The Scientific American.

NOTES ON NAVAL AND MILITARY AFFAIRS.

THE ENEMY'S PLAN.

Our last week's account left the armies of Pope and Lee forcing each other on cpposite sides of the Rappahannock river, 51 miles southwest from Alexandria, on Saturday 23d of August. It now seems that a heavy force had been previously detached by General Lee, and sent under the orders of General T. G. Jack son (the famous and able "Stonewall" Jackson), and of General Longstreet, to make a wide circuit to the west, and coming down in the rear of Pope, to cut off his communications with Alexandria; while Lee should advance and overwhelm him with the main Rebel army.

JACKSON'S PART OF THE PLAN ABLY EXECUTED.

The energetic Jackson proceeded with his corps some 40 miles to the west beyond the Blue Ridge into the valley of the Shenandoah, and marching down this valley 30 miles, turned sharply to the right, and passing through a gap in the Blue Ridge, and through another gap in the Bull Run Mountains, came down upon the railroad in Pope's rear at Bristow Station and Manassas, on Tuesday evening August 26th. This is the course of one corps of Jackson's army, but another portion marched down on the east side of the Blue Ridge, and joined the first as they came through. Manassas is 27 miles from Alexandria, and Bristow is the next station, four miles beyond.

ATTACK ON BRISTOW AND MANASSAS.

The advanced cavalry of Jackson's corps dashed in upon the railroad, 12 miles of which was being guarded by a regiment of Pennsylvania cavalry, dispersed our cavalry and seized a large quantity of clothing and provisions which had been collected for the use of our soldiers. The clothing they immediately put on in place of their own worn garments, and the supplies which they could not carry off they destroyed. They also tore up the rails of the road, and burnt the cars, locomotives and bridges.

Our most serious loss, however, was a number of cannon, stated by some accounts as high as nine, which the enemy seized with their ammunition and turned upon our troops.

THE SKIRMISH OF THE NEW JERSEY BRIGADE WITH THE REBELS.

When our commanders on the Alexandria side of this break in the communications learned the fact, the first New Jersey Brigade was sent down to drive off the enemy; it being supposed that only a small cavalry force had made the attack. But the brigade was lured into the midst of overwhelming forces and suffered severely.

On Wednesday, the 27th, at two A. M., General Taylor, of Slocum's division, Franklin's corps, then lying four miles from Alexandria, received orders to move and drive away the enemy from Manassas, which place they occupied early in the night after their successful raid upon Bristow Station. This brigade consisting of the First, Second, Thiru and Fourth New Jersey regiments, under General George W. Taylor, proceeded, in accordance with their orders, to the bridge called the Long Bridge, where a skirmish ensued with the enemy's pickets, stationed on the opposite side. As a matter of course, the rebel pickets retired, but for the purpose of leading our forces into new and untold dangers and destruc tion only. The Jersey brigade crossed the bridge, without advanced skirmishers, about ten o'clock following the rebel pickets to Manassas plains, which position they were ordered to occupy.

Arriving within sight of the extensive plain, one battery opened upon our column, which had formed in echelon. The General ordered his men forward with a dash to take the battery which had already. in its commanding position, commenced to mow down his men, having no idea that others were in readiness to be opened at a favorable opportunity. Proceeding under a hot fire from the first battery, and still beyond musket range of the enemy, the gallant Jersey boys, in obedience to orders, marched forward. They had not proceeded many rods before a second battery opened a cross fire upon them, which, in their peculiar formation, swept their ranks, but did not throw them into confusion, though they were too far distant to return the compliments of the rebels with their long range guns.

General Taylor had not a single piece of artillery

tire affair. The Third battery of artillery did not of the battle :make itself known until our forces had advanced a mile and a half upon the plain from where they encountered the batteries Nos. 1 and 2. The ordnance used by the Confederates was that taken from us at Bristow's, and the missiles discharged were grape and canister.

This third murderous and destructive fire from the batteries of the rebels showed the utter folly of any further attempt to hold the plains of Manassas, so the brigade fell back by an about face movement, having inflicted little or no loss to the enemy, save, perhaps, in the skirmish at the bridge.

The brigade retired in good order under the enemy's fire until they reached Bull Run. At this place there was considerable confusion and panic. This was, however, owing partly to the arrival, at an inopportune moment, of the Eleventh and Twelfth Ohio, who had been sent to support the Jersey brigade. When the regiments debouched they be came mixed, but this was soon remedied. We lost in this engagement about 500 prisoners, who were released, however, on parole. General Taylor was mortally wounded.

