

summoned their neighbours all about them to assist them (I felt assured now) in our ruin.

But, though we were slow to war upon people whom I thought might be made friends the previous day, we were not slow to continue fighting if the natives were determined to fight. Accordingly I selected four experienced men to lead four several detachments, and gave orders that they should march in different directions through the valley, and meet at some high rocks distant five miles off; that they should size upon all cattle, and burn every village as soon as taken. Obedient to the command they sallied out of the camp and began the second day's fight. They were soon vigorously engaged with the enemy, who fled fast and furious before them to an open plain on the banks of the Leewumbu. The detachment under Farjalla Christie became too excited, and because the enemy ran imagined that they had but to show themselves to cause the natives to fly; but once on the plain—having drawn them away isolated miles from any succour—they turned upon them and slaughtered the detachment to a man, except the messenger, who had been detailed to accompany the detachment to report success or failure. I had taken the precaution to send one swift footed man to accompany each detachment for this purpose. This messenger came from Farjalla to procure assistance, which was at once despatched, though too late to aid the unfortunate men, but not too late to save the second detachment from a like fate, as the victorious enemy, after slaughtering the first detachment, had turned upon the second with the evident intention to cut the entire force opposed to them in detail. When the support arrived they found the second detachment almost lost. Two soldiers were killed. The captain, Ferahan, had a deep spear wound in his side. The others were hemmed in on all sides. A volley was poured into the rear of the astonished enemy, and the detachment was saved. With their combined forces our people poured a second volley, and continued their march almost unopposed to the northern and eastern extremity of the valley. Meanwhile, smoke was seen issuing from the south and south east, informing us that the third and fourth detachments were pursuing their way victoriously, and soon a score or more villages were enveloped in dense volumes of smoke. Even at a distance of eight miles we beheld burning villages, and shortly after fired settlements to the north and east announced our victory on all sides. Towards evening the soldiers returned, bringing cattle and an abundance of grain to the camp; but when the muster roll was called I found I had lost twenty one men, who had been killed, while thirty five deaths of the enemy were reported.

The third day we began the battle with sixty good men, who received instructions to proceed to the extreme length of the valley and burn what had been left the previous day. These came to a strong and large village to the north east, which, after a slight resistance, they entered, loaded themselves with grain and set on fire. Long before noon it was clearly seen that the savages had had enough of war, and were demoralized, and our people returned through the now silent and blackened valley without molestation. Just before daybreak on the fourth day, we left our camp and continued our journey north west, with provisions sufficient to last us six days, leaving the people of Ituru to ponder on the harsh fate they had drawn on themselves by their greed, treachery, and wanton murder, and attack on peaceful

strangers. We are still a formidable force, strong in numbers, guns, and property, though, for an expedition destined to explore so many thousands of miles of new countries, we had suffered severely. I had left the coast with over 300 men; but when I numbered the expedition at Mgonjo Tombu, in Iramba, which we reached three days after departing from the scene of our war, I found that I had but 194 men left. Thus, in less than three months, I had lost by dysentery, famine, heart disease, desertion and war, over 125 men, natives of Africa and one European. I have not time—for my work is but beginning—to relate a tithe of our adventure, or how we suffered. You can better imagine our perils, our novel and strange fortunes, if you reflect on the loss of 126 men out of such an expedition. Such a loss even in a strong regiment would be deemed almost a calamity. What name will you give such a loss when you cannot recruit your numbers, where every man that dies is a loss that cannot be repaired; when your work, which is to last years, is but beginning; where each morning you say to yourself, "This day may be your last?"

