

ceding volution, and covering but not concealing the umbilicus, or forming a true callus. Umbilicus small and deep.

Surface of the two outer volutions marked by strong, transverse undulations, or ridges, parallel to the margin of the aperture, and numbering about fifteen on the outer whorl; also, by coarse, revolving bands which cross the undulations and have slightly flattened interspaces; four of the bands occupying the space of about one-fourth of an inch on the middle of the outer volution. Substance of the shell very thick and solid.

When describing this species we had supposed it to be entirely new, not having recognized it in the description of the imperfect individual used by Mr. Meek; but on seeing his figure, above cited, we suspect it may only be a more strongly marked individual of that species, and although no direct comparison has been made, we do not hesitate to consider it in that light. It differs, however, in being more elevated and in the stronger vertical folds.

Formation and locality.—In beds of Cretaceous age overlying the Fort Pierre shales near the mouth of the Judith River, Montana.

APPENDIX OO.

ANNUAL REPORT OF LIEUTENANT EDWARD MAGUIRE, CORPS OF ENGINEERS, FOR THE FISCAL YEAR ENDING JUNE 30, 1876.

EXPLORATIONS AND SURVEYS IN THE DEPARTMENT OF DAKOTA.

CAMP ON THE YELLOWSTONE RIVER, NEAR THE MOUTH OF THE BIG HORN RIVER, July 10, 1876.

GENERAL: I have the honor to submit the following report of operations in the Department of Dakota from the date of my assignment to duty as chief engineer of the department to the close of the fiscal year ending June 30, 1876:

In obedience to orders received from the Adjutant-General's Office, I reported in person to Brig. Gen. A. H. Terry, at Saint Paul, Minn., on the evening of May 8, and was assigned to duty vice Capt. Wm. Ludlow, Corps of Engineers, United States Army, relieved. In compliance with orders from headquarters Department of Dakota, I left Saint Paul early on the morning of the 10th, and proceeded to Fort Abraham Lincoln, Dakota Territory, to join the troops about to take the field against the hostile Sioux. Mr. W. H. Wood, assistant engineer, with the detachment of enlisted men, had preceded me some days. On arriving at Fort Lincoln, I learned from the commanding general that, unless the services of my assistant were necessary, it was desirable that he should not accompany the column. As his services would have been simply a convenience to me, and in no respect a necessity, I directed him to return to Saint Paul, where he has remained. The detachment of the battalion of engineers, consisting of Sergeant Wilson and Privates Goslin and Culligan, has accompanied me on the expedition, and has performed most excellent service. Sergeant Becker, with two privates, had, previous to my assignment, been ordered to Montana to accompany the column under command of Colonel Gibbon, Seventh Infantry.

After a detention of a few days near Fort Lincoln, due to rain, we finally broke camp at 5 a. m., May 17, and the march westward was

commenced. The column was commanded by Brig. Gen. A. H. Terry, and was composed of the following troops: The Seventh Cavalry, commanded by Lieut. Col. G. A. Custer; a battalion of infantry, commanded by Capt. L. H. Sanger, Seventeenth Infantry; headquarters' guard, consisting of one company of the Sixth Infantry, commanded by Capt. Stephen Baker; a battery of three $\frac{1}{2}$ -inch Gatling guns, commanded by Second Lieut. W. H. Low, Twentieth Infantry; 45 Indian scouts, guides, and interpreters, under the command of Second Lieut. C. A. Varnum, Seventh Cavalry; the wagon and pack-trains and herd, with their numerous attachés. There was a total of 50 officers, 968 enlisted men, 190 civilian employés, and 1,694 animals.

I was furnished with a four-mule ambulance for the transportation of my instruments and men. To the wheels of this ambulance were attached the odometers.

The column reached Powder River without having seen an Indian, nor even a trace of recent origin. The only difficulties encountered, with the exception of a snow-storm, which commenced on the night of the 31st of May and lasted until the 3d of June, were those offered by the nature of the country to the passage of a heavily-loaded train. There was not a day that bridging was not necessary; but the journey through Davis Creek to the Little Missouri, through the Bad Lands immediately west of the latter stream, and then the descent into the valley of the Powder, demanded almost incessant bridging and road-making. We reached Powder River late in the evening of June 7. From this camp, Major Reno, Seventh Cavalry, with six companies of his regiment, was sent on a scout up Powder River to the forks, thence across to the Rosebud, and back to the mouth of the Tongue. On June 11, we marched down the valley of the Powder, and reached the Yellowstone, where a depot was established under command of Major Moore, Sixth Infantry. Leaving the wagon-train at this point, Lieutenant-Colonel Custer, with the troops and pack-train, proceeded to the mouth of Tongue River. General Terry and staff went on the steamboat to the same place, there meeting Reno, who reported that he had found a fresh heavy Indian trail, leaving the Rosebud in a westerly direction. The whole command was then moved up the Yellowstone to the mouth of the Rosebud, where we met Gibbon's column. At this point, a definite plan of campaign was decided upon; and, as this plan is clearly set forth in the letter of instruction furnished to Custer, I insert it in full:

CAMP AT MOUTH OF ROSEBUD RIVER,
June 22, 1876.