GENERAL POPE'S MOVEMENTS.

During Jackson's long march General Pope was slowly falling back along the railroad to form a junction with the reinforcements which were coming down from Alexandria, and he had reached Warrenton Junction, 10 miles from the Rappahannock, when he learned the arrival of Jackson's division in his rear. At this time Pope's army was spread from the railroad northwest 8 miles along the Warrenton branch to Warrenton; this disposition having apparently been made to prevent the flank movement of Jackson which was executed by a longer circuit. The following dispatch of General Pope gives a brief history of his next movements :--

MANASSAS JUNCTION, August 28. To MAJOR-GENERAL H. W. HALLECK :--

MANASSAS JUNCTION, August 28. To MAJOR-GENERAL H. W. HALLECK :--As soon as I discovered that a large force of the enemy was turning our right toward Manassas, and that the di-vision I had ordered to take post there two days before had not yet arrived from Alexandria, I immediately broke up my camp at Warrenton Junction and Warrenton, and marched rapidly back in three columns. I directed McDowell, with his own and Sigel's corps, to march upon Gainesville by the Warrenton and Alexandria pike ; Reno and one division of Heintzelman to march on Greenwich, and with Porter's corps and Hooker's division I marched back to Manassas Junction. McDowell was ordered to interpose between the forces of the enemy which had passed down to Manasses through Gainesville, and his main body moving down from White Plains through Thoroughfare Gap. This was completely accomplished, Longstreet who had passed through the Gap being driven back to the west side. The forces to Greenwich were designed to support Mc-Dowell in case he met too large a force of the enemy. The divisiou of Hooker, marching toward Manassas, came upon the enemy near Kettle run on the afternoon of the 27th, and after a sharp action routed them completely, killing and wounding three hundred, capturing camps and baggage and many stand of arms. This morning the command pushed rapidly to Manassas Junction, which Jackson had evacuated three hours in advance. He retreated by Centerville, and took the turn-pike toward Warrenton. He was met six miles west of Centerville by McDowell and Sigel late this afternoon. A severe fight took place, which was terminated by dark-ness. The enemy was driven back at all points, and thus the aftair rests. Heintzelman's corps will move on him at daylight from Centerville. and I do not see how the enemy is to completely

ness. The enemy was unven seen at a daylight from the affair rests. Heintzelman's corps will move on him at daylight from Centerville, and 1 do not see how the enemy is to escape without heavy loss. We have captured one thousand pris-oners, many arms and one piece of artillery. JOHN POPE, Major General.

The truth of this dispatch has been since confirmed by the more reliable accounts of correspondents. We make this remark in consequence of the reputation which Gen. Pope has earned by his famous dispatch from the South of Corinth announcing his capture of 10,000 prisoners and 10,000 stand of arms, which was a simple falsehood.

By examining the map it will be seen that this movement of Pope drove the enemy from the railroad toward the west, our forces stretching round Jackson's corps to the east and south, while McDowell's corps was beating back Longstreet's division through the gap in the Bull Run Mountains at the Thus affairs stood at the close of Thursday, west. Aug. 28th.

THE GREAT BATTLE OF FRIDAY.

It was now manifestly Pope's design to overwhelm Jackson before the arrival of reinforcements. Mc-Dowell was accordingly instructed to hold Longstreet in check, and Gen. Banks was stationed at Manassas Junction to prevent Lee from coming up in the rear while the other divisions were hurled against Jack-

nor a squad of cavalry in his column during the en- son's army. The following is General Pope's account

GROVETON, NEAR GAINESVILLE, August 30, 1862.

TO MAJOR-GENERAL KALLECK :-We fought a terrific battle here yesterday with the com-bined forces of the enemy, which lasted with continuous fury from daylight until after dark, by which time the enemy was driven from the field, which we now occupy.

enemy was driven from the field, which we now occupy. Our troops are too much exhausted to push matters, but I shall do so in the course of the morning, as soon as Fitz John Porter's corps comes up from Manassas. The eneny is still in our front, but badly used up. We have lost not less than eight thousand men killed and wounded, and, from the appearance of the field, the enemy have lost at least two to our one. He stood strictly on the defensive, and every attack was made by ourselves. Our troops have behaved splendidly. The battle was fought on the identical battle field of Bull run, which greatly increased the enthusiasm of our men.

