency surgical experience makes his achievement all the more remarkable. He may well have felt that his professional lot was unhappy: "But we, brought forth and rear’d in hours of change, alarm, surprise—What shelter to grow ripe is ours? What leisure to grow wise?"

Soon after he left Pegasus, Cuming’s destiny changed. In 1806, Matthews and Leigh of 18 Strand, London, published “Naval, Military and Private Practitioners’ Amanuensis, Medicus et Chirurgicus . . .” The author, Ralph Cuming, M.D., R.N., was styled “Medical Superintendent to His Majesty’s Naval Hospital, Antigua.” No copy of his forgotten Amanuensis can now be traced; the name of Cuming was not to appear in print for another twenty-three years; but then it was to be made memorable.

In the London Medical Gazette, November 21, 1829, there was a long report by Mr J. Luke of the London Hospital of an operation performed successfully by him in October 1828 (pp. 235–239). He had removed three-quarters of the left scapula of a fourteen-year-old girl for sarcoma of the bone and it was said that she bore this formidable operation remarkably well “and did not faint.” The account was read by a former naval surgeon, Mr A. Copland Hutchison* who practised in Duchess Street, Portland Place, London; and the next week he sent a letter to the Gazette. Through this chance correspondence we learn of Ralph

* Alexander Copland Hutchison, F.R.C.S., author of ”Hutchison’s Surgery” and other works on surgery, served in the Navy from 1801 to 1807, and from his experience at sea, wrote books dealing with casualties in action and diseases among seafaring people. He became senior surgeon extraordinary to H.R.H. The Duke of Clarence and was senior surgeon to the Westminster General Dispensary.
Cuming's place in the history of surgery. In his letter Hutchison drew attention to a case he had seen in 1808 at Greenwich Hospital:

"A young sailor, about twenty-one years of age, presented himself for a pension on account of the total removal by operation of the arm, scapula and clavicle, and I perfectly remember our sending the man to the College of Surgeons, or to some one of the London hospitals, to be there examined as to the successful result of this formidable operation. Gun-shot wound, I think, was the injury inflicted, and the operation was determined on and performed by Dr Ralph Cuming, then surgeon of the Naval Hospital at Antigua."

In a subsequent letter, published on January 23, 1830, in the Gazette, Hutchison added that the case had been examined at St Bartholomew's Hospital. He added that there was no doubt that the surgeon had removed the forequarter at operation and that it was not a case of traumatic amputation by the shot that wounded the seaman. Cuming's priority in performing interscapulo-thoracic amputation rests on this evidence. Hutchison gave no other details, and the few records of the Naval Hospital at Antigua that have been preserved shed no further light.

From later reports of amputation it is possible to form an idea of the hazards of the operation. It was in that year that new regulations had been issued for the Home Hospitals and if Cuming's patient had been at Haslar or Plymouth he would have benefited from the greater care then given to patients—bathing with soap and warm water, clean bed shirts, night caps twice a week, linen sheets fortnightly, hair mattresses, blankets and pillows. The surgeon was urged "to soothe and cheer their minds by the most humane attention, to hear with patience all their complaints, to explain and redress as far as possible whatever they may think grievances, by every expression of consolatory kindness, which will naturally inspire them with confidence, exhilarate their spirits, and add to their hope of recovery, to which it cannot fail to contribute."

One nurse was to be allowed for every seven patients, with provision for night nurses. Hospital labourers cleaned instruments, prepared dressings, and attended patients when necessary.