COLONEL: The brigadier-general commanding directs that as soon as your regiment can be made ready for the march, you proceed up the Rosebud in pursuit of the Indians whose trail was discovered by Major Reno a few days since.

It is of course impossible to give you any definite instructions in regard to this movement, and, were it not impossible to do so, the department commander places too much confidence in your zeal, energy, and ability to wish to impose upon you precise orders which might hamper your action when nearly in contact with the enemy. He will, however, indicate to you his own views of what your action should be, and he desires that you should conform to them unless you shall see sufficient reason for departing from them. He thinks that you should proceed up the Rosebud until you ascertain definitely the direction in which the trail above spoken of leads; should it be found (as it appears to be almost certain that it will be found) to turn toward the Little Big Horn, he thinks that you should still proceed southward perhaps as far as the headwaters of the Tongue, and then turn toward the Little Big Horn, feeling constantly, however, to your left, so as to preclude the possibility of the escape of the Indians to the south or southeast by passing around your left flank.

The column of Colonel Gibbon is now in motion for the mouth of the Big Horn; as

soon as it reaches that point, it will cross the Yellowstone and move up at least as far as the forks of the Big and Little Big Horns.

Of course, its future movements must be controlled by circumstances as they arise; but it is hoped that the Indians, if upon the Little Big Horn, may be so nearly inclosed by the two columns that their escape will be impossible. The department commander desires that on your way up the Rosebud you should thoroughly examine the upper part of Tulloch's Creek, and that you should endeavor to send a scout through to Colonel Gibbon's column with information of the result of your examination. The lower part of this creek will be examined by a detachment from Colonel Gibbon's command. The supply-steamer will be pushed up the Big Horn as far as the forks if the river is found to be navigable for that distance, and the department commander (who will accompany the column of Colonel Gibbon) desires you to report to him there not later than the expiration of the time for which your troops are rationed, unless, in the mean time, you receive further orders.

Respectfully, &c.,

E. W. SMITH,

Captain Eighteenth Infantry, Acting Assistant Adjutant-General.

Lieutenant-Colonel CUSTER,

Seventh Cavalry.

These instructions were supplemented by verbal information to Custer, that he could expect to find Gibbon's column at the mouth of the Little Big Horn not later than the 26th.

Pursuant to these instructions, Custer took up his line of march about noon on the 22d of June. His command (counting officers, enlisted men, and civilians) numbered nearly 650 mounted men. Both man and beast were in excellent condition, and there was not one of the command who was not filled with high hopes of success. Upon Custer's departure, General Terry and staff proceeded up the Yellowstone with Gibbon's column, and when near the mouth of the Big Horn the command was crossed to the right bank of the former stream. Gibbon's column, as now constituted, consisted of four companies of the Second Cavalry, five companies of the Seventh Infantry, and Lieutenant Low's Gatling Battery, amounting in all (including the civilian employés) to 377 fighting men. The night of June 24 we passed in camp on Tulloch's Creek. The next day we crossed the divide between Tulloch's Creek and the Big Horn, and reached the latter stream after a severe march of twenty-two miles. The country was exceedingly rough, hill after hill and ravine after ravine, with but little grass and plenty of the ubiquitous sage and cactus. The soil was alkaline, and the air was filled with dust, clogging up the nostrils, ears, and throat. In addition to this, the day was very warm, and not a drop of water to be obtained on the march. The infantry had understood that we were to follow Tulloch's Creek, and knowing that in that case they could obtain water at any time they did not fill their canteens. The consequence was that they suffered terribly, and numbers of men toward the close of the march dropped on the way, utterly exhausted. The refreshing sight of the Big Horn finally gladdened their hearts, and those left on the road having been brought in, they remained in camp that night. General Terry, taking the cavalry, pushed on, and a most wearisome and disheartening march we made of it. The night was black, and a cold rain drenched us. Besides this, we were obliged to cross a very rough country; and the descent and ascent of steep declivities, with no other guide than an occasional white horse, (if so lucky as to get directly behind one,) was anything but pleasant. The Indian scouts finally found a pool of alkaline water after a march of 12 miles, and we encamped in the mud for the short remaining portion of the night. About 11 o'clock the following morning (June 26) we were joined by the infantry near the mouth of the Little Big Horn, and we then proceeded up the