Referring to the nature of the country and the people through which he has passed to Lake Nyanza, Mr. Stanley says:—

Now, after our long journey, the Expedition is halted a hundred yards from the lake, and as I look upon its dancing waters I long to launch the *Lady Alice* and venture out to explore its mysteries. Though on its shore, I am as ignorant of its configuration and extent as any man in England or America. I have questioned the natives of Uchambi closely upon the subject at issue, but no one can tell me positively whether the lake is one or more. I hear a multitude of strange names, but whether they are of countries or lakes it is impossible to divine, their knowledge of it being very superficial. My impression, however, is that Speke, in his bold sketch and imagined outline, is nearer the truth than Livingstone, one, who reported of it upon hearsay at a great distance from its shores; but as soon as I can finish my letters to you and my friends the sections of the *Lady Alice* will be screwed together, and the first English boat that ever sailed on the African lakes shall venture upon her mission of thoroughly exploring every nook and cranny of the shores of the Victoria. It is with great pride and pleasure I think of our success in conveying such a large boat safely through the hundreds of miles of jungle which we traversed, and just now I feel as though the entire wealth of the universe could not bribe me to turn back from my work. Indeed, it is with the utmost impatience that I think of the task of writing my letters before starting upon the more pleasant work of exploring, but I remember the precept, "Duty before pleasure." I hear of strange tales about the countries on the shores of this lake, which make me still more eager to start. One man reports a country peopled with dwarfs, another with giants, and another is said to possess a breed of such large dogs that even my mastiffs are said to have been small compared to them. All these may be idle romance, and I lay no stress on anything reported to me as I hope to be enabled to see with my own eyes all the wonders of these unknown countries.

Rams, Guns, and Torpedoes.

If any lessons of practical utility can be gathered by our naval authorities from the circumstances attending the loss of the *Vanguard*, the half a million sterling now

lying at the bottom of the Irish Sea will not have been expended in vain. While all the ingenuity of the divers' science is engaged in the solution of the problem of how to get her up, it will be well if we improve the occasion by discussing the more important question of how to keep the remainder of our ironclad fleet from going down. In so doing we dismiss for the present the seaman's view of the subject. Whether it was by error or accident that the ship was struck we shall probably know very shortly; and the lessons which may be learnt on that important phase of the question will then be open for the study of every one who takes a patriotic interest in the efficiency of the *personnel* of the fleet. It is with the *materiel* side of the question that we are now concerned.

The singular character of the damage done to the side of the *Vanguard* by this collision merits the careful attention of the naval architect. It must be premised that the stems of the ships of the *Vanguard* class, although made of solid forgings, and strengthened to resist the shock of ramming, are yet not of the true ram shape. The contour of the stem is nearly straight, and, as a consequence, the portion of it near the water line will strike the side of a vessel of her own size before the spur projection has penetrated the bottom. Consequently, the shock of the collision between the *Iron Duke* and *Vanguard* was brought upon the armour plate belt of the latter ship, and not upon the thinly plated bottom. The warmest admirer of ram and ram warfare, in his most sanguine moods could scarcely have been prepared for the result that followed. That a ram, driven by a momentum of upwards of three million foot tons per minute, should treat a three quarter or an inch plate like pasteboard, and find its way some feet into the interior of a ship, was what everybody expected. But that eight inch armour plates, backed by ten inches of teak, and another inch and a half of iron, the whole stiffened by deep frames and girders, should likewise give way, and admit enough water to sink the ship in an hour, was what few, if any, could have anticipated. Had the ship been pierced beneath the armour belt, we should have learned nothing new, but, struck as she was, we have discovered most important facts regarding the formidability of the ram as a weapon of offence in naval warfare. The lesson has been an expensive one, it is true, but we do not see how such valuable facts could have been acquired in any other way. At all events it is an *experimentum crucis*.

But having discovered vulnerability in our ironclads of a character that was before unexpected, it behoves the authorities to set to work at once and devise some means of providing against such a contingency in future. Not the contingency of another collision between two ships of our own fleet—we trust that will never be repeated. The obvious method is to continue the inner bottom beyond the armour belt to several feet above the water line. If this is done, and a wing space of five or six feet is allowed between the armoured side and the inner bottom, there will be no fear of the recurrence of such a catastrophe as the sinking of a magnificent ironclad from a blow received at so strong a part of the ship as that where the *Vanguard* was pierced.

The cellular system of ship construction has never been carried out in its full entirety. We believe the *Inflexible* is the most perfect example of the unsinkable system that has yet been designed. The dimensions of our sea going ships are generally so limited that the stowage room required