Nevertheless few of the amenities provided in the new regulations for Home Hospitals can have been available in the Leeward Islands. "His Majesty's Naval Hospital at Antigua" was one of the many establishments that arose from the urgency of the times. The prevalence of yellow fever kept this small hospital full, and Cuming gained experience of this disease for he was responsible for the care of fever patients in addition to British wounded and wounded French prisoners-of-war. The buildings were placed on a low hill to the north-east of English Harbour, the dockyard on the south coast of the island which Nelson made one of his bases. These various establishments were gradually closed down at which end of hostilities, and by 1815 all naval staffs and stores had been centralised in Bermuda. But a map of Antigua, dated 1818, shows that the naval hospital was still in existence. The staff was indeed inadequate: it included only the surgeon, the second surgeon Robert Johnson, a clerk, matron, nurse, porter and barber, J. B. Douglas the dispenser, his negro assistant, and Pompey the watchman. By day, the entire nursing requirements were met by the matron and nurse: by night, "contractors' nurses" were hired to watch the sick. The whole establishment was administered by the hospital agent who was responsible for all expenditure; he himself drew the highest pay. Cuming's official pay was fifteen shillings a day, and three shillings and fivepence for rations; but he had so many allowances for other duties, such as attendance at the Yard, that in one quarter he was paid as much as £295, 12s. 9d.

Cuming was handicapped not only by limited nursing help but by primitive conditions and a tropical climate. The risk of sepsis was obviously great. Boiling of instruments after contact with septic cases had been advised in 1808, and knives were scalded because it was believed that warm instruments inflicted less pain than cold steel. Opium or rum was sometimes used for analgesia but this was exceptional. A piece of leather for his patient to chew may well have been given by Cuming when he placed the young sailor on the chair.
With more consideration for the clothes of the patient than for his comfort it was usual to remove them entirely at this stage. The assistants grouped themselves about the chair. * John Woodall, in 1639, prescribed a minimum of five assistants. Sir Charles Bell, † writing thirteen years after Cuming's operation, reduced the number of assistants to four and in his "Illustrations of the Great Operations of Surgery" (1821) gave a vivid description of amputation at the shoulder joint. The legend to his illustration reads:

"1) The assistant, or friend who supports the patient in his arms. 2) A stout assistant, who holds a sheet, which is round the patient's body, and who supports him against the pressure of the next figure. 3) The assistant surgeon, who stands behind the patient, and who, with his thumb, presses the sub-clavian artery, above the clavicle. 4) A junior assistant should be seated here (on the floor), as much as possible out of the way of the operator. His business is to hold the shattered arm; to raise it, and move the humerus as the surgeon may direct, during the operation. 5) The operating surgeon, who now sees that everyone is in his place and knows his duty, and understands to do what belongs to him, without bustle and without improper interference."

Cuming had but one official assistant in hospital and moreover, for the technique of the operation he contemplated, he can have had no precedent. It is true that in student days he must have studied Alanson's work on amputations, of which a second edition had appeared a few years previously. He may have read Cheselden's description of Samuel Wood, the miller who in 1737 suffered traumatic right forequarter amputation while at work and was removed to St Thomas's Hospital the next day thus learning that gross mutilation was not incompatible with survival. He may have foreseen the chief danger of the operation—air embolism of the subclavian vein. We do not know whether he compressed the subclavian artery with a hard dry sponge above the clavicle, or whether he first resected the clavicle and ligated the vessels; both methods were used subsequently. His next step would have been the formation of an anterior flap and division of the pectoral muscles and brachial plexus, while the assistant made tense with his hands the structures to be divided. A posterior flap would then be fashioned with separation of the soft parts from the scapula and rapid tearing of the tissues, held by strong linen or leather retractors as the upper extremity was dragged away. Keen, in the age of anaesthesia, said that he took two hours to perform the operation in a case of malignant disease, but Cuming almost certainly subordinated everything to speed and used rapid sweeping incisions. Bell stressed the need for decision and rapidity, declaring that "the knife is to be handled more like a sabre than a surgeon's scalpel." Haemorrhage from so vast an area must have caused great anxiety; its control was entirely digital. Close on half a century was to pass before another naval surgeon, Thomas Spencer Wells, working in the hospital in Smyrna during the Crimean War, introduced the forceps