The news just reaches us from the front that the enemy is retreating toward the mountains. I go forward at once to

We have made great captures, but I am not able yet to form an idea of their extent. JOHN POPE, Major General Commanding.

THE GREAT BATTLE OF SATURDAY.

On Saturday morning the battle was renewed. and in the course of the day we drove the enemy back some two miles, but Pope discovered that instead of a mere corps of Jackson's he had the whole rebel army of Gen. Lee before him, greatly outnumbering the divisions of our troops on the ground. At about 4 o'clock in the afternoon Gen. Lee concentrated his reserves in an attack on Pope's left wing under Mc-Dowell, and this unfortunate commander was obliged to fall back. In the course of the evening the other divisions were also drawn back by General Pope to Centreville; leaving our dead and wounded on the field.

ARRIVAL OF REINFORCEMENTS.

Early on Sunday the corps of Generals Sumner and Franklin arrived from Alexandria. There was but little fighting during this day, both armies resting after their terrible fatigues.

FALLING BACK ON MONDAY.

On Monday General Pope learned that an attempt was to be made to again turn his right wing and fall upon his communications. He accordingly fell back from Centreville to Fairfax Court House. During this operation the enemy made an

ATTACK ON RENO'S DIVISION.

As this division was pursuing its line of march, and when within one mile and a half of Fairfax Court House, a heavy volley from a force of riflemen came pouring in upon them from the woods to the right of the road. This occurred at 4 P. M. The rebel force was a detachment from Gen. Hill's division, and was commanded by Gen. Stewart. The volley was almost entirely received by Gen. Steven's brigade, composed of the 28th Mass., 8th Mich., 50th Pa., 100th Pa., and 46th N.Y. Reno and Stevens immediately formed their commands in line of battle to repel the attack of the enemy, now concealed in the thick shrubbery of the woods. Gen. Stevens rode up and down his lines gallantly, rallying his men, intimidated by repeated volleys from an unseen enemy. Unable to cope with them in the position they then held, Gen. Stevens ordered his men to fix beyonets and charge them out through the woods. This order was gallantly responded to by his men. who pressed the enemy and drove them before them with great slaughter. While thus charging them, Gen. Stevens was hit with a Minié ball and instantly killed, but not until the enemy had been routed. Capt. Stevens, the son of the General, was also wounded in the hand. Kearney's batteries now opened on the rebel forces, causing sad havoc among the rebel ranks. Skirmishing was kept up for about three hours, whan the enemy retreated, and the trains passed on unmolested. General Stevens commanded one of the surveying parties across the continent, and was afterward Governor of Oregon Territory.

BURYING THE DEAD

On Monday, at 1 o'clock, General Pope sent a flag of truce to General Lee, with a party to take care of the wounded and bury the dead. It is estimated that 1,800 bodies of our soldiers who had given up their lives for their country, were lying upon the battle field. The enemy's dead had been buried in the night by negroes, the rebel generals vcry shrewdly sparing their troops the most disheartening of all services that fall to the soldier's lot-that of burying

the pale corpses of their comrades. In this respect, as in all others, the rebel generals seem to show a marked superiority over those in the Union armies.

CITY POINT DESTROYED BY UNION GUNBOATS. City Point has been entirely destroyed by the Union gunboats. For some time past the rebels have been firing into the transports passing up and down the James river. Commodore Wilkes sent the rebels word that if it was not discontinued he should destroy their rendezvous, City Point. On Thursday August 28, the rebels brought down to City Point eight cannon and about two hundred riflemen, and opened fire upon the Union flotilla, which at the time was abreast of the place, whereupon our gunboats opened fire upon them and demolished every building in the place, and dispersed the rebel force.

DISASTERS AT THE WEST.

At the same time with the great reverses in Virginia, we have the news that Lexington, Ky., was abandoned to the rebels on Monday, Sept. 1st., and that Cincinnati was threatened and placed under martial law. Tremendous excitement prevailed at Louisville, and the whole community was called upon to aid in defence of the place.

CARE OF THE FEET.

We have received from the publishers, Bradley & Webb, of Cincinnati, a pamphlet of 111 pages on the Causes and Cure of Diseases of the Feet, with Practical Suggestions as to their Clothing, by C. H. Cleaveland, M. D.

It discusses elaborately and with apparent intelligence the various diseases of the feet with their treatment. We give the following extracts as being of general interest :-

CLOTHING OF THE FEET.