valley of that river. We went into camp that night only after the infantry had made a march of more than 50 miles in two days. The next morning the march was resumed, and we soon sighted two teepees in the valley. These teepees were filled with dead warriors, and were all that remained standing of a large Indian village. We found the ground strewn with skins, robes, camp-equipage, &c., indicating that the village had been hastily removed. The cavalry-saddles and dead horses lying around gave us the first inkling of the fact that there had been a fight, and that the troops had been worsted; but we were not prepared for the whole truth. As we passed on, we were met by Lieutenant Wallace, of the Seventh Cavalry, who informed us that Major Reno, with the remnant of seven companies, was intrenched on the bluffs across the river, where he had sustained a siege for nearly two days. We ascended the steep bluffs, and the welcome we received was such as to move even the most callous. Officers and men relieved their surcharged natures by hysterical shouts and tears. The question then arose on all sides, "Where is Custer?" The reply came only too soon. About 3 miles below Reno's position, we found the hills covered with the dead bodies of officers and men.

Of Custer's fight we at present know nothing, and can only surmise. We must be content with the knowledge gleaned from the appearance of the field, that they died as only brave men can die, and that this battle, slaughter as it was, was fought with a gallantry and desperation of which the "Charge of the Light Brigade" cannot boast. The bodies, with but few exceptions, were frightfully mutilated, and horrors stared us in the face at every step.

I proceed to give the details of Custer's march from the Rosebud, and of the battle, as I have been able to collect them up to the present time. On the 22d they marched 12 miles; on the 23d they marched 35 miles; on the 24th they marched from 5 a. m. till 8 p. m., or about 45 miles; they then rested for four hours. At 12 they started again and proceeded 10 miles. They were then about 23 miles from the village. They reached the village about 2 p. m. on the 25th. They had made a march of 78 miles in a day and a half, and, Captain Benteen tells me, without a drop of water. At some distance from the village, Custer made his disposition of the regiment. He ordered Benteen, with three companies, to move to the left and scour the country for Indians. He ordered Reno, with three companies, to advance parallel with his (Custer's) own command. When the village was sighted, he ordered Reno to charge with his three companies, telling him that he would be supported. Reno crossed the river at the point A, (see sketch herewith,) and moved down the woods at C without encountering much opposition. On reaching this latter point, the men were dismounted and deployed as skirmishers on the line indicated on the sketch. The Indians immediately swarmed around them, and Reno, finding that they were getting in his rear in large numbers, remounted his command and charged through them in retreat to the bluffs on the opposite side of the river. There were Indians on all sides of them, and Lieutenant McIntosh and several enlisted men were actually pulled from their horses and butchered. The command, with some loss, including Lieutenant Hodgson, reached the bluffs, and, being joined by Benteen and his command, they succeeded in keeping the Indians off. Benteen had received an order from Custer to hurry up, as the village had been struck, and in moving up he saw Reno's retreat, and joined him on the bluffs as quickly as possible. The Indians were all around them, and kept up an incess-

sant fire of unerring accuracy. In the mean time, Custer had gone down stream and attempted to make a crossing at the point B, but was met by an overpowering force, and the troops retreated to the hills in rear in order to procure a more defensible position. From the position of the dead bodies on the field, I conclude that they retreated on the two lines marked on the sketch to concentrate at E, which was the highest point of the ground. At the hill D a stand was undoubtedly made by the company under command of Lieutenant Calhoun to protect the men passing up to E. Lieutenants Calhoun and Crittenden were killed on this hill. Captain Keogh was killed about half-way up the slope to E. The column which retreated along the line B H E must have been dismounted, and, fighting along the whole distance, a portion of its men, taking to the ravine H for shelter, must have been surrounded by the Indians. There were twenty-eight bodies found in this ravine. From H to E stretched a line of dead men with skirmish intervals. The crest E was literally covered with dead officers and men. Here we found General Custer and his brother, Captain Custer, Captain Yates, Lieutenant Smith, Lieutenant Cook, and Lieutenant Riley. The Indians must have been present in overwhelming numbers, for this part of the fight did not, from all accounts, last over two or three hours.