* The identity of the patient cannot be definitely established but the Monthly Muster Book of the Naval Hospital at Antigua has two entries which are perhaps relevant. Thomas Jones of the Dominica, Quartermaster, was admitted on March 11, 1808; he had an arm amputated and remained till April 22, 1808, when he was discharged to the Pultusk for passage to join the Fleet bound for Europe. John McLiness of the Laura, was admitted on March 18, 1808, wounded by a shot in the left shoulder; he was discharged June 16, 1808, to the Lily for passage to Europe. It will be noted that McLiness remained in hospital ninety days, Jones forty-two days, suggesting that the wound was more serious than the amputation. There is no mention of amputation in the case of McLiness but this does not exclude the possibility of traumatic amputation before admission. This view is supported by a statement by Samuel Cooper in his "Dictionary of Practical Surgery" (Second edition, 1813, p. 483): "I have lately seen, in London, a young sailor, whose arm was completely torn off at the shoulder, by a cannon-ball from one of the Forts at Guadaloupe, in March 1808; he suffered no dreadful concussion of his body, nor were his senses at all impaired. This case was very remarkable as the scapula was so shattered, that Mr Cummings of Antigua, was under the necessity of removing the whole of it. The patient recovered in two months. From the account I heard, I do not believe the axillary artery bled immediately after the accident. The young man was lately shewn to the gentlemen at St Bartholomew's Hospital, quite well." The testimony of Samuel Cooper suggests that John McLiness was the patient. However, Copland Hutchison, in his second letter to the London Medical Gazette, already mentioned, stated specifically that the amputation was not traumatic and his evidence was not further disputed. This suggests that Thomas Jones was the patient.

† Sir Charles Bell (1774–1842), graduate of Edinburgh, anatomical writer and artist, lecturer on anatomy and surgery in the School of Great Windmill Street, surgeon of the Middlesex Hospital, Professor of Surgery, Edinburgh.
named after him. Cuming had to grasp the great vessels between finger and thumb while his assistant placed a ligature about them. Silk had displaced wax thread for this purpose, in accordance with the practice of French surgeons. When the wound was finally closed, and the edges were held in accurate contact with adhesive straps, it was probably dressed with a poultice, a method that remained in favour until it was displaced by the absorbent dry dressings introduced by Gamgee in 1855. Over the poultice were placed broad and long straps of adhesive plaster reaching across the back and breast. Finally a spica bandage was applied. Such cases were usually dressed on the fifth or sixth day when "emollient cataplasms" were applied to correct the tension and inflammation. Cuming would give his patient the customary thirty drops of laudanum, repeated twenty minutes later if there was no relief from pain. It was usual to give wine every two or three hours. "Symptomatic fever" was treated by purgation and barley water acidulated with *crem. tartar*. The healing of such a wound must have taken at least three months under the septic conditions in which Cuming worked. The whole record may horrify the surgeon of to-day, and yet we must respect the confidence and courage with which Cuming extended the frontiers of surgery under such immense difficulties. There is no doubt that he deserves a place in history with those of his great contemporaries.