From the first wearing of socks and shoes, great care and attention are requisite. In childhood, the socks in summer should be made of fine cotton or silk, in cold weather of a woolen fabric, and of sufficient length that every toe may have room to extend itself.

The feet should be washed evening and morning, the same as are the hands, and wiped thoroughly dry. particularly between the toes, and the nails should not be cut too often, nor at any time shorter than to be on a level with the tops of the toes. It is also advisable that the shoes be a size larger than the foot, and made of soft leather.

WASHING THE FEET.

In addition to washing the feet, as recommended above, it is quite necessary that foot baths should be resorted to in a great variety of conditions of the feet. Ordinarily the proper time for taking a foot bath is at night, just before retiring to rest; but under peculiar circumstances, to be mentioned, they may be demanded at other times in the day.

The employment of foot baths, whether hot or cold, must depend greatly on the difference of constitution and habit. For persons advanced in age, the tepid bath is preferable, particularly if they are subject to gout or rheumatism. Any sudden change of temperature in such cases might do harm, and the feet ought not to be put into water of any kind while the patient is actually suffering from either of those disorders, except by the direction of the medical attendant.

In advanced age persons should not generally bathe the feet; they would, however, derive great comfort from sponging them once or twice a week, or oftener, with soap and warm water, wiping them thoroughly dry immediately afterward, then using the flesh brush or the hand and rubbing off the loose cuticle or scales with a coarse towel. When there is an accumulation between the toes, a fine cloth, wetted with eau de Cologne or any other spirit, may be drawn backward or forward between them two or three times a week.

Adults in good health may bathe their feet every afterward, and then rub eau de Cologne freelv over them with the palm of the hand. When dressing for dinner the feet should be washed with soap and water in the same manner as the hands.

EXTIRPATION OF CORNS.

Extirpation of corns, by the chiropedists, is usually effected by a careful process of cutting and tearing out the central portion of the corn, while the circum- would fresh layers of cork be produced. This idea he possession of for military purposes.

ference of the diseased part is left to serve the purpose of taking off pressure from the more tender portion at the seat of the disease. Some of these peripatetic operators make use of the tincture of iodine or some other substance that will produce a stain of the surface, under pretense of using ε ome secret means to deaden the sensibility of the parts, but such washes do no good. A continued use of some solution of iodine. with the removal of all pressure. will, in time, cure some corns, and especially the softer ones, but acetic acid of the proper strength is preferable.

The only sure and complete cure for a corn is its complete removal, and the wandering chiropedists either have not skill or have not patience sufficient to produce this result, and hence seldom or never produce a radical cure. After a hard corn has been extirpated, acetic acid, or a solution of iodine should be applied to the part, until all remains of the disease have disappeared. Even then, if pressure is allowed, a new corn is quite liable to occupy the seat of the old one.

TREATMENT OF BLISTERS.

In marching, if blisters rise on the toes or heel, they should at once be punctured with a needle, passing the needle a little distance under the sound skin so as to produce a valvular opening to prevent the introduction of air as the fluid passes out. If not sooner attended to, all blisters should be opened in the evening after the foot bath, and the fluid gently pressed out, and then the patient assuming the horizontal position they may not fill up again, and by morning they may be nearly or quite well. Sometimes blisters form on the end of the toes, or on the heel, and the person is not required to resume the march on the following day. In such cases it may be as well to let such blisters remain unopened, and as the water is absorbed and the dead skin becomes dry it should be removed.

Production of Cork.

In the "Mémoires de la Société de Physique" of Geneva, is an interesting paper by M. Casimir de Candolle on the growth of cork. Although this useful substance exists in varying quantity in the bark of all phanerogamous plants and in several cryptogamous, yet for commercial purposes it is wholly procured from two species of oak. Quercus occidentalis. growing in the south-west of France and in Portugal, and from Quercus Suber (the cork tree), growing in the south east of France, in Italy, in Algeria, and in the isles of the Mediterranean. The acorns of the former species take two years to ripen. In 1859 M. C. de Candolle, while staying in Algeria, studied the development of the bark of the latter species. It is composed of four layers-the epidermis, the corky envelope, the cellular envelope, and the liber which covers the soft wood. These four parts increase independently of each other year by year. In the third or fourth year the epidermis, having attained the limits of its elasticity, splits longitudinally, and a marked change takes place in the corky envelope, which gradually takes up the appearance of true cork : new layers are produced, and the transformation of cellulose into cork steadily goes on. The cork thus naturally developed has no commercial value. It is termed "male;" and the first act (dèmasclage) of the cultivator is to separate it from the trunk, which thus leaves exposed the liber, termed "mother." The tree is then left to itself, and the cork begins to grow again, while the sap is flowing in consequence of the exposure of the liber. If a trunk left in this state several months be cut down, in the section a ring of cork will be found formed in the interior of the "mother," at a variable distance from the surface of the trunk. All the exterior portion of the "mother" is dead, and splits as the tree grows, and the interior portion (new cork, termed "female'') is developed. This "female' cork grows in the same manner as the "male," that morning with cold water, wipe them thoroughly dry is, by the addition of annual layers on the internal surface : but it is much finer and more elastic, and is the cork of commerce. These various stages of growth are exhibited in a series of beautiful plates. In the course of his researches M. de Candolle was led to observe the importance of the desiccation of the "mother," and to infer that, in proportion as this desiccation could be hastened, so much sooner