As night came on, the attack on Reno ceased, and the troops were enabled to intrench. The attack was renewed early on the morning of the 26th, and continued until late in the afternoon, when the Indians, seeing Gibbon's column advancing in the distance left Reno, and, packing up their village, moved off toward the Big Horn Mountains. The number of Indians is estimated to have been fully 3,000 warriors, and they marched off with all the precision of movement and regularity of formation of the best-drilled soldiers. The officers tell me that they (the Indians) fought with the utmost bravery and coolness, and that they were well drilled and disciplined. Volleys were fired by them at the commands "Ready! Aim!! Fire!!!"

The casualties of the Seventh Cavalry are as follows:

Killed.—Lieut. Col. G. A. Custer, Seventh Cavalry; Capt. M. W. Keogh, Seventh Cavalry; Capt. G. W. Yates, Seventh Cavalry; Capt. T. W. Custer, Seventh Cavalry; Lieut. W. W. Cook, Seventh Cavalry; Lieut. A. E. Smith, Seventh Cavalry; Lieut. D. McIntosh, Seventh Cavalry; Lieut. J. Calhoun, Seventh Cavalry; Lieut. J. E. Porter, Seventh Cavalry; Lieut. B. H. Hodgson, Seventh Cavalry; Lieut. H. M. Harrington, Seventh Cavalry; Lieut. J. C. Sturgis, Seventh Cavalry; Lieut. W. V. W. Riley, Seventh Cavalry; Asst. Surg. G. E. Lord; Act. Asst. Surg. DeWolf; Lieut. J. J. Crittenden, Twentieth Infantry—16 officers; 252 enlisted men; 9 civilian employés: 277 killed; 59 wounded. The number of Indians killed and wounded is not known.

We remained two days on the field to bury the dead and burn the material left by the Indians, and then returned to the boat with the wounded, who have all been sent to Fort Lincoln. We are here waiting in camp for instructions.

There are some conclusions which force themselves upon the mind as indubitable. They are as follows:

1st. The number of Indians was underestimated at the outset of the campaign.

2d. The courage, skill, and, in short, the general fighting ability of the Indians has heretofore been underestimated and scoffed at. It has been forgotten that the Indian traders, by furnishing the Indians with the best breech-loading arms, and all the ammunition they desire, have

totally changed the problem of Indian warfare. Sitting Bull has displayed the best of generalship in this campaign. He has kept his troops well in hand, and, moving on interior lines, he has beaten us in detail.

3d. The Indians are the best irregular cavalry in the world, and are superior in horsemanship and marksmanship to our soldiers, besides being better armed. Our regiments of cavalry are composed of men about three-fourths of whom are recruits, who have never fought with Indians. They are never drilled at firing on horseback, and the consequence is that the horses are as unused to fighting as the men themselves, and become unruly in action.

4th. The carbine has not a sufficiently long effective range, and, considering it simply as a weapon for close encounters, it has not the advantages of a magazine-gun.

The trail has been kept, and observations with the sextant have been made whenever practicable.

Very respectfully, your obedient servant,

EDW. MAGUIRE,

First Lieutenant Corps of Engineers,

Chief Engineer, Department of Dakota.

Brig. Gen. A. A. HUMPHREYS,

Chief of Engineers, U. S. A.

APPENDIX P P.

ANNUAL REPORT OF CAPTAIN W. S. STANTON, CORPS OF ENGINEERS, FOR THE FISCAL YEAR ENDING JUNE 30, 1876.

EXPLORATIONS AND SURVEYS IN THE DEPARTMENT OF THE PLATTE.

HEADQUARTERS DEPARTMENT OF THE PLATTE,

ENGINEER OFFICE,

Omaha, Neb., September 23, 1876.

GENERAL: I have the honor to submit the following annual report of surveys and reconnaissances in the Department of the Platte for the fiscal year ending June 30, 1876:

Congress having made no appropriation for surveys and reconnaissances in military divisions and departments, my assistance has been limited to the services of one draughtsman. Work has been, therefore, restricted necessarily in the field to minor surveys, and in the office to the preparation of maps of those surveys, and to work of a routine character incidental to the headquarters of a department, such as the preparation of various plots and tracings, the mounting and preparation of maps for issue, the issue of maps and drawing-materials to officers and posts, and the compilation of the very meager and imperfect information elicited in connection with the movements of troops.

Because of the utter want of the necessary means, no progress of importance has been made with the large amount of work obviously and urgently needed to advance the maps of the department from the