In all these Leeward Islands there are enclosures, seldom frequented, to which the curious stranger may be drawn by shaded solitude or the glimpse of an obelisk or pillared urn. The dappled sunlight plays on inscriptions that record a great tragedy, for these are the graveyards of yellow fever. It is not that special cemeteries were reserved for its victims but that sometimes this was the only cause of death. The infection that decimated colonists, and swept away garrisons, cut down the young and vigorous. Throughout the spring and early summer of 1808 the number of "fever" admissions to the Naval Hospital at Antigua increased steadily and in the first six months of 1808 they accounted for nearly all the 650 admissions. The mortality was high and many patients were noted in the muster book as being in a dying state. Epidemics were capricious; they appeared sometimes in the urban population and at other times among the plantation workers; Europeans, newly arrived in the island, might escape while the seasoned garrison succumbed; whereas at other times the new arrivals died in great numbers. As late as 1866, when Thomas Nicholson published his "Essay on Yellow Fever," based on long experience in Antigua, it had proved impossible to arrive at any conclusion that would indicate the probable course of an epidemic, still less its cause. Blood-letting and massive doses of calomel and quinine proved uncertain remedies, and the authorities agreed that, since nothing could be done, the chief duty of medical officers was to cheer the victims and maintain their spirits. Cuming was a surgeon but he attended to the fever cases. He attempted a new method of treatment—the application of cooling dressings soaked in rum. In that climate they must at least have brought some relief and the results appeared to justify reports to the Admiralty. Cuming wrote asking for bottles and utensils; he wanted a further assistant—a "Hospital Mate"; he wanted a General Inspector of the hospital; he asked that his work as physician should be recognised since the Board had stopped all private practice. The many letters he sent to the Admiralty disclosed the strain under which he was working. On February 8 he wrote on a more serious matter, sending an affidavit respecting an affray between himself and Captain Napier of the *Pultusk*. The Board accepted his explanation and added, in their reply of April 7, that the iron cradles he needed were being sent; they asked to be informed further of his experiments on "Refrigeration with Rum." But in Antigua itself Cuming's relations were less satisfactory. It may be that his many activities, and the emoluments arising from them, were a cause of jealousy; it may be that he was trying to do too much, that he was too direct in his methods, and that he was lacking in sensibility. On February 9, 1808, he wrote to the Admiralty saying that the incidence and mortality of the fever could be reduced if certain local measures were taken. He referred to the ease with which sailors could procure rum, to the debilitating
effects of exposure to the sun and excessively heavy work, to the laxity with which men were allowed to sleep exposed to the night air, to the excessive shore leave and inadequate nutrition, and to the need for substitution of bread for biscuits. The soundness of his principles was established by the regulations that were framed later, but at the time they were probably no more than a source of irritation to the island authorities. The whole unhappy position is revealed in a letter from the Commander-in-Chief, the Hon. Sir Alexander Cochrane, Rear-Admiral of the White, dated February 4, 1808. He informed the Commissioners of the Admiralty that the surgeon at the Naval Hospital at Antigua had been involved in disputes and quarrels ever since his arrival in the island, that his complaints were so frequent and voluminous that the Commander-in-Chief could not attend to them all, that he was "litigious," that he was heartless, that while still in their hearing he declared that patients would die, and that he performed his professional duties in an ungracious manner. Cochrane asked that Cuming should be superseded. There could be only one answer to such a letter, and a pencil note was scribbled on it by the Board to the effect that immediate action was to be taken. Another marginal note on the letter states that Cuming was then dead.

The incidence of yellow fever in the region of the Naval Hospital and chief military station in Antigua was high. Thomas Nicholson, writing of the epidemic of 1849, remarked on how "indeed, the poisonous atmosphere appeared to be confined within very small limits," and it was within these limits that Cuming lived and that tragedy overtook him. On June 24, 1808, young Ralph Cuming, his son, died; and the next day he himself died. The notice that appeared in the Gentleman's Magazine for September 1808 is very brief and does not mention the infection that killed father and son. There is no relevant entry in the hospital muster book except that R. Johnson was appointed Surgeon on June 25. It is likely, however, that they died of the all-prevailing fever. The obituary pays tribute . . . "his loss will be severely felt . . . a very skilful and able surgeon" and there, far from his home in Romsey, Hampshire, the story of Cuming's brief triumph ends. It was only twelve years since he had been passed by the Company of Surgeons as second mate of a first rate "At a Court of Examiners holden at the Theatre the seventeenth day of April, 1794." He had more than justified the high estimate of his examiners.

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REFERENCES


Correspondence of Admiral the Hon. Sir Alexander Cochrane. MS. Ad. 1/329, 14, at Public Record Office, London.

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Gentleman’s Magazine (September 1808), 78, 851.


Instructions for the Naval Hospitals at Haslar and Plymouth (1808).


Monthly Muster Book, Naval Hospital, Antigua. MS. Ad. 102/8 at Public Record Office, London.


Regulations and Instructions relating to His Majesty’s Service at Sea, Established by His Majesty in Council (1808).


Surgeon’s Servitude Record, Public Record Office, London. Index, 9228, 228.