found to be correct. He observed several trees in which fires, after having charred the male or female cork, had determined the formation of a layer of female cork in the interior of the "mother." He states that he has seen a specimen, composed of three layers of "female" cork, separated by little zones from the "mother;" the fourth layer, which enveloped the whole, having disappeared in consequence of the fire. The thickness of these zones, increased by the application of boiling water, does not diminish by cooling. Other peculiarities of this remarkable substance are noted in the memoir.

Extracts for Young Men.

Give a young man a taste for reading, and in that single disposition you have furnished him with a great safeguard. He has found at home that which others have to seek abroad, namely, pleasurable excitement. He has learned to think even when his book is no longer in his hand, and it is for want of thinking that youth go to ruin.

Some of those who have been most eminent in learning and science made their first attainments in snatches of time stolen from manual employment. Hans Sache, the poet of the Reformation, and the Burns of Germany, began life as did Burns, a poor boy; he was a tailor's son and served an apprenticeship, first to a shoemaker and afterward to a weaver, and continued to work at the loom as long as he lived. The great dramatist, Ben Johnson, was a working bricklayer, and afterward a soldier. Linnæus, the father of modern botany, was once on the shoemaker's bench. Our immortal Franklin, it need scarcely be said, was a printer. Herschel, whose name is inscribed on the heavens, was the son of a poor musician, and at the age of fourteen years was placed in a band attached to the Hanoverian guards. After going to England he undertook to teach music, and then became an organist. But while he was supporting himself in this way he was learning Italian, latin and even Greek. From music he was naturally led to mathematics, and thence to optics and astronomy. John Dollond, the inventor of the achromatic telescope, spent his early years at the silk loom; and continued in his original business even for some vears after his eldest son came to an age to join him in it. Few cases are more celebrated than that of Gifford, the founder and editor of the Quarterly Review. He was an orphan, and barely escaped the poor-house. He became a ship boy of the most menial sort on board of a coasting vessel. He was afterward for six years apprenticed toa shoemaker. In this last employment he stole time from the last for arithmetic and algebra, and for lack of other conveniences, used to work out his problems on leather with a blunted awl. Few names are more noted in modern literature.

Government Tax on Gas.

OFFICE OF THE NEW YORK GAS LIGHT COMPANY. } UFFICE OF THE NEW YORK GAS LIGHT COMPANY. { August 1, 1862. } In conformity with the act of Congress, the United States tax of one and one-half cents per hundred cubic feet, will be added to all bills for gas consumed after the first day of September next. THOMAS K. LEES, Convergence . LEES, Secretary.

The above notice has been left at our office and at the dwellings, stores, shops and offices of all gas consumers in this city. Now, we object to the Gas Companies in this or any other city transferring Government tax from themselves to the consumers. It was not the intention of the framers of the law that the consumers should pay this tax, but that the companies who furnish the gas should pay it as their proportion of the income tax. If the consumers are obliged to pay the tax, the Gas Company is relieved from the assessments which nearly all other classes in the community are unable to shirk.

The Great Exhibition as Seen by a Votary of Science On another page will be found a very interesting letter from London describing some of the most important articles to be seen at the Great Exhibition. The writer is a distinguished scientific gentleman who is spending a few weeks abroad, and his impression of the Exhibition and a description of what he saw will be found of interest.

ILLINOIS STATE FAIR POSTPONED.—The annual State Fair of Illinois, which was to have been held at Peoria, on the 16th of this month, has been postponed until next year on account of the grounds upon which it was to have been held